

Appendix C
Section a.
Continuing Programs
From 2010-2012

Statewide Programs

2013-2014 CalSPREE PIP Addendum

Program Name	CalSPREE	Date Submitted	July 2, 2012
Subprogram Name	Energy Advisor Plug Load & Appliances Multifamily Energy Efficiency Rebate Whole Home Upgrade Residential HVAC Residential New Construction	Utility Name	SoCalGas
Program ID	SCG3701 SCG 3702 SCG3704 SCG3705 SCG3706 SCG3707	IOU Program Contact	Kevin Shore
		Program Cycle	2013-2014

This form is to be used to document any required changes to the Program Implementation Plans (PIPs). The following are triggers that will require a PIP change:

1. Changes to eligibility rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission-Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

4. Portfolio Budget and Other Commission-Directed Changes	▼
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Driver of Change:

Aim to reduce the complexity in IOUs’ portfolios while increasing customer participation.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

The current 2010-2012 CalSPREE Program consists of 8 sub-programs:

1. Multifamily Energy Efficiency Rebate
2. Home Energy Efficiency Rebates
3. Home Energy Efficiency Survey
4. Prescriptive Whole House Retrofit

The new 2013-2014 CalSPREE Program will be simplified and consist of 6 sub-programs:

1. Energy Advisor
2. Plug Load and Appliances
3. Multifamily Energy Efficiency Rebate
4. Whole Home Upgrade
5. Residential HVAC
6. Residential New Construction

The new 2013-2014 CalSPREE Program will be simplified and consist of 6 sub-programs:

PIP Section and/or Wording to be Changed or replaced:

Changes are throughout the 2013-2014 Statewide CalSPREE PIP

Replacement Language or Information

Refer to Description of Program of 2013-2014 CalSPREE PIP for details on changes

Revised Energy Savings (If Any):

Refer to 2013-2014 CalSPREE PIP for details

Other PIP Changes Required:

Refer to 2013-2014 CalSPREE PIP for details of other changes

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- 1. Program Name:** CalSPREE¹ Program
Program ID: SCG3701 SW-CALS-Energy Advisor
 SCG3702 SW-CALS-Plug Load and Appliances
 SCG3704 SW-CALS-MFEER
 SCG3705 SW-CALS-EUC WHUP
 SCG3706 SW-CALS-Residential HVAC
 SCG3707 SW-CALS-RNC
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW CALSPREE					
3701	SW-CALS-Energy Advisor	\$167,588	\$160,179	\$1,383,230	\$0	\$1,710,997
3702	SW-CALS-Plug Load and Appliances	\$523,573	\$1,666,475	\$5,801,862	\$9,139,986	\$17,131,897
3704	SW-CALS-MFEER	\$127,778	\$299,591	\$304,548	\$1,679,633	\$2,411,550
3705	SW-CALS-EUC WHUP	\$720,979	\$1,281,711	\$5,084,689	\$3,609,600	\$10,696,979
3706	SW-CALS-Residential HVAC	\$9,846	\$0	\$46,590	\$250,000	\$306,436
3707	SW-CALS-RNC	\$368,533	\$224,200	\$2,137,739	\$2,982,914	\$5,713,387
	TOTAL:	\$1,918,298	\$3,632,156	\$14,758,659	\$17,662,134	\$37,971,247

3. Projected Program Gross Impacts Table

The IOU's funding request for the proposed 2013-2014 CalSPREE Program as detailed in Table 1 above. The IOUs believe this amount is reasonable, results in a cost-effective portfolio that meets the Commission's energy savings targets for 2013-2014, and supports market transformation and the Strategic Plan.

Table 2

Program #	Main/Sub Program Name	2012-2013 Gross kW Savings	2012-2013 Gross kWh Savings	2012-2013 Gross Therm Savings
	SW CALSPREE			
3701	SW-CALS-Energy Advisor	0	0	0
3702	SW-CALS-Plug Load and Appliances	300	595,034	1,515,807
3703	SW-CALS-Plug Load and Appliances - POS	4,725	11,330,000	1,729,201
3704	SW-CALS-MFEER	7	11,593	1,157,850
3705	SW-CALS-EUC WHUP	0	0	684,288
3706	SW-CALS-Residential HVAC	0	0	0
3707	SW-CALS-RNC	2,287	1,619,704	383,064
	TOTAL:	7,318	13,556,332	5,470,210

4. Program Description

¹ D.09-09-047, p. 7, refers to the statewide residential energy efficiency subprograms as the California Statewide Subprograms for Residential Energy Efficiency ("CalSPREE")

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The 2013-2014 Residential Sector program, part of the overall Energy Upgrade California (EUC) program, is designated as the California Statewide Program for Residential Energy Efficiency (CalSPREE).

CalSPREE will offer and promote both specific and comprehensive energy solutions for residential customers. By encouraging adoption of economically viable energy efficiency technologies, practices, and services, CalSPREE will employ strategies and tactics to overcome market barriers while delivering services that support the CPUC's Long Term Energy Efficiency Strategic Plan.

The ultimate focus of CalSPREE is to:

- Facilitate, sustain, and transform the long-term delivery and adoption of energy-efficient products and services for single and multi-family dwellings;
- Cultivate, promote and sustain lasting energy-efficient behaviors by residential customers through a collaborative statewide education and outreach mechanism; and
- Meet customers' energy efficiency adoption preferences through a range of offerings including single-measure incentives and more comprehensive approaches.

To date, the California IOUs have employed a number of different residential energy efficiency subprograms that are in various stages of maturity and availability across the state. For 2013-2014 and beyond, the IOUs will integrate all of these subprograms to coordinate efforts and increase comprehensiveness of measure delivery.

CalSPREE will conduct a combination of integrated DSM and program specific marketing and outreach to drive ongoing customer participation and behavior change. Both integrated and program-specific marketing activities will work in coordination with the SW ME&O and will serve to complement those efforts.

Integrated marketing and outreach will gather, create, and deliver information to customers in a way that (1) bundles programs, products, and information and (2) customizes delivery for individual or groups of targeted customers based on market intelligence, segmentation analyses, self-selection activities, and event-based knowledge of customer's actions. To drive ongoing customer engagement, marketing and outreach will target customers with the right message, through the right channel, at the right time. Integrated marketing will cross-sell relevant DSM programs and services that emphasize the benefits of participation in multiple programs.

Additionally, program specific marketing and outreach will be conducted in order to increase participation and reach specific program goals. Program specific marketing and outreach will target customers with a high potential to participate in a specific programs or service.

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For example, through the Plug Load and Appliances program, customers identified as having a pool may receive a targeted direct mailer prior to summer encouraging them to take advantage of the pool pump and motor rebate. By motivating customers to take an initial action, it will enable the utilities to engage customers in an ongoing conversation about the next steps they can take towards becoming better energy managers. Additionally, program specific marketing and outreach enables the utilities to conduct activities necessary to support the measure, such as developing Point of Sale rebate stickers that are placed on select appliances to drive program participation. These efforts drive enrollments that enable the utilities to meet specific program goals.

A mix of communication channels and languages will be used to reach a diverse audience. Communication channels may include: web, call center, bill messaging, email, social media, direct mail, retail partnerships, community- and faith-based partnerships, outreach, events, local government partnerships, general and ethnic media.

CalSPREE is comprised of the Energy Advisor, Plug Load and Appliances (PLA), Multi-Family Energy Efficiency Rebates (MFEER), Whole Home Upgrade (WHU), Residential Heating, Ventilation, and Air Conditioning (HVAC), and Residential New Construction (RNC) subprograms. These subprograms are described in more detail below.

Short description of each sub-program

The 2013-2014 CalSPREE includes the following six subprograms:

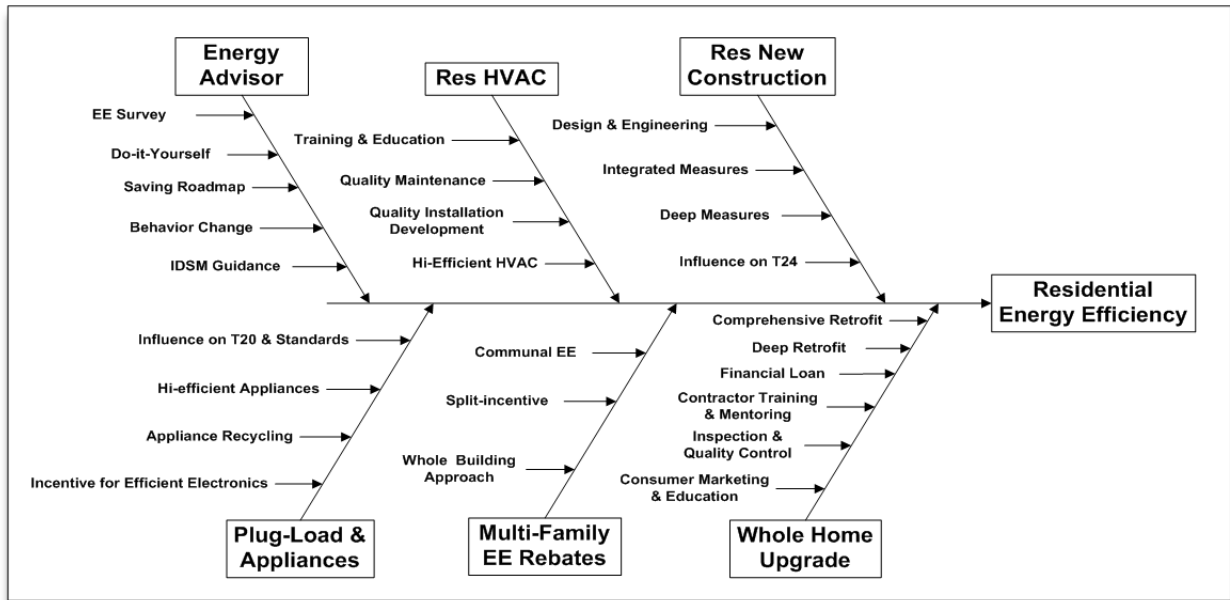
- a) Energy Advisor (EA).** The Energy Advisor subprogram will utilize interactive tools designed to engage customers and encourage participation in innovative initiatives. These initiatives are designed to help customers understand and empower them to manage their energy use, and will guide them, where appropriate, towards advancing whole-house energy solutions. Although the IOUs share similar Energy Advisor subprogram theory, design, and goals, they may implement subprogram logistics differently because of their different service territories.
- b) Plug Load and Appliances (PLA).** The Plug Load and Appliances subprogram merges the previous Home Energy Efficiency Rebate (HEER), Business Consumer Electronics (BCE) and Appliance Recycling subprograms. This subprogram will develop and build upon existing retailer relationships and will include recycling strategies and whole house solutions, plug load efficiency, performance standards, and opportunities for integration with local government, water agencies, Publically Owned Utilities (POUs), and the Demand Side Management (DSM) subprogram.
- c) Multi-Family Energy Efficiency Rebates (MFEER).** The MFEER subprogram is a continuing subprogram. This subprogram will promote energy efficiency by providing equipment rebates to owners and tenants of multifamily properties, including residential apartment buildings, condominium complexes, and mobile home parks. It will be coordinated with the Energy Savings Assistance (ESA) and the WHUP Programs.

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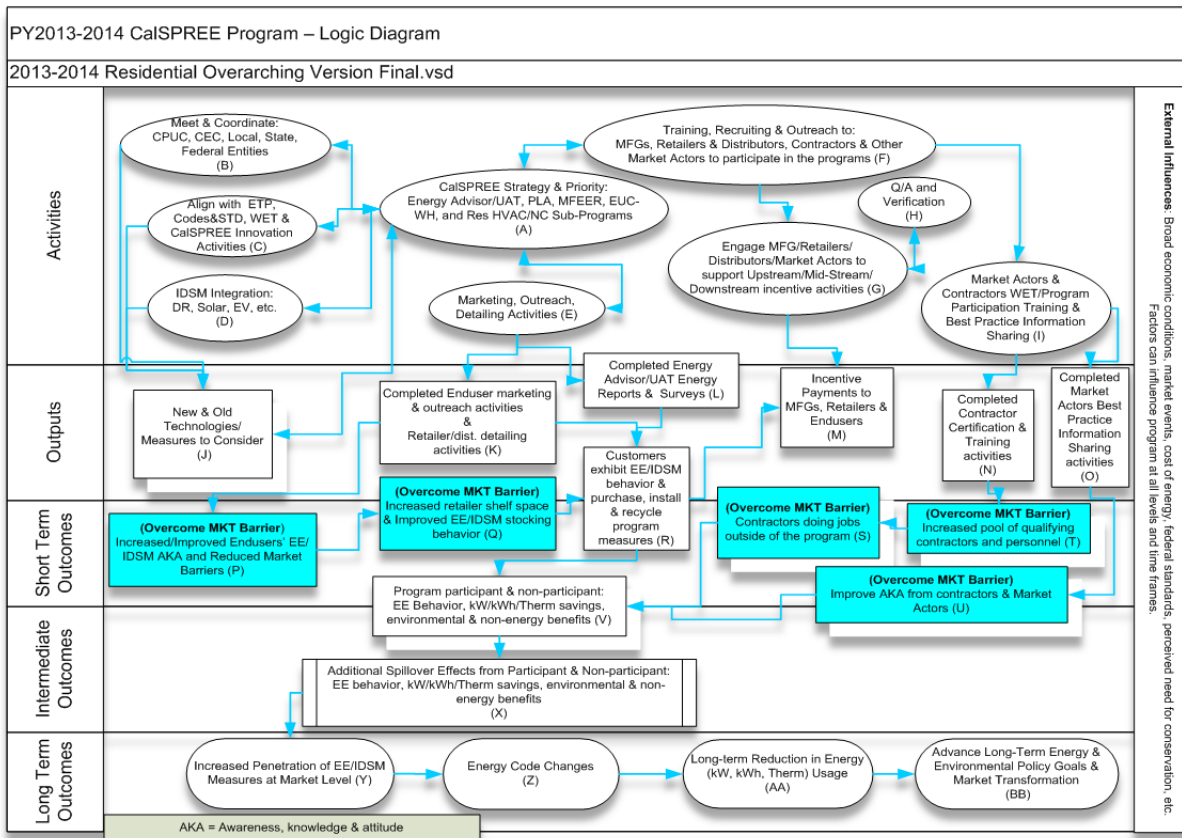
- d) Whole Home Upgrade Program (WHUP).** The Whole Home Upgrade (WHUP) subprogram is a continuing program which began as Energy Upgrade California in the 2010-2012 residential energy efficiency portfolio of the four California Investor Owned Utilities (IOUs) – Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas). For 2013-2014, the WHUP will consolidate the previously separate Prescriptive Whole House Retrofit (PWHRP) and Local Whole House Retrofit (WHRP) and the introduction of a Multifamily component. The WHUP sub-program is designed to build customer and contractor awareness of the house-as-a-system approach to residential retrofits and the many benefits of improving the comfort, safety, and energy savings potential of the house. The WHUP approach promotes both Basic and Advanced Paths to retrofiting; these complementary paths will be presented to customers as one comprehensive offering.
- e) Residential Heating, Ventilation, and Air Conditioning (HVAC).** The Residential HVAC subprogram is a continuing program with the primary objective of driving high quality levels in California's HVAC market for technology, equipment, installation, and maintenance. An additional objective is to increase customer awareness of the value of HVAC installation and maintenance practices toward driving energy efficiency and peak load reduction. The Residential HVAC subprogram will incorporate revised measures and incentives, policies and procedures, quality assurance, marketing materials, website, and contractor training in performing HVAC installation services for residential customers.
- f) Residential New Construction (RNC).** The RNC subprogram is a continuing statewide program that consists of the California Advanced Homes Program (CAHP) and, in Southern California, the Energy Star Manufactured Homes (ESMH) Program. The Program is designed to help guide builders to produce the most efficient homes in the most cost-effective manner, and will examine methodologies for supporting the Strategic Plan target of zero net energy (ZNE) by 2020.

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CalSPREE Program Diagrams



5. Program Logic Model



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- 1. Program Name:** Energy Advisor Program
Program ID: 3701
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 - reference the CalSPREE for budget details

2. Projected Program Gross Impacts Table

Table 2 - reference the CalSPREE for projected savings details

4. Program Description

a) Describe program

This program is a continuation of the existing statewide Energy Advisor Program (formerly known as the Home Energy Efficiency Survey-HEES program) within the residential energy efficiency portfolio. Although SDG&E, SCE, PG&E and SoCalGas share similar program theory, design and goals, each IOU may implement its program logistics differently.

In 2013-2014, the Energy Advisor program will continue to help customers understand and empower them to manage their energy use, and will guide them, where appropriate, towards advancing whole-house energy solutions. The subprogram utilizes behavioral outreach initiatives and interactive tools designed to engage customers and to encourage participation in innovative initiatives to reduce their energy consumption through behavioral solutions, program recommendations and, as warranted, IDSM opportunities.

b) List Offerings

Offerings vary by IOU, as outlined below:

Offerings	SCE	SoCalGas	PG&E	SDG&E
Online Survey	X	X	X	X
Mail-in Survey	X	X	N/A	X
Telephone Survey	X	N/A	X	N/A
Multifamily Survey	X	X	N/A	X
In-home Survey	X	N/A	TBD	N/A
Home Energy Reports	TBD	TBD	X	X
Online Buyer's Guide	X	X	X	X

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Energy Kits	N/A	X	N/A	X
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c) List Non-incentive Customer Services

The Energy Advisor Program offers customers with interactive engagement and detailed outputs on their actual energy usage, including:

- Rate and usage analysis, and
- Household usage data and comparison.

In addition, the program provides information and literature on energy efficiency and IDSM Programs:

- Residential Energy Efficiency
- California Solar Initiative (CSI)
- Peak Demand Initiatives (DR)

The information provided through the Energy Advisor program will be coordinated on a statewide level. This information provided will include historical usage data for customers. The program options provide a platform to measure sustainable reductions in energy usage for the customer and the IOU's. In addition, data collected from the survey questionnaire will be utilized to provide targeted marketing and strategic planning opportunities for all Residential energy efficiency and demand response programs. The Energy Advisor program will be the primary mechanism to drive customers to save energy by educating the customer on their household usage, while comparing household usage with similar households. Statewide coordination efforts may also afford the program to provide information promoting the whole-house approach with information leading customers to whole-house products and services, including energy efficiency product and service providers, rebate program applications and customer service touch points.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless

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indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Energy Advisor Program (Resolution E-4385, Appendix A, p 34).

SW PROGRAM/ Sub Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
Energy Advisor (EA)	Percentage of Energy Advisor participants that enroll in (a) whole house and (b) other resource programs	2b

b) Market Transformation Indicators (MTI)

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

c) Program Design to Overcome Barriers

Promoting energy and water efficiency to the residential customer provides opportunities to foster market transformation. The main barriers include:

- Lack of current energy performance;
- Lack of energy efficiency information;
- Lack of awareness of specific measures and practices

To overcome these barriers, the Energy Advisor Program will provide accurate and comprehensive information about energy and water saving strategies, customized recommendations and suggestions for energy and water conservation and installation of energy-saving measures, and detailed analysis of energy billing, energy usage, and energy costs, based on actual household consumption. This information encourages permanent changes in customers’ attitudes and actions toward energy conservation by helping them understand their usage, as well as providing information on a wide variety of possible measures, practices, and actions. The program will also continue to provide information in multiple languages to overcome language barriers for non-English-speaking customers.

Marketing is a key component in the success of the Energy Advisor Program, first to generate awareness of the program, and second - and more important - to encourage completion of a survey. Marketing plans will be discussed statewide to ensure consistency and sharing of best practices.

Statewide delivery mechanisms continue to include online tools. The individual utilities may also provide other survey and engagement offerings if they feel these types are

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warranted. Online tools will be coordinated with a statewide emphasis to share best practices. Each IOU will have a delivery method capable of serving customers in multiple languages to bridge language barriers among California’s diverse population.

It is necessary to persuade Californians to commit to energy conservation. For many, this will be a gradual process facilitated by readily available, well placed educational materials that help the customer understand their energy usage and encourage the customer to make the greater commitment to participate in behavior and equipment based IDSM improvements. In accordance with the driving behavior change elements of energy improvement, each utility will seek to reach at least 5% of their customers through a variety of behavior change inclusive offerings.

SoCalGas Behavioral:

Behavioral savings are funded through SoCalGas Advanced Meter project, Decision 10-04-027, which found conservation estimates as reasonable and required SoCalGas to ensure that the estimated conservation savings are attained. SoCalGas will establish a system to track and attribute the conservation impacts of its AMI rollout. Every six months, SoCalGas shall file a report of measured savings. If the project is falling short of SoCalGas’ projections the company will submit revisions to its outreach plan to increase awareness, participation, and durability of conservation actions among customers.

Upon completion of the Advanced Meter project, SoCalGas will incorporate successful behavioral programs and techniques into the energy efficiency portfolio.

While the interactive survey and/or reports and action plans should result in changes in customer utilization, it cannot be considered a conclusion of the process. Rather, once customers have been engaged through the Energy Advisor program, utilities may motivate them to achieve even greater conservation savings through additional education on-line, by e-mail, by mail, by telephone, or through any other appropriate mechanism.

d) Quantitative Program Targets

The proposed targets may be modified due to funding restrictions, especially for the 2013-2014 transition period (transition years).

IOU	Program Target by 2012	Program Target by 2013	Program Target by 2014
SDG&E	3,000	5,000	5,000
SCE	21,875	26,000	26,000
SoCalGas	10,000	10,000	10,000

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PG&E	40,000	40,000	40,000
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e) Advancing Strategic Plan goals and objectives

The Energy Advisor program will advance the strategic plan goals and objectives of the Strategic Plan as outlined:

- Goal 2.2: Residential Sector including Low-Income - Tracking Transform home improvement markets to apply whole-house energy solutions to existing homes - The Energy Advisor Program will plan to deliver a new survey which will strive to implement decision triggers and call to action to support advancement of whole-house energy solutions. The surveys and/or reports will also pursue initiatives to reduce the growth of plug load energy consumption through behavioral and technical solutions.
- Goal 8.3: DSM Coordination and Integration - Deliver integrated DSM options that include efficiency, demand response, energy management and self generation measures, through coordinated marketing and regulatory integration - The Energy Advisor Program will seek opportunities to partner with municipalities, governmental and water agencies and other stakeholders if applicable to promote water and energy conservation. Further integration strategies may also include IDSM, Energy Savings Assistance (ESA) program and other energy efficiency programs.
- Goal 9.2 - Workforce, Education and Training - Ensure that minority, low-income and disadvantaged communities fully participate in training and education programs at all levels of the DSM and energy efficiency industry - This strategy falls in line with a goal of the WE&T Strategic Plan intended to ensure that minority, low-income and disadvantaged individuals fully participate in training and education programs at all levels of demand-side management and energy efficiency.

6. Program Implementation

a) Statewide IOU coordination

i. Program delivery mechanisms

The Energy Advisor Program is delivered to customers through multiple offerings. See section 4) b) above for program offerings by utility.

ii. Incentive levels

This program does not offer monetary incentives.

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iii. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

Marketing efforts will be coordinated statewide to develop a portfolio of communication methods. The utilities can use these methods, including but not necessarily limited to, blast e-mails, flyers, on-line marketing, direct mail, trigger marketing, and/or lifestyle packages as suits the target audience, the message, and the resources.

iv. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Energy Advisor program does not interact, as such, with other programs or organizations. However, the program will maintain the flexibility to coordinate program services to support initiatives generated by agencies.

v. Similar IOU and POU programs

The Energy Advisor program provides a consistent and recognizable presence throughout the state and offers a menu of similar services and processes implemented statewide by PG&E, SDG&E, SCE and SoCalGas. The program will work with municipalities, when applicable to offer this service and/or partner in the information provided. Efforts will be made to provide consistent reporting of program results across the state where applicable.

The program also will be implemented in close association with other residential energy efficiency programs. The Energy Advisor program will be the starting point for residential customers to tap into the IOU's residential energy efficiency services. Through marketing, education and outreach, each program will encourage end-users to adopt multiple measures to gain the benefits associated with an integrated whole-house approach to energy efficiency.

The Energy Advisor program will leverage its survey information to provide information and referrals to other energy efficiency programs. Aggregated data from on-line surveys and other program efforts will be examined to provide direct marketing opportunities as applicable.

The Energy Advisor program collaborates with the ESA program by making the service available to them and by providing customers with residential program information. Energy Advisor will coordinate with local and other outreach efforts, as appropriate.

b) Program delivery and coordination

i. Emerging Technologies (ET) Program

The Energy Advisor program will collaborate statewide with emerging technologies initiatives and incorporate other measures into the customer energy report, as warranted, to support the Strategic Plan.

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- ii. Codes & Standards program**

Continuous improvements and enhancements will be coordinated statewide to ensure the Energy Advisor Program maintains consistency with updates to codes and standards. Additionally, whenever analysis of the Energy Advisor program related data suggests an area that may be of interest to codes and standards, the program will proactively provide appropriate direction.
- iii. WE&T efforts**

The Energy Advisor program will collaborate with WE&T efforts where appropriate to share information and best practices.
- iv. Program-specific marketing and outreach efforts**

In addition to the statewide marketing efforts outlined above in Section 6.a.iv, the program may be utilized as an outreach mechanism in conjunction with CBOs, faith-based organizations, local community events, fairs, etc.
- v. Non-energy activities of program**

The Energy Advisor program is a successful effort to reach consumers through self, and in some cases direct, contact in ways that consumers prefer. The Energy Advisor Program will serve customers in multiple languages and through different delivery channels. Utilities will improve the Energy Advisor program prominence through creative initiatives such as: analyzing websites to insure high visibility of the Energy Advisor offerings; utilizing telephone representatives to explain and suggest Energy Advisor offerings to callers; describing Energy Advisor offerings in conservation literature; promoting Energy Advisor offerings in conjunction with community outreach efforts, etc., when applicable.
- vi. Non-IOU programs**

The program will promote non-utility programs (e.g. financing options, tax credits, and recycling) to further encourage customers to adopt energy efficiency measures when applicable.
- vii. CEC work on EPIC**

The Energy Advisor program will work with the statewide Emerging Technology Program, CEC and EPIC to take advantage of all new emerging technologies activities. The information may be shared in the customer energy report.
- viii. CEC work on C&S**

The Energy Advisor program will work with the statewide codes and standards to take advantage of new emerging technologies activities. The information may be shared in the customer energy report.
- ix. Non-utility market initiatives**

The Energy Advisor program will coordinate with non-utility energy resources (i.e. DOE's ENERGY STAR®, CEE, etc., if applicable) to provide customers with information on energy efficient lighting, appliances, and equipment.

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c) Best Practices

Statewide best practices are outlined below:

- Customer Usage History: Because the program includes comprehensive usage and billing information, Energy Advisor will continue to promote the survey program as a way to educate customers on their potential energy savings opportunities;
- Targeted marketing: On a statewide level, the Energy Advisor program will continue to focus its marketing campaigns toward residential and multifamily households with higher usage. As mentioned, the program may also be utilized as an outreach mechanism in a variety of community organizations. This approach reduces overall marketing costs by maximizing the response rates generated from marketing efforts.

d) Innovation

The Energy Advisor program will integrate the on-line survey with "My Account" on-line customers to streamline the customer experience, making it more efficient and convenient. Software updates will take into account updates to climate zones, weather regions, demographics, and improved household comparison analysis. This information will also allow for the integration of gas- and water-related measures and information. The IOUs will integrate the on-line survey with customer historic data to streamline the customer experience, making it more efficient and convenient.

The current survey will be replaced by standardized Universal Audit Tools (UAT) developed by each IOU and coordinated at a statewide level to share best practices. The tools will incorporate electricity/gas, energy efficiency, water conservation, demand response and self-generation analysis and will provide tailored set of recommendations for each type of survey, as appropriate. The UAT incorporates applicable rate and bill analysis functionality, similar home comparison as well as IOUs' adopted and recommended emerging technologies, as appropriate.

The utilities projected schedules for implementation of their Residential Universal Audit Tools are as follows:

Residential Universal Audit Tool Deployment Schedule	
PG&E	March 2012
SCE	March 2012
SoCalGas	October 2012
SDG&E	May 2012

The utilities will continue to meet to share best practices for future UAT developments and enhancements where appropriate.

e) Integrated/coordinated Demand Side Management

The analysis portions of the residential survey programs will be expanded to include demand response and distributed generation. This would be accomplished by adding on

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to the current survey formats. Customers will be provided recommendations for demand response and distributed generation opportunities for their residence in addition to Energy Efficiency and Behavior change opportunities. Customers will also be referred to information for these programs, when appropriate. Reports will be shared with demand response and distributed generation programs for additional action if needed.

f) Integration Across Resource Types (energy, water, air quality, etc)

The Energy Advisor Program will continue to include recommendations across resource types, as applicable.

g) Pilots/Initiatives:

Statewide Pilot – ESA program Initiative: Statewide, the Energy Advisor program will begin to encourage eligible customers to participate in the ESA programs and other programs that will help them lower their energy consumption.

Statewide Initiative – Online Buyers Guide: The Online Buyer’s Guide (released in 2012) web capability will assist consumers and program participants in making the best energy efficiency purchase decisions. The statewide IOUs will continue to collaborate and share best practices on the online buyers guide in 2013-2014.

PG&E/SDG&E Initiative – Home Energy Reports: PG&E and SDG&E will continue to evaluate (SCE and SCG may explore) the benefits of a behavior-based energy efficiency outreach utilizing a neighbor comparison approach as authorized by the CPUC in Decision D.09-09-047 (p. 304) for the 2013-2014 transition period. Known as the “home energy reports” initiative, it involves mailing selected residential customers customized reports at scheduled intervals that compare the energy use of a specific report recipient household to a similar set of households. The home energy report concept is aligned with the IOU’s energy efficiency education and outreach goals under the Energy Advisor (EA) program. The program is designed to increase customer awareness and understanding of their energy usage, and to provide beneficial information on how customers can reduce their energy usage. The demonstrated benefits associated with this behavioral paradigm may serve as an appropriate resource to influence customers to reduce their energy consumption and to increase participation in existing and future energy efficiency programs.

SCE/SoCalGas/SDG&E Pilot - Multi-Family Program: SCE, SoCalGas, and SDG&E intend to offer the Energy Advisor Program to the multifamily sector as a pilot program in 2012-2014. This will involve surveys targeted at the facility owners. The resulting recommendations for the owner will focus closely and specifically on overall property efficiency.

SCE/SoCalGas Pilot: SCE and SoCalGas will provide a quarterly, post-survey feedback mechanism (opt-in) for customers. The pilot initiative will provide customers with a comprehensive energy usage report and will contain historical usage data to reinforce positive trends towards sustainable energy conservation. The mechanism should also

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increase customer actions in response to the survey, so that the Energy Advisor program continues to monitor its effectiveness in creating energy savings by behavioral change, as well as rebate program participation.

SCE/SoCalGas Pilot – Smart Meter/Web analytics – SCE and SoCalGas will track the customer’s My Account energy savings benefits from behavior based energy efficiency content through the Energy Advisor program.

h) EM&V

The program is meant to encourage action - to inform participants of opportunities to save money and provide resources to execute the recommendations. It will be important to know if the design of the survey is successfully imparting useful knowledge, referring participants to helpful resources, and if this coordinated effort is motivating participants to adopt more energy- and water-efficient behaviors.

The utilities plan to work together and with the Energy Division to develop a complete plan for 2013-2014 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval, together with the PIPs.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided here.

The Statewide Energy Advisor program has been continued from past program cycles but has a few new program elements. The Energy Advisor program has planned a preliminary process evaluation near the end of the first program year to address specifically how well the new program elements are operating, and to obtain recommendations on how to improve program operations. After the beginning of the last program year, a full process evaluation will address researchable issues based on the program theory and logic model. These issues will include the following as appropriate:

- How well the Energy Advisor program participants learned about advancing whole-house energy solutions;
- How well the Energy Advisor program participants learned behavioral solutions to plug-load energy consumption;

- Whether integration of water-related measures and information was useful to the customer; and
- Whether the individual IOU pilot programs were successful.

To address these issues, the following major evaluation tasks will be completed:

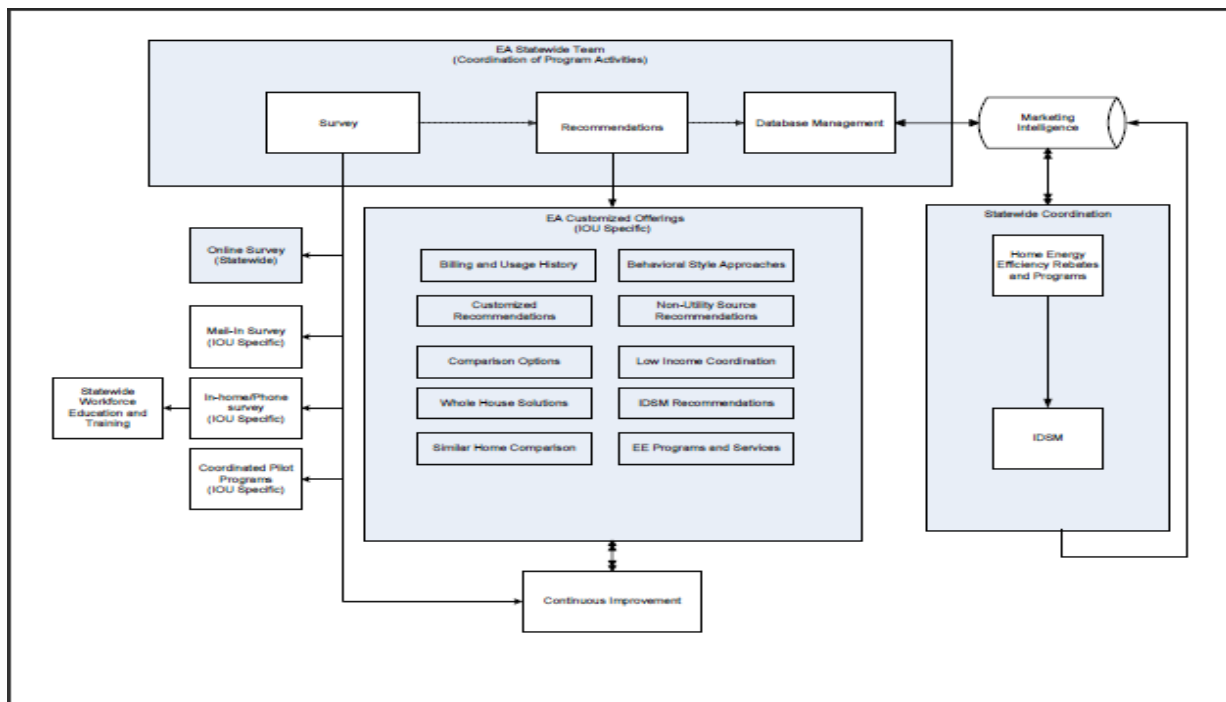
- *Logic model and program theory.* The logic model and program theory will establish a starting point for all evaluation activities. The structure of the logic

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model, which links program activities and expected outcomes, will be a useful instrument for identifying specific program assumptions that can be tested using a survey or other primary data collection activities;

- *In-depth interviews.* In-depth interviews will be conducted with program managers and other key staff members. Program staff members will clarify program goals and gauge program progress, provide valuable insight into daily operations, and propose research topics to be addressed during the evaluation;
- *Participant survey.* The primary data collection instrument will be a customer post-participation survey, fielded over the phone and via mail. The survey will explore the participant's experience with the program's services and address the research issues identified by the logic model. When appropriate, results will be examined by offering to investigate how the various offerings compare with regard to the most effective marketing strategies, recommendation implementation rates, and measures of satisfaction; and
- *Program-specific data collection and review.* Another key evaluation activity will involve a comprehensive review of all program documents. In particular, this evaluation will identify which specific recommendations have been implemented.

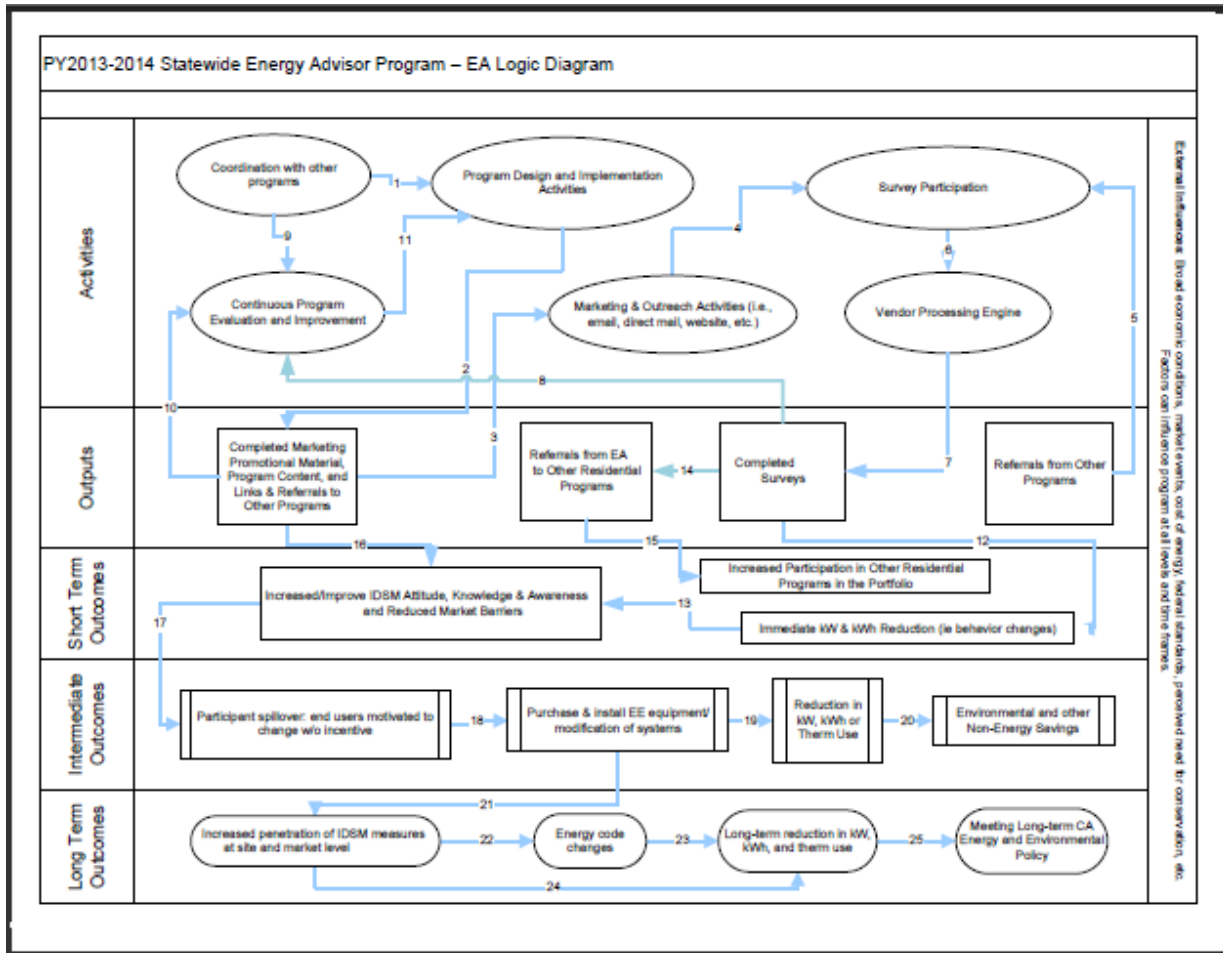
Diagram of Program



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7. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for Energy Advisor (EA) program.



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- 1) **Program Name:** Statewide Plug Load and Appliances
Program ID: SCG3702
Program Type: Statewide Core Program
- 2) **Program Description:** Refer to CalSPREE for description details
- 3) **Total Projected Program Budget and Savings**
 - a) **Table 1:** Refer to CalSPREE for budget details
 - b) **Table 2:** Refer to CalSPREE for projected gross impacts details

4) **Description of subprogram:**

In response to market trends, energy consumption data, customer needs and behaviors, and per the Final Decision’s guidance, the California IOUs jointly file this Statewide Plug-Load Appliance (PLA) Program Implementation Plan (PIP). With the aim of serving customers where they shop and reducing the complexity in IOUs’ portfolios while increasing customer participation, this PIP combines the 2010-12 Home Energy Efficiency Rebates (HEER), Business and Consumer Electronics (BCE) and Appliance Recycling (ARP) Program under a single program umbrella. This sub-program builds the foundation for a sustainable resource acquisition and market transformation that engages critical market actors: manufacturers, retailers, contractors, service providers and others. Additionally, the PLA sub-program will work with the Whole Home Upgrade Program (WHUP), Energy Saving Assistance (ESA) program and other programs to maximize its reach and effectiveness. This will be accomplished through coordinated cross-program initiatives to deliver a comprehensive package of cost-effective and energy efficiency measures to all customers. This PIP addresses appliances, plug loads, and appliance recycling for the residential and business sectors.

Home appliances, consumer electronics, and other miscellaneous plug loads, hereafter called “Plug-Load & Appliance” or “PLA”, consume about 66% of current California home electricity usage, with plug loads (televisions, personal computers and office equipment) accounting for about 20% of home electricity usage alone². These PLA products comprise one of the largest and fastest growing end-uses of the residential sectors, significantly contributing to the growth in greenhouse gas emission. Clearly, the PLA markets cannot be left alone. The Big Bold Energy Efficiency Strategy (BBEES) efforts to achieve Zero Net Energy (ZNE) in new residential construction and the State’s Integrated Demand Side Management’s (IDSMD) goal of 40% energy purchase reduction from 2008 levels by 2020 will only be possible if the markets are influenced to increase the availability, awareness and adoption high efficient PLA products through strategic energy efficient program interventions.

² Final Decision for the 2013-14 Transition Period at page 202

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1) Sub-Program Name: Statewide Plug Load and Appliance (SW PLA)

Sub-Program ID number: 3702

2) Type of Sub-Program: x Core Third Party Partnership

3) Market sector or segment that this sub-program is designed to serve³:

- a. Residential
 - i. Including Low Income? Yes No;
 - ii. Including Moderate Income? Yes No.
 - iii. Including or specifically Multifamily buildings Yes No.
 - iv. Including or specifically Rental units? Yes No.
- b. Commercial (List applicable NAIC codes: _____)
- c. Industrial (List applicable NAIC codes: _____)
- d. Agricultural (List applicable NAIC codes: _____)

4) Is this sub-program primarily a:

- a. Non-resource program Yes No
- b. Resource acquisition program Yes No
- c. Market Transformation Program Yes No

5) Indicate the primary intervention strategies:

- a. Upstream Yes No
- b. Midstream Yes No
- c. Downstream Yes No
- d. Direct Install Yes No
- e. Non Resource Yes No

6) Projected Sub-program Total Resource Cost (TRC) and Program Administrator Cost (PAC) TRC PAC

7) Projected Sub-Program Budget

Table-3: Projected Sub-Program Budget, by Calendar Year⁴
[Table-3 to be provided as an Excel Attachment to this PIP]

8) Sub-Program Description, Objectives and Theory

³ Check all that apply

⁴ Individual utility specific information to be provided in this table

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- a) **Sub-Program Description and Theory:** Clearly describe the goals of the sub-program and the sub-program theory. As part of this, describe the market barriers, specific areas of concern and/or gaps that the sub-program is designed to address. Then describe the way the sub-program will seek to address each barrier, area of concern or gap⁵.

1) Sub-program Goals

- (i) The PLA sub-program aims to transform the market to achieve sustainable adoption of energy efficient PLA products where ongoing intervention would no longer be required. For the short to mid-term time frame where energy efficiency PLA products are still not the market's default choices, the program uses incentive mechanisms, Marketing Education & Outreach (ME&O), Worker Education & Training (WE&T), and strategic industry collaboration to increase availability, awareness, and adoption of energy efficient products. For the longer-term time frame, the PLA sub-program leverages Integrated Demand Side Management (IDSM) programs to influence the development of codes and standards in order to ensure the minimum required energy efficiency levels, promote "Energy Efficiency" as the preferred choice in life-style and new product purchases. The program's long-term strategy seeks to create ongoing demands for "Energy Efficiency" products and thus motivate the industry to produce and sell high efficient PLA products as the market standard offering.

2) Sub-program Theory

(i) **Key Program Drivers**

Some of the key market drivers that exert significant impacts to the PLA sub-program in the 2013-14 Transition Period:

1. PLA products comprise one of the largest and fastest growing end-uses, dwarfing electrical loads from traditional categories such as lighting and HVAC⁶ – See Figure-1.
2. Customers tend to rank PLA's energy efficiency as low priority and some perceive that energy efficiency design compromises product performance and convenience.

⁵ Through marketing, delivery mechanisms, information, incentives, etc. If barriers vary by market sub-sector, provide this information. As part of this, succinctly describe the role of any market actors upstream from the customer such as installers, vendors, architects, etc.; indicate if and why the program approach constitutes "best practice," is "innovative" or reflects "lessons learned" in market strategies, program design and/or implementation techniques.

⁶ PIER's report "Tapping Into Plug-Load Savings Report", July 20, 2009, page 1

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3. National market trends are the dominant drivers influencing manufacturers and retailers' offering of PLA products. Regional utility programs face challenges in attracting manufacturer and retailer participation due to the national scope of products⁷.
4. Online has a growing importance in the customer's product purchasing process. The customer toggles back and forth between the traditional brick-and-mortar retailers and e-commerce sites for product research, price shopping, purchases, and post-sales support.
5. The incremental energy savings from miscellaneous electronics are too small to motivate customer's behavior changes, and too costly for IOUs' current product-base program framework⁸.
6. The rapid product life cycle for consumer electronics of 6-12 months poses significant challenges in establishing saving baselines and work-paper development for individual measures⁹.
7. Growing trends of networking home electronics cause energy saving for products to be highly dependent on consumer behavior or usage settings. This isolation of energy savings and consumption on a product-by-product basis becomes challenging.
8. Codes and standards exert powerful pulls on the PLA markets toward higher energy efficiency baselines.

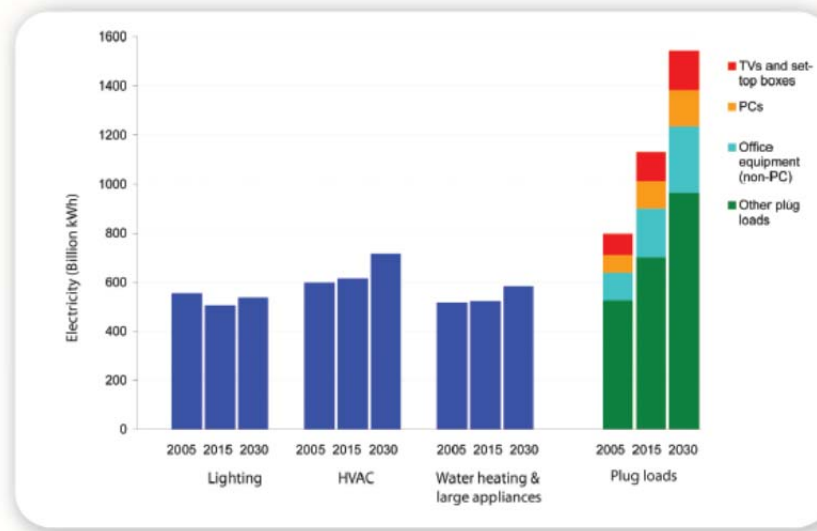
⁷ PG&E and SCE's Report "Program & Technology Review of Two Residential Product Programs: Home Energy Efficiency Rebate (HEER) / Business & Consumer Electronics (BCE)", Study # SCE0306, April 30, 2012, pages 12, 206.

⁸ PG&E and SCE's Report "Program & Technology Review of Two Residential Product Programs: Home Energy Efficiency Rebate (HEER) / Business & Consumer Electronics (BCE)", Study # SCE0306, April 30, 2012, page 230.

⁹ PG&E and SCE's Report "Program & Technology Review of Two Residential Product Programs: Home Energy Efficiency Rebate (HEER) / Business & Consumer Electronics (BCE)", Study # SCE0306, April 30, 2012, page 205.

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Figure-1: US Commercial & Residential Electricity Growth¹⁰



Energy Information Administration's 2008 Annual Energy Outlook forecasts plug loads to grow 94% from 2005 to 2030, dwarfing the contribution and growth of traditional categories, such as lighting and HVAC.

Key regulatory drivers that impact the 2013-2014 Transition Period are requirements found in the Final Decision¹¹. These requirements and IOUs' responses are summarized in Table-D and Table-E of this PIP.

PLA Sub-program Framework

The PLA sub-program is designed to support BBEES in advancing market transformation (MT) toward Title 20 codes and standards changes for realizing ZNE's vision and IDSM goals of reducing the energy purchase by 40% from 2008 levels for the residential sector by 2020. This will be achieved by working with manufacturers, sales channel partners, contractors, service providers, and other market actors in pushing the market toward the 2020 vision through accelerating market adoption of successive waves of advanced PLA technologies. In parallel, the utilities will work concurrently with Code & Standard bodies, ENERGY STAR®, local and federal government agencies, and other market actors to influence the development of codes and standards to support the 2020 goals.

This PIP concurs with the Final Decision that the PLA sub-program should institute a framework that provides a pathway of support for market transformation. Viewing the Final Decision's guidance for the Statewide Lighting Program as a fresh approach to program implementation for greater market transformation and deeper energy savings, the PLA sub-program

¹⁰ PIER's report "Tapping Into Plug-Load Savings Report", July 20, 2009, page 1

¹¹ Final Decision for the 2013-14 Transition Period, pages 206-207, 357-358 and 411-412

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adopts the Final Decision’s approach for the Statewide Lighting Program as the template for the PLA sub-program design in the 2013-14 Transition Period. The following paragraphs discuss the incorporation of the Final Decision’s program framework with the industry’s Product Life Cycle concept to develop maximum synergies between the manufacturers, sales channel partners and the PLA sub-program.

Figure-2 shows the combined "Bass Diffusion Theory"¹², "Technology Adoption Life-Cycle model"¹³ and "Concept of Marketing Mixes"¹⁴ as a conceptual model, the Product Life Cycle (PLC) for commercializing new technologies and products. This model provides a high-level macro view of how the industry maximizes the sales of new technology through deploying appropriate marketing mix 4Ps (pricing, promotion, placement and product features) based on user’s needs/wants as the new technology progresses through various market adoption stages (introductory, growth, majority, and sun-setting stages). The PLC model proposes that a certain type of customer tends to cluster within a certain PLC phase, and tends to purchase certain type of products from a certain type of retailers. The industry recognizes this market characteristic and responds by formulating appropriate marketing mixes (product features, pricing, placement and promotion) to maximize sales to different customer groups. Figure-2 provides insights on how the PLC conceptual model might be adapted to guide the IOUs’ collaborations with manufacturers and sales channel efforts to deliver energy efficiency products to the markets.

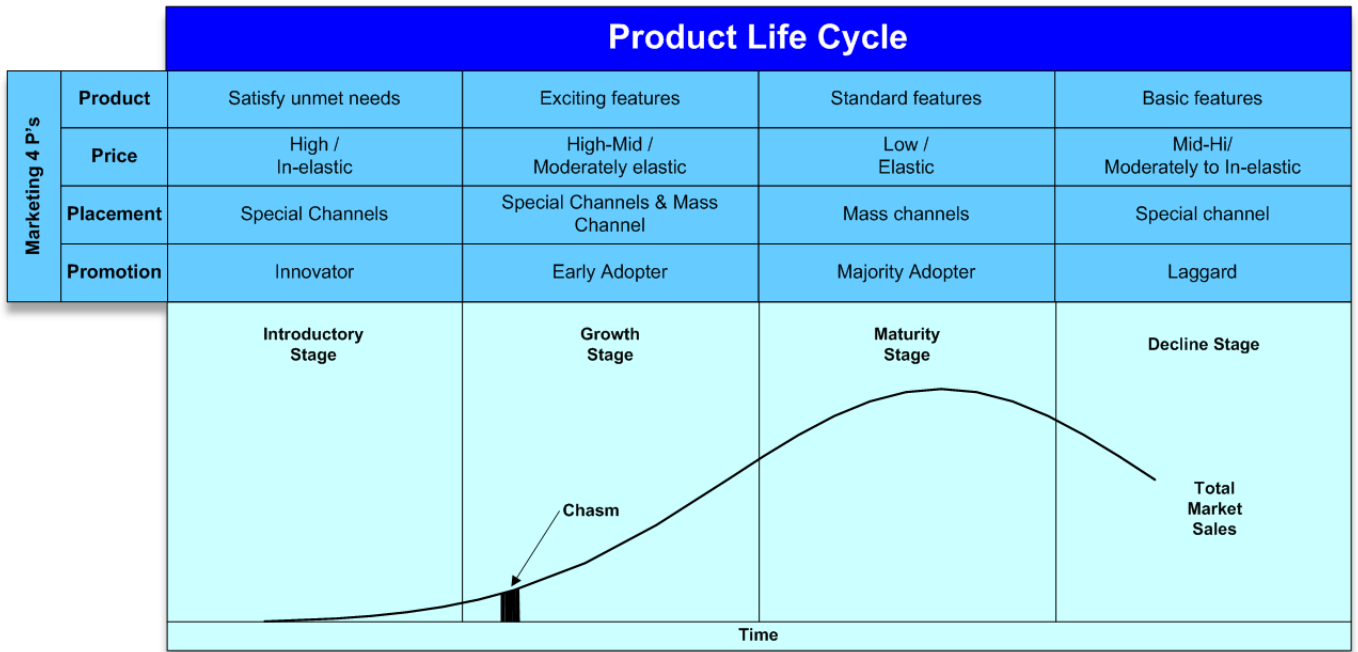
¹² Bass, Frank. "A New Product Growth Model for Consumer Durables", 1969, *Management Science* 15(5): pages 215-227

¹³ Bohlen, Joe M.; Beal, George M. (May 1957), "The Diffusion Process", Special Report No. 18 (Agriculture Extension Service, Iowa State College) 1:56-77

¹⁴ Borden Neil H. "The Concept of the Marketing Mix". 1964, *Science in Marketing* (Harvard Business School), pages 8-9.

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Figure-2: Industry’s Product Life Cycle Concept

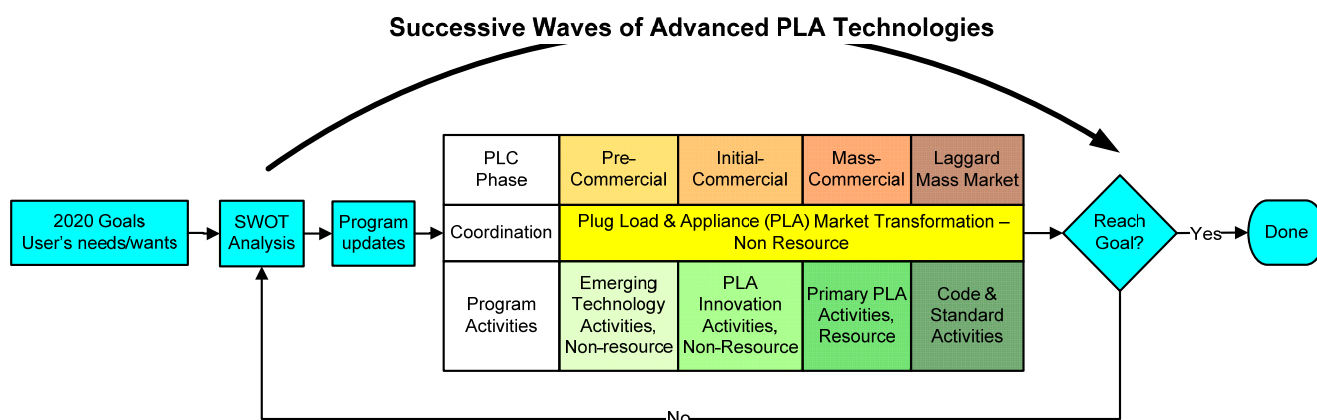


The IOUs could leverage the industry’s commercialization efforts to maximize the adoption of high energy efficient technologies by combining appropriate intervention mechanisms (incentive channels, ME&O, WE&T and Codes & Standards) to influence the industry’s marketing mix 4Ps. The diagram in Figure-3 shows the adaptation of the PLC conceptual model into the program framework for supporting the IOUs’ efforts in transforming California’s PLA markets.

The PLA sub-program framework envisions activities dedicated to support the PLA measures at various commercialization stages, including market transformation activities to provide the overall market transformation strategy and coordination of measures flowing through the PLA sub-program.

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Figure-3: PLA sub-program Framework



In embracing the Final Decision’s guidance for the Statewide Lighting Program¹⁵, the PLA sub-program supports technology assessments of pre-commercialized PLA measures through Emerging Technology activities. The proposed PLA Innovation activities support advanced PLA technologies aimed at early adopters. The PLA Innovation activities should be heavily weighted and influenced by the user’s needs/wants and should focus on helping the innovative PLA technologies bridge the “chasm” between the early adopters and the early majority markets. From the early stages of product development, promising measures that exit the Emerging Technologies activities should transition to the PLA Innovation activities for further market development in accordance to the overall IDSM strategy and goals. The PLA Innovation activities would support demonstration and pilot projects of measures in the very early stages of commercialization, not pre-commercialization. Moreover, the scale of the demonstration and pilot projects in the PLA Innovation activities should be of a greater scale than those in the Emerging Technologies activities. This will help determine which measures should be eventually supported on a larger scale within the Primary PLA activities. Finally, the IOUs propose the Primary PLA activities in the Statewide PLA sub-program for the purpose of supporting PLA measures that have reached a greater level of commercialization. These activities should receive a majority of the PLA incentive funds and would facilitate rapid market adoption through cost-effective incentive delivery channels. The goal is to complete the pathway for market transformation, as measures transfer from the Emerging Technology activities to the PLA Innovation activities to the Primary PLA activities and then eventually exit from the program.

The PLA sub-program framework proposes Market Transformation activities within the Statewide PLA sub-program for developing and testing market

¹⁵ Final Decision for the 2013-14 Transition Period at pages 227-243

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transformation strategies. The objectives of the Market Transformation activities are to develop market transformation strategies and to oversee the progression of PLA measures from the Emerging Technology activities to PLA Innovation activities to Primary PLA activities and to the eventual transition to Codes & Standards. Additionally, the Market Transformation activities are to focus on ensuring PLA has adequate representation in the Emerging Technology activities to ensure technologies are being evaluated for potential inclusion in the PLA Innovation activities.

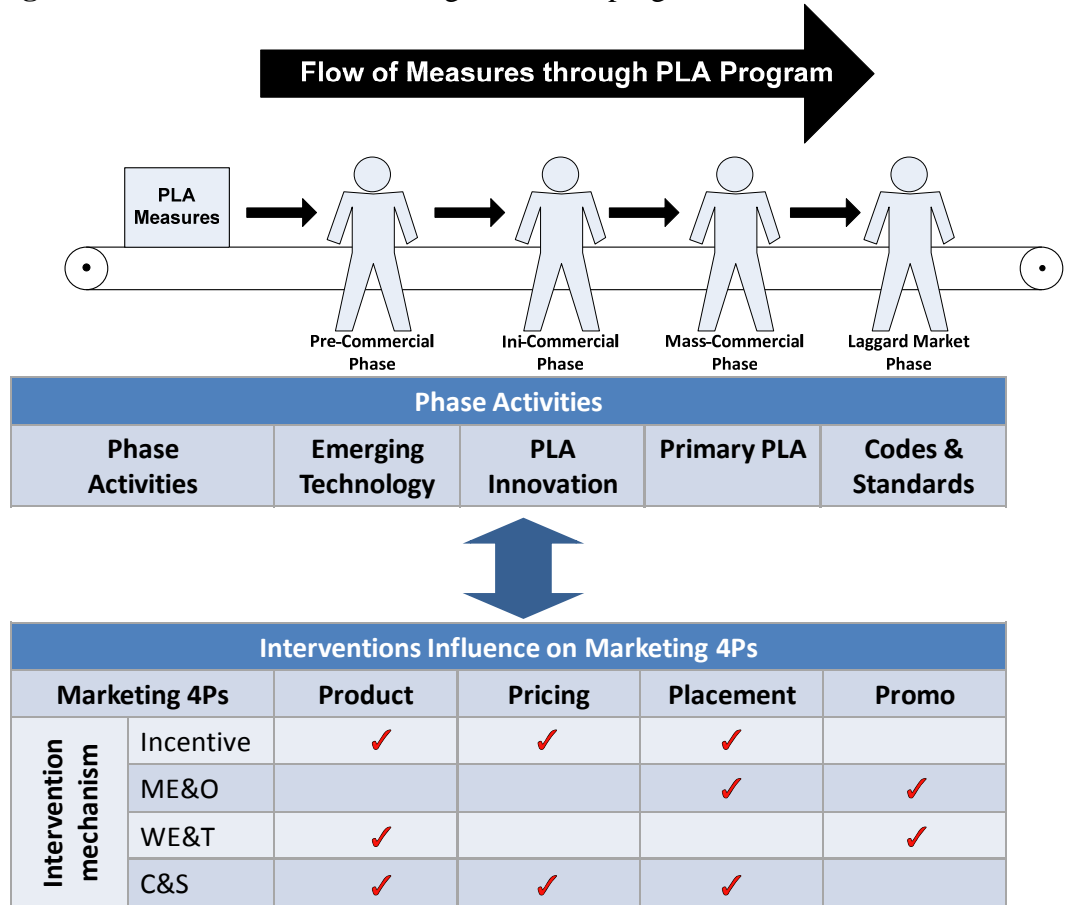
Process for Managing Flow of Measures through Program

Decision 09-09-047 updated the definition of market transformation to include *“promoting one set of efficient technologies, processes or building design approaches until they are adopted into codes and standards (or otherwise substantially adopted by the market), while also moving forward to bring the next generation of even more efficient technologies, processes or design solutions to the market.”*¹⁶ This definition depicts the flow of new measures through the energy efficiency programs as IOUs collaborate with the industry to launch successive waves of advanced and high efficiency technology into the markets. The PLA sub-program framework in Figure-3 supports the Commission’s position by continually assessing the overall environmental analysis and adjusting the intervention strategy to push new technologies through the program. Figure-4 conceptualizes how the flow of new PLA measures through the program would be influenced by program activities and intervention mechanisms.

¹⁶ Decision 09-09-047 at pages 88-89

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Figure-4: Flow of Measures through PLA sub-program



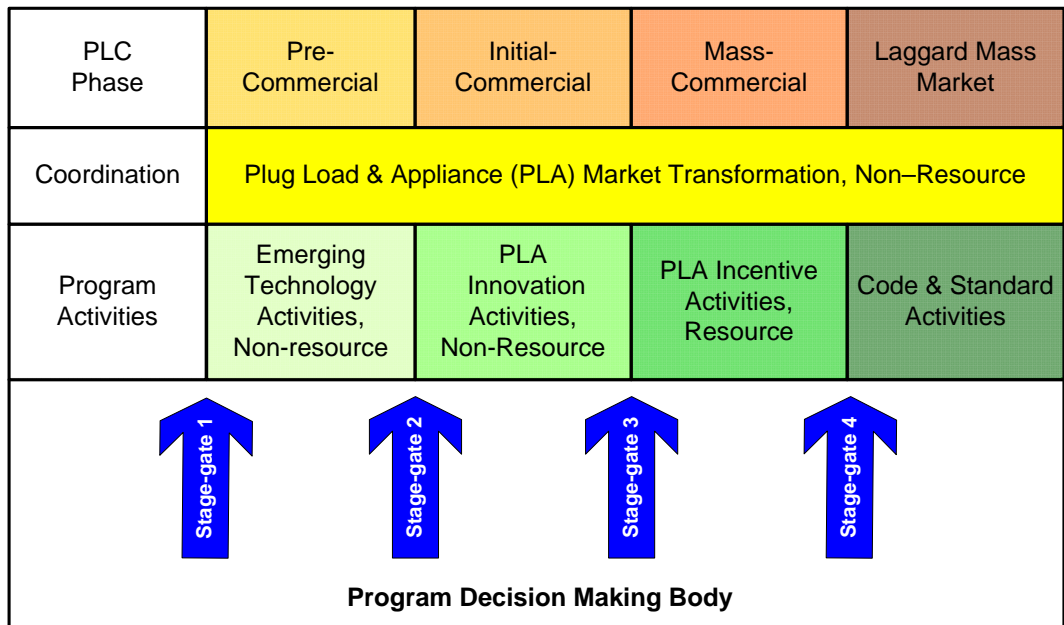
The PLA’s process for evaluating the measure’s commercialization stage and, formulating the right combination of intervention elements to exert the desired market influence, could be enhanced through a formal decision process for managing the flow of measures through the PLA sub-program. This enhancement could be satisfied by a stage-gate process as shown in Figure-5. In this diagram, the stage-gate design takes into account the unique requirements of each commercialization phase and provides criteria for the PLA measure entry into or exit from a subprogram. The explicit evaluation checkpoints would allow measures to move onto the next subprogram, reject measures from the portfolio at any point along the market transformation life cycle or return the measure back through the loop for further development based on to be established stage-gate criteria. Key criteria to be considered as part of this stage-gate process are as follows:

1. Saving potentials (technical, economic, market)
2. Cost effectiveness
3. User’s needs/wants

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4. Market opportunities / risks
5. Technology's maturity stages
6. Industry's supports
7. Compliance to industry's standards
8. Cradle-to-grave's total environmental impacts
9. Code's saving baseline
10. Saving verifications

Figure-5: Stage-Gate Process for Managing Measure Flows



a) Market Actors

Refer to Section 12(ii), Table-18 for details on relevant market actors and the relationship among them.

b) Market Barriers & Proposed Interventions

Refer to Section 12(iv), Table-19 for details on Market Barriers & Proposed Interventions.

A. Sub-Program Energy and Demand Objectives - If this sub-program has energy and demand objective, please complete Table 2.

- i. **Table-4.** Projected Net Energy & Demand Impacts by Calendar Year¹⁷
- ii. [Table-4 to be provided as an Excel Attachment to this PIP]

¹⁷ Individual utility specific information to be provided in this table

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B. Program Non-Energy Objectives:

- i. **Table-3:** PLA sub-program Performance Matrix (PPM)
- ii. *[Table-3 to be provided as an Excel Attachment to this PIP]*

C. Cost Effectiveness/Market Need: What methods will be or have been used to determine whether this program is cost-effective?¹⁸ If this is a non-resource program, describe the literature, market assessments or other sources that indicate a need for this program.

- i. The PLA Sub-program has energy and demand objectives, thus the Cost Effective methods contained in the Standard Practice Manual will be used.

D. Measure Savings/ Work Papers:

- a. Indicate data source for savings estimates for program measures (DEER, custom measures, etc) & work paper status for program measures.
 - i. **Table-4a:** Measure Savings / Work Paper
 - ii. *[Table-4a to be provided as an Excel Attachment to this PIP]*
 - iii. **Table-4b:** IOUs' Exploratory Measures Considered for 2013-14
 - iv. *[Table-4b to be provided as an Excel Attachment to this PIP]*

9) Program Implementation Details

- a) **Timelines:** List the key program milestones and dates.
Table 5: Sub-Program Milestones and Timeline
[Table-5 to be provided as an Excel Attachment to this PIP]
- b) **Geographic Scope:** List the geographic regions (e.g., CEC weather zones) where the program will operate.
Table 6: Geographic Regions Where the Program Will Operate
[Table-6 to be provided as an Excel Attachment to this PIP]
- c) **Program Administration**
Table 7: Program Administration of Program Components
[Table-7 to be provided as an Excel Attachment to this PIP]
- d) **Program Eligibility Requirements:**
 - i. **Customers:** List any customer eligibility requirements (e.g., annual energy use, peak kW demand):
Table 8: Customer Eligibility Requirements (Joint Utility Table)
[Table-8 to be provided as an Excel Attachment to this PIP]

¹⁸ If the program has energy and demand objectives, simply state that the methods contained in the Standard Practice Manual will be used. If the program does not have energy and demand objective, propose an approach to assess cost-effectiveness.

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- ii. Contractors/Participants:** List any contractor (and/or developer, manufacturer, retailer or other “participant”) eligibility requirements (e.g. specific IOU required trainings; specific contractor accreditations; and/or, specific technician certifications required).

Table 9: Contractor/Participant Eligibility Requirements (Joint IOU Table)

[Table-9 to be provided as an Excel Attachment to this PIP]

e) Program Partners:

- i. Manufacturer/Retailer/Distributor partners:** For upstream or midstream incentive and/or buy down programs indicate¹⁹:

Table 10: Manufacturer/Retailer/Distributor Partners

[Table-10 to be provided as an Excel Attachment to this PIP]

- ii. Other key program partners:** Indicate any research or other key program partners.

- California Energy Commission
- EPA ENERGY STAR®
- Consortium for Energy Efficiency (CEE)
- American Council for an Energy-Efficient Economy (ACEEE)
- National Electrical Manufacturers Association (NEMA)
- Natural Resources Defense Council (NRDC)
- Energy Solution
- Ecova
- Navitas Partners

- f) Measures and incentive levels:** E3 calculators will provide the list of measures and incentive levels to be provided via the program. In this section the utilities should provide a summary table of measures and incentive levels.

- i.** Use a single excel spreadsheet to indicate the eligible measures for the program across all IOUs. Indicate the expected incentive level by measure or measure grouping for each IOU, making clear where these vary.

- ii.** For each incented or rebated measure, indicate the market actor to whom this will be provided.

Table 11: Summary Table of Measures, Incentive Levels and Verification Rates

[Table-11 to be provided as an Excel Attachment to this PIP]

¹⁹ Provide in a consistent format for all IOUs. Indicate program partners across all IOU territories in one table or spreadsheet. Append to end of PIP.

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- g) **Additional Services:** List additional services that the sub-program will provide, to which market actors. For each service provided, indicate any expected charges to market actors of the services, and/or the level at which any such services will be incented or funded.

Table 12: Additional Services

[Table-12 to be provided as an Excel Attachment to this PIP]

- i. **Sub-Program Specific Marketing and Outreach:**
Refer to Section 10(v) for details on Marketing Education & Outreach.
- ii. **Sub-Program Specific Training:**
Refer to Section 10(v) for details on Worker Education & Training.
- iii. **Sub-Program Software and/or Additional Tools:**
- a. List all eligible software or similar tools required for sub-program participation.
None
 - b. Indicate if pre and/or post implementation audits will be required for the sub-program.
Pre-implementation audit required ___ Yes No
Post-implementation audit required ___ Yes No
 - c. As applicable, indicate levels at which such audits shall be rebated or funded, and to whom such rebates/funding will be provided (i.e. to customer or contractor).

Table 13: Post-implementation Audits

N/A

- h) **Sub-Program Quality Assurance Provisions:**
Table 14: Quality Assurance Provisions
[Table-14 to be provided as an Excel Attachment to this PIP]
- i) **Sub-program Delivery Method and Measure Installation /Marketing or Training:** Briefly describe any additional sub-program delivery and measure installation and/or marketing & outreach, training and/or other services provided, if not yet described above.

(i) Upstream Incentive Delivery Channel

The PLA program uses “different incentive designs” to influence market actor behaviors. The upstream incentive is paid directly to the manufacturers for the purpose of influencing the manufacturer’s product offering in the distribution chain. The upstream incentive can potentially influence the retailer’s product assortments and impact the customer’s purchasing behaviors. This delivery

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channel can be a cost effective means for supporting measures that have high sales volumes, produced by relatively few manufacturers that sell through a large number of independent retailer chains.

(ii) Midstream Incentive Delivery Channel

The midstream incentive is paid to the retailers, e-retailers, distributors, contractors or service providers and is typically used to influence the sales channels' decision on which products to stock and sell. The midstream incentive offers IOUs the advantage of applying the incentives across all brand offerings for a particular product category that a retailer carries without the additional effort of managing multiple manufacturer relationships. This enhances the customer's shopping experiences and allows retailers to offer wider product choices.

Continuing to cultivate strategic alliances to maximize the synergies with retailer partners is an effective strategy for increasing the program cost-effectiveness and efficiency. California IOUs will continue to develop strategic partnerships with the industry to be more effective in promoting energy efficient products and services, showcasing our energy expertise, branding our successes, and maintaining high levels of customer satisfaction. These strategic alliances include the contractors for roofs, pumps, and evaporative coolers in previous program cycles, as well as HVAC contractors from other residential programs.

The continued use of retailers as a go-to-market channel provides an excellent conduit for developing a "one-stop approach" for customers, as noted in the long-term Strategic Plan. By increasing the program participation with national chain mass market and regional vertical retailers, the program will provide the following benefits:

- Expanding network that increase customer convenience;
- Enhancing retail management support for energy efficiency;
- Establishing more opportunities for co-marketing and branding with retailers;
- Expanding cooperation between utilities, retailers and manufacturers to promote and stock high efficiency PLA products; and
- Providing market information for energy efficiency products.

As noted previously, the national trend by nation chain mass market retailers toward promoting "energy efficient" products within their stores provides IOUs the opportunity to reach end-users through a preferred method of communication— directly from the retailer. Beyond leveraging the ENERGY STAR brand, PLA will use its retail management support to develop bundled promotions, host events, train staff, and conduct promotional campaigns with retailers to directly influence consumers' choice for energy efficiency products.

(iii) Downstream Incentive Delivery Channel

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The downstream incentive is paid directly to the end-customer and is typically used to directly influence the customer's purchasing decision. While the downstream incentive model has the advantage of capturing more customer information, the more lengthy incentive administrative process of rebates applications is disadvantageous. Additionally, the administrative efforts supporting downstream rebate applications are typically not cost effective for small rebate amounts.

A major implementation strategy for the program is to expand the downstream incentive delivery channel to include the point-of-sale (POS) "instant rebate". This implementation would allow retailers to instantly provide the customer the IOU rebate at the register, streamlining the rebate application payment process and integrating appliance incentives with appliance purchasing opportunities. This POS strategy seeks to include more retailers that sell high efficient refrigerators, whole house fans, pool pumps, home appliances and other gas appliances as applicable with each IOU. Retailers are key market actors in moving the energy-efficient PLA markets, thus the PLA sub-program design will be optimized to maximize the retailers' participation. The final implementation will be depending on the retailers' IT structure and capabilities in certain areas.

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Table-A: Incentive Delivery Channel Summary

Incentive Delivery Channel	Primary Market Actors Affected	Criteria used to determine the best delivery channel for any PLA measure
Upstream	Manufacturer	<ol style="list-style-type: none"> 1. High volume product 2. More retailers selling product than number of manufacturers producing product 3. Lower value product 4. Low-mid incentive level 5. Lower sales effort required 6. Low promotion requirement 7. Long product life cycle
Midstream	Sales Channel Partners (retailers, contractors, etc.)	<ol style="list-style-type: none"> 1. Mid - High volume product 2. More manufacturers producing product than number of retailers selling product 3. High value products 4. Mid-high incentive levels 5. High sales efforts 6. High promotion requirement 7. Short product life cycle
Downstream	End-customer	<ol style="list-style-type: none"> 1. Low volume product 2. Targeted customer group 3. Strong relationship with customer 4. High value product 5. High incentive level

(iv) Retailer based Appliance Recycling

The PLA sub-program will work with Retailers to support responsible environmental stewardship by providing more comprehensive cradle-to-grave product life cycle management. The program supports the US EPA Responsible Appliance Disposal (RAD) program, which promotes the highest quality recycling, reducing greenhouse gas emissions and landfill waste. The IOUs appliance recycling activities support eliminating the current market practice of reselling old appliances removed from customer homes during the delivery of new ones. The IOUs recognize that customer-facing retail staff has effective point-of-influence to educate customers on the total environmental impacts

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resulting from adoption of higher efficiency products and permanent removal of older and less efficient PLA products from the grid.

The benefits of reduced implementation costs and increased program simplicity that POS instant rebates provide, as discussed above, make it impractical for the IOU's to implement a Cash-4-Appliance rebate program design for refrigerators as suggested in the Final Decision's guidance for the appliance recycling activities. The IOUS will instead focus on implementing existing refrigerator rebates in combination with the new appliance recycling retailer strategy that has been piloted by SCE. This new strategy effectively promotes the purchase of a new efficient refrigerator and combines it with the convenience of allowing customers to recycle their own refrigerators in the new Refrigerator Deliver-N-Haul away process. This approach does not require customer to surrender their refrigerator as part of the rebate process but still allows IOU's to reduce implementation cost for both programs while providing options that improve the customer experience. By working with retailers to integrate appliance recycling to be an integral parts of the product ownership, from new product purchase to retiring old devices from the grid, would provide a simplified and cost-effective long-term solution for cradle-to-grave product life cycle management. And the retailer based appliance recycling solution, which the IOUs plan to expand in 2013-14, would be an ideal solution for realizing this vision. This does not apply to SoCalGas.

(v) Statewide Appliance Recycling Channel

The appliance recycling markets could be segmented into three primary customer groups; Group one would be the customers that retired their old appliances when the new ones are delivered; group two would be the customers that retired their secondary appliances (such as the secondary refrigerator or freezer); group three would be those customers and retailers that sell/buy the old working appliances to/from the second-hand appliance markets.

We believe the above retailer-based appliance recycling channel would be an effective intervention for group one. The current Statewide Appliance Recycling channel, which will be discussed in more detail in this section, could be an effective intervention for group two. The intervention for group three would require a long-term strategy through codes and standards, as well as collaborations with EPA RAD and other market actors to deplete old working appliance stocks that do not meet the 2020's energy efficiency requirements. The intervention for group three would need support from new codes and standards that eliminate the market practices of re-selling old appliances back to the second-hand appliance markets.

The estimated schedule to deplete the old working appliance stocks from the grid would primarily depend on the implementation date of the code and standards that

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will mandate the 2020's energy efficiency levels and the average product life for that particular PLA product group. Thus, the Final Decision's request to transition the current appliance recycling program to market players by a specific date²⁰ cannot be answered with certainty at this point. The IOUs will continue to engage the Commission and appropriate market actors on this.

Currently, the Statewide Appliance Recycling picks up older but working appliances from single residential dwellings, multi-family complexes and businesses, and permanently disposes them in accordance to EPA's Responsible Appliance Disposal (RAD) guidance. The Statewide Appliance Recycling channel is designed to incentivize customers to permanently remove and recycle inefficient refrigerators and freezers from the electrical grid by:

- (1) Offering customers an incentive along with free pick-up as a convenient option to recycle their inefficient appliance.
- (2) Requiring Recycling Service partners to be in compliance with EPA RAD practice so all appliances could be decomposed and recycled in the most environmentally friendly manner possible.
- (3) Allowing commercial and multifamily owners/property managers to coordinate bulk pick-ups that simplify the participation process and allows IOU's to reduce program implementation costs.

During the 2013-2014 Transition Period, the PLA sub-program will focus on secondary refrigerators and stand-alone freezers. This initiative aims to stem the tide of the growing number of second refrigerators and freezers in California home. Additionally, the PLA sub-program looks into saving opportunities for both claimable and non-core, non-claimable to avoid lost opportunities for refrigerator and freezer recycling. Lastly, the program is evaluating additional cost-effectiveness and more comprehensive recycling solutions through inclusion of additional recycling of other types of household plug-loads, gas appliances, small business appliances and electronics devices. The team will leverage EPA RAD compliance Recycling Service Provider to provide environmentally safe and responsible recycling solutions.

(vi) Marketing Education & Outreach (ME&O)

IOUs will continue to develop targeted and highly relevant energy efficiency and IDSM marketing messages to encourage behavioral change/action. PLA intends to develop strategic collaboration with industry to motivate consumers to take action in embracing energy efficiency.

²⁰ Final Decision for the 2013-14 Transition Period at page 207

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To facilitate retail relationships, IOUs will explore co-marketing opportunities with manufacturers and sales channel partners to implement website enhancements that facilitate ease of access to energy efficiency information; enabling customers to readily find information about energy efficient products and services, identify participating retailers in their neighborhoods, and complete on-line sign-ups to receive notification about special efficiency offerings, rebates, or incentives.

The IOUs focus on delivering products, services, and information through the most efficient delivery channel for every customer segment we serve. For PLA, the IOUs will continue to focus on the customer experience at retail, ensuring visibility of rebates and offers and streamlining the transaction and processing of rebates.

There is also opportunity for enhanced engagement with customers with respect to appliances and appliance recycling. With many appliances, customers wait until the appliance fails before considering replacement. Through impactful in-store marketing and clear communication of offers, the IOUs intend to increase customer awareness of rebates and incentives and focus customers on the benefits of upgrades as well as replacement of outdated technologies. In-store marketing will be augmented by promotion of PLA through other channels, such as online tools that create customer awareness of rebate offers and availability prior to the customer stepping into the store. With more online transactions happening each day, it is important that customers be educated about the potential energy savings and rebates for products they are considering should they choose to purchase through an online retailer.

The IOUs will look for opportunities to provide alternative strategies for marketing the programs in constrained areas. One example would be a neighborhood-based marketing campaign that targets older, master-planned communities in order to promote energy efficiency. Through this effort, local contractors will independently market and install cost-effective measures such as duct testing and sealing and other measures to help reduce energy loss in the home and increase overall efficiency. By working with the industry partners to cover energy efficiency measures in high volume, the effort will help to lower measures costs that are adopted by a large number of program participants. In addition to delivering energy savings, this approach will support the advancement of local community and city goals related to energy efficiency, as well as benefiting many neighborhoods and socio-economic groups.

Customers are often not aware of the true savings potential associated with energy efficient measures nor are they familiar with the many energy efficient products available that are not associated with appliances. Some IOUs may offer an "energy saving starter kit" to customers in order to introduce them to energy efficiency tips that can produce significant savings. This kit will provide

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information about simple but comprehensive methods to reduce water, gas, and electricity use. By supplying the tools necessary to begin saving gas and water and thereby educating these customers on energy efficiency, the PLA sub-program should see an increase in participation and could include other customer segments that may have been excluded due to high product cost. This will help the PLA to grow as a comprehensive, inclusive residential program and thus maximize potential savings. As applicable, PLA participants will also be educated about additional opportunities for energy efficiency beyond the measures they are adopting.

The IOUs have developed the integrated energy audit tool for residential and small business customers that will assist customers with their energy management decisions. These information platforms are easily accessible to customer to provide immediate feedback, enable a more accurate assessment of program impacts, and empowered the customer to quickly and easily make energy efficiency decisions. In addition, the deployment of AMI provides additional opportunities to educate customers about their energy usage. The IOUs will explore opportunities to maximize energy efficiency and demand side management opportunities as the technology is developed and deployed to residential customers.

After the program is approved, each IOU will develop a market implementation plan that targets owners and renters of single family residences as well as apartments, townhouses, condominiums, and mobile homes and operates in parallel to the operation of the Multifamily Energy Efficiency Rebate (MFEER). This ME&O strategy aims to include coordinated statewide elements as well as elements specially targeted to the customers in each utility's service area. The program seeks to leverage relationships with local government partnerships, water agencies, air quality districts, trade allies, manufacturers, retailers, and distributors to deliver information, measures, and incentives.

Program campaign elements include:

- Statewide rebate promotions;
- Online/mail-in application processing;
- Integration of rebate offers and related content with online tools
- In-store POS instant rebate option where applicable through retailer POS capabilities;
- Whole house approach offering products that address all types of energy use;
- Home energy surveys;
- Energy efficiency customer education and outreach; and
- Other residential EE programs such as upstream lighting.

(vii) Worker Education & Training (WE&T)

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PLA sub-program will work with Energy Centers to design and develop training curriculums appropriate for retailers and contractors to develop skills and knowledge on energy efficiency products, codes and standards and IOU EE programs. Additionally, PLA will work with WE&T to identify training opportunities for: (1) the retail store, (2) the retailer corporate/headquarters decision makers, and (3) Original Equipment Manufacturers (OEMs).

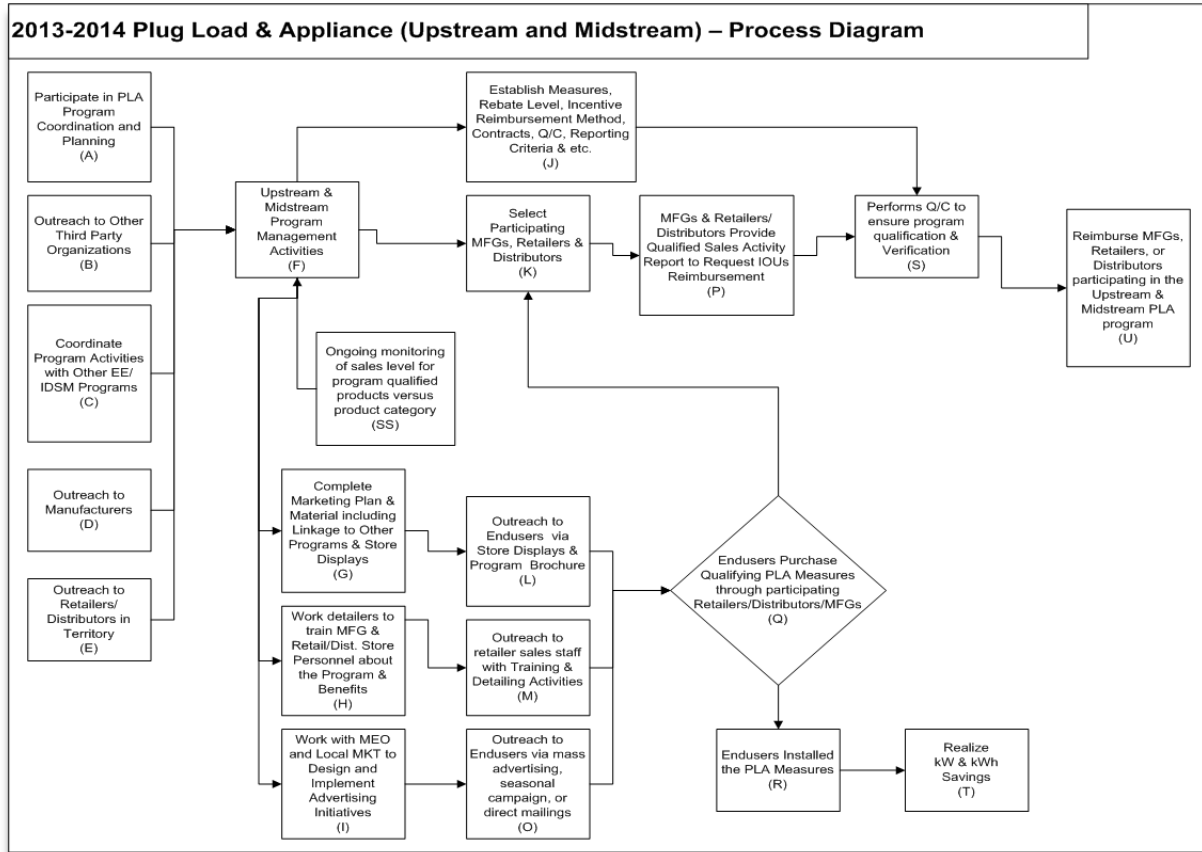
- For retail stores - Opportunities to provide training to store-level personnel at participating retailers. These training activities will be supported by regular surveys to determine the effectiveness of the training.
- For retailer headquarters decision makers - Opportunities to provide training to buyers and merchandisers at the headquarters of participating retailers to educate them about the availability, desirability, and benefits of PLA qualifying electronics.
- For OEMs - Opportunities to provide training to with OEM manufacturers to educate their product managers and marketing groups about the importance of designing ENERGY STAR qualified and beyond features into their products.

Finally, the IOUs seek to develop marketing programs to educate consumers and increase awareness about the benefits of PLA qualifying products. Various efforts to educate sales associates of user and environmental benefits of high efficient PLA products will be explore during the program cycle. PLA's WE&T initiatives may include activities such as site visits by program representatives, program participation agreements, and / or literature, as appropriate.

- j) **Sub-program Process Flow Chart:** Provide a sub-program process flow chart that describes the administrative and procedural components of the sub-program. For example, the flow chart might describe a customer's submittal of an application, the screening of the application, the approval/disapproval of an application, verification of purchase or installation, the processing and payment of incentives, and any quality control activities.

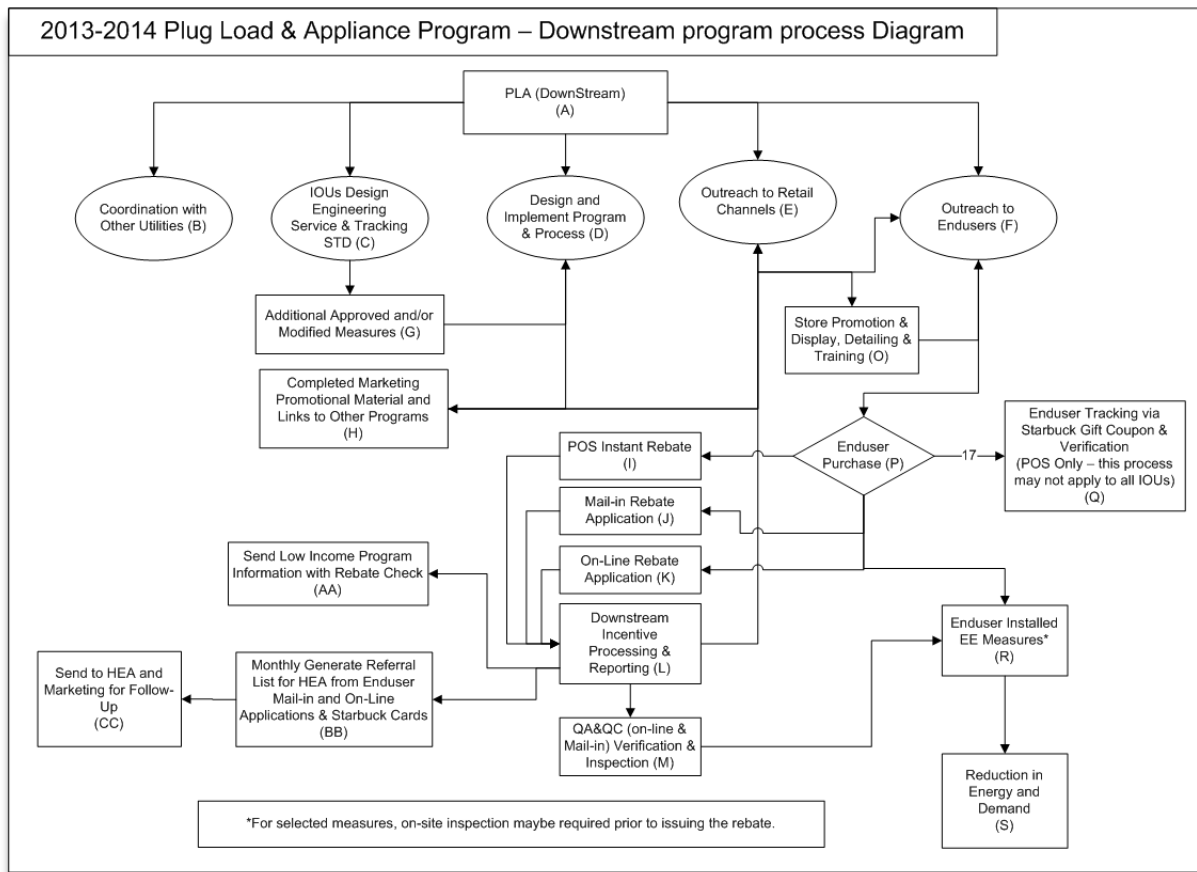
Figure-5: PLA Upstream & Midstream Incentive Process Diagram

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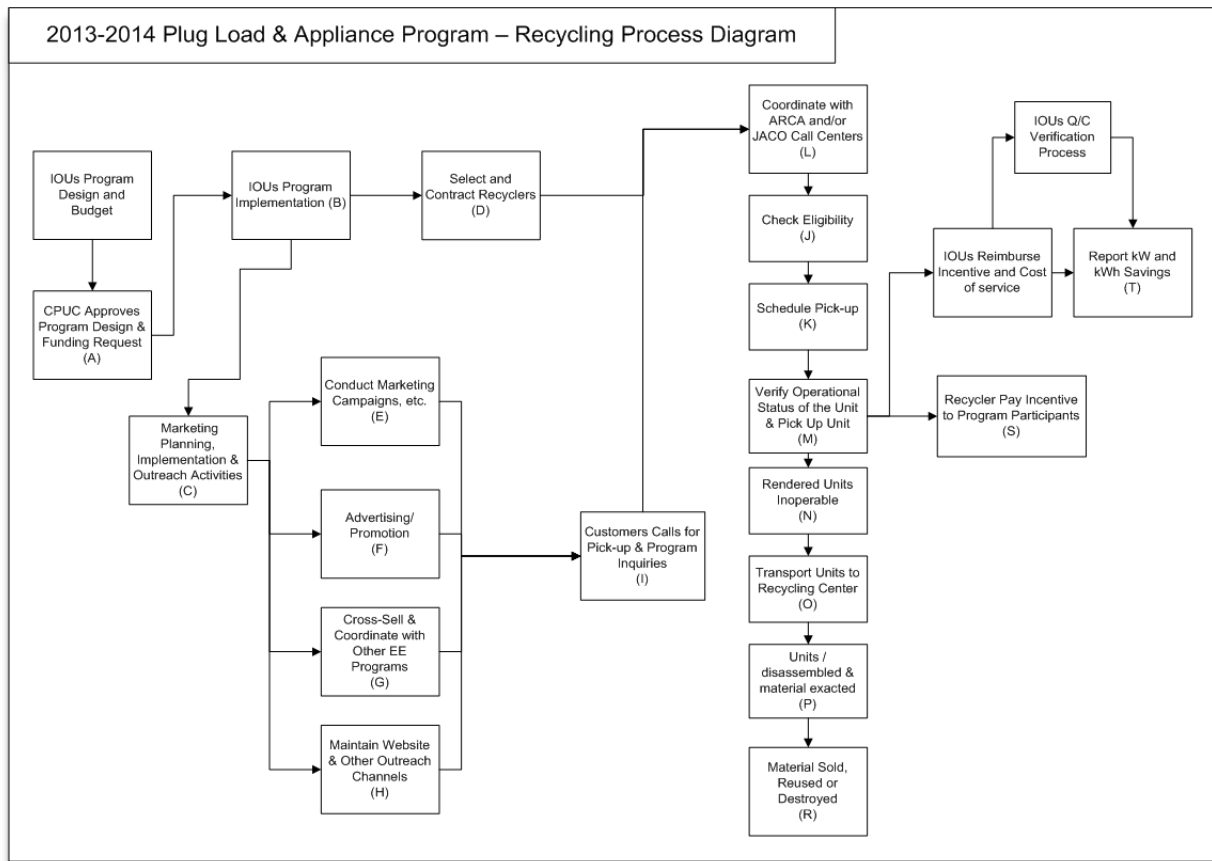
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Figure-6: PLA Downstream Incentive Process Diagram



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Figure-7: Statewide Appliance Recycling Process Flow Chart



- k) **Cross-cutting Sub-program and Non-IOU Partner Coordination:** Indicate other IOU EE, DR or DG sub-programs with which this sub-program will regularly coordinate. Indicate also key non-IOU coordination partners. Indicate expected coordination mechanisms²¹ and frequency²²:

With respect to low-income customers, each IOU seeks to integrate its ESA program into PLA by providing customers with information and marketing material on the ESA program, California Alternate Rates for Energy (CARE), and Family Electric Rate Assistance (FERA) discount programs. The strategy to integrate ESA, CARE and FERA activities into the PLA sub-program aims to ensure eligible low-income residential customers are aware of the availability of low-cost energy-efficient services through ESA, CARE or FERA. Additionally, IOUs seek to ensure that low-income customers are aware of rebates available for

²¹ “Mechanisms” refers to communication methods (i.e. quarterly meetings; internal list serves; monthly calls, etc.) and/or any cross-program review methods (i.e., feedback on program plans; sign off on policies, etc.) or harmonization techniques (i.e. consistent certification requirements across programs, program participant required cross trainings, etc.).

²² This does not mean there would be mutual understanding of the on the mechanism or a known frequency of coordination; rather, just provide enough information to give a general sense of the coordinate efforts.

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appliances through the PLA sub-program, which are not offered through any of the above mentioned programs.

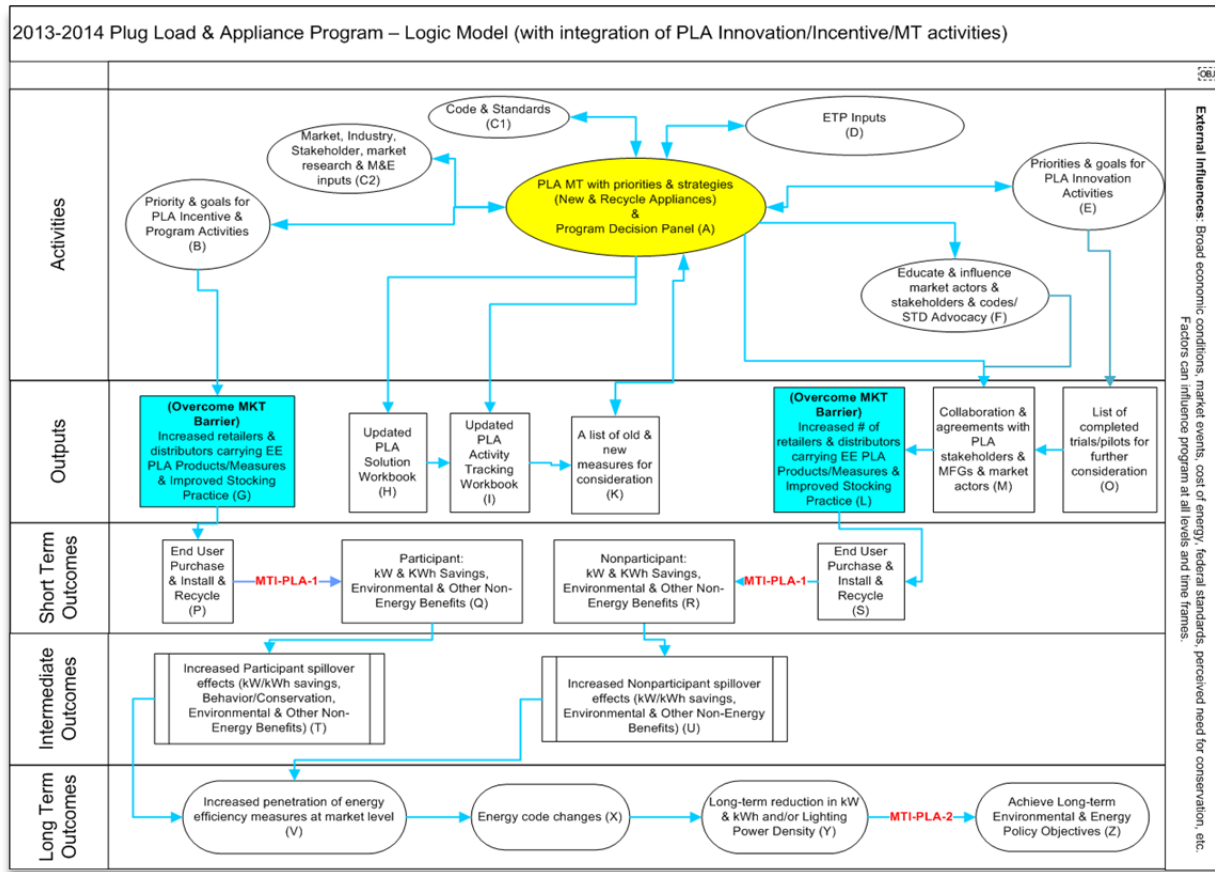
Regarding products that address all types of energy use, each IOU seeks to coordinate the delivery of its PLA sub-program, as well as the Lighting and EUC programs, to maximize the energy saving potentials in every home. Whether customers simply look for an energy efficient light bulb to replace their burnt-out incandescent bulb, or the ENERGY STAR's most efficient refrigerator to replace their old unit, or a comprehensive energy saving audit and installation service to support a deep retrofitting project of their home, the customer-facing staff must be able to guide the customer seamlessly to the appropriate programs. All of the program's ME&O and WE&T would be conducting coordinated initiatives to equip the customer-facing staff with the necessary knowledge to assist customers in maximizing their comfort, security and saving by helping them make the right choice in energy efficient solutions.

Table 15: Cross-cutting Sub-program and Non-IOU Partner Coordination
[Table-15 to be provided as an Excel Attachment to this PIP]

- 1) **Logic Model:** Please append the logic model for this sub-program to the end of this PIP. Describe here any additional underlying theory supporting the sub-program intervention approach, referring as needed to the relevant literature (e.g., past evaluations, best practices documents, journal articles, books, etc.).

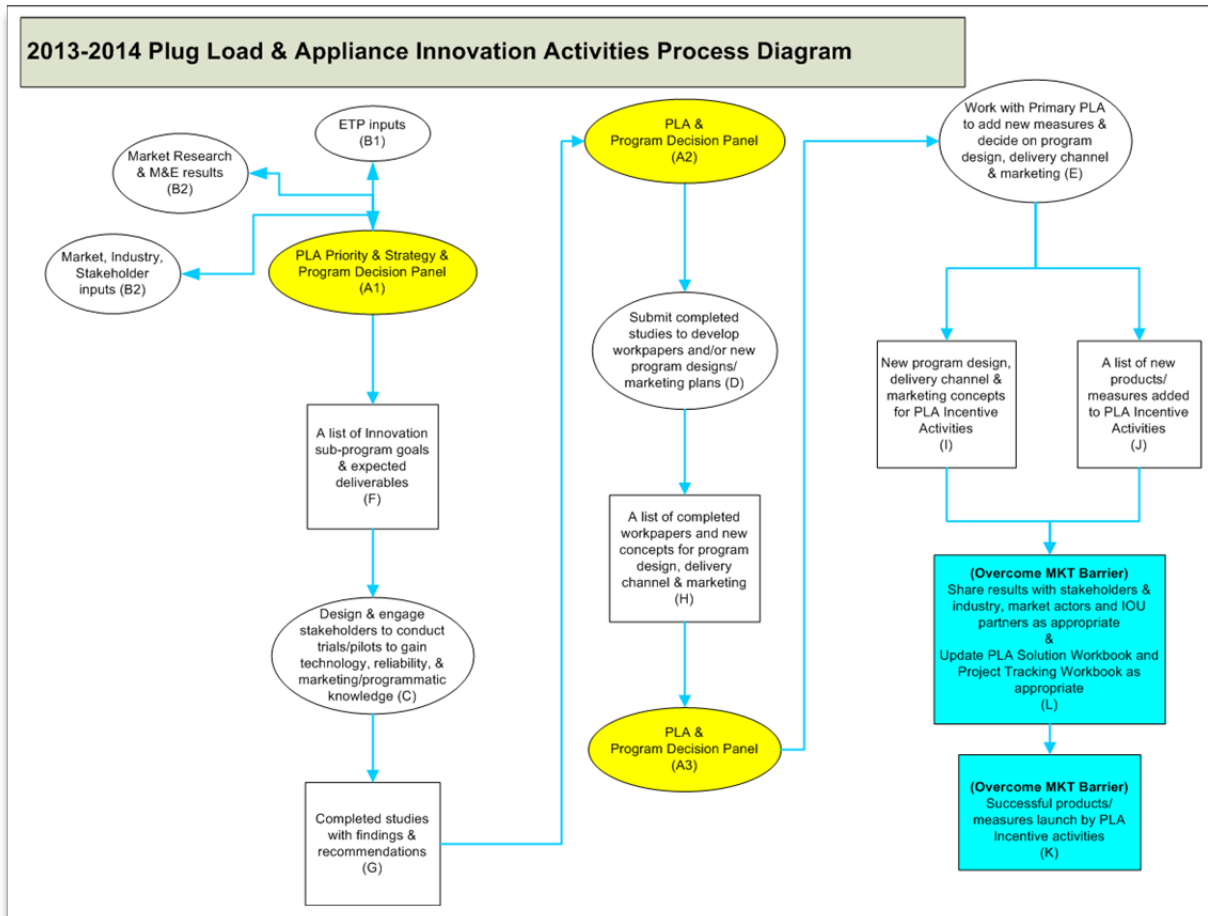
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Figure-8: PLA sub-program Logic Model



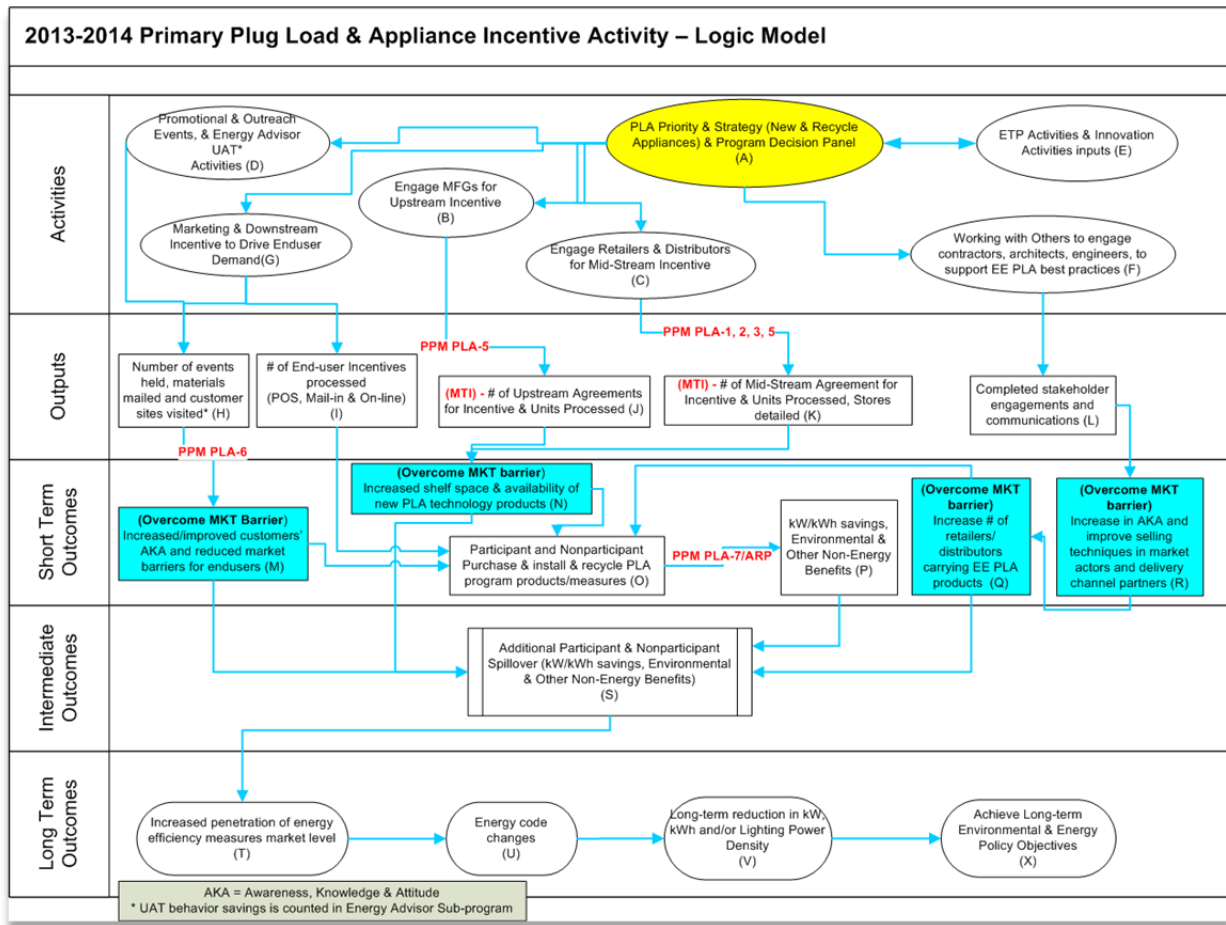
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Figure-9: PLA innovation Process Diagram



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Figure-10: Primary PLA Incentive Activities Logic Model



10) Additional Sub-Program Information

- a) Advancing Strategic Plan Goals and Objectives:** Describe how sub-program advances the goals, strategies and objectives of the California Long Term Energy Efficiency Strategic Plan

The PLA sub-program will help to achieve the goals identified in Chapter 2 of the Strategic Plan:

2-2: Promote effective decision-making to create wide-spread demand for energy efficiency measures. California IOUs will aggressively incorporate results from studies that determine homeowner “decision triggers” for improving home energy efficiency; and

2-3: Manage research into new and advanced cost-effective innovations to reduce energy use in existing homes. California IOUs will work collaboratively to

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promote the commercialization of home energy management tools, including Advance Metering Infrastructure (AMI)-based monitoring and display tools.

The “Smart Meter” deployment provides the customer the opportunity to access near-real time monitoring of their energy usage patterns at home. The feedback on how a customer is consuming energy through access to hourly billing data will support long-term behavioral strategies to reduce consumption. Moreover, when combined with automated enabling system (e.g., more integrated home management system through In-Home devices/displays and systems, programmable controllable thermostats, load control devices, smart appliances, etc.), the Smart Meter technology will provide customers the energy management tools that report increased savings as energy-efficient measures are installed. At the same time, the Smart Meter will offer residential customers the unique opportunities to participate in demand response and AMI-enabled technologies services. These information feedback systems enable more accurate assessment of IDSM program impacts and guide the future energy management strategies for customers.

b) Integration

- i. **Integrated/coordinated Demand Side Management:** As applicable, describe how sub-program will promote customer education and sub-program participation across all DSM options. Provide budget information of non-EE sub-programs where applicable.

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

Table 16: Non-EE Sub-Program Information

[Table-16 to be provided as an Excel Attachment to this PIP]

- ii. **Integration across resource types** (energy, water, air quality, etc.): If sub-program aims to integrate across resources types, please provide rationale and general approach.

There are integration opportunities that work across resource types that can be further explored such as combining rebates with water utilities which have provided customers a more simplified process for submitting and receiving their energy and water rebates. The residual benefits of this process was the ability to leverage the larger combined rebate amount to significantly drive sales of qualifying models as well as providing a precedent for disparate water utilities to collaborate around a combined product specification and rebate methodology. IOUs will take these key findings and use them with water agencies and air quality districts when there is alignment around customer

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offerings. Additionally, the retail channel offers significant integration opportunities for marketing DSM solutions. Through effective and engaging point of sale displays and interactive kiosks, the IOUs will co-market a variety of programs and services through a single point of customer engagement.

For example, PG&E begins its fifth year of a Cooperative High-Efficiency Clothes Washer rebate program with a number of water agencies in the Greater San Francisco Bay Area. 12 agencies together with their sub-agencies, constitute a total of 33 water agencies (wholesalers and retailers) participating on PG&E's program. PG&E processes the rebate applications (submitted via paper application or online), sends customer data to the respective water agencies through a secure swap drive, and then issues one check to the customer that combines PG&E's rebate of \$50 and the water agency rebate (either \$50 or \$75, depending on efficiency rating) for a check total of either \$100 or \$125.

SoCalGas will seek opportunities to partner with municipalities, governmental agencies, water agencies and other stakeholders if applicable to promote water and energy conservation via the Energy Advisor Program. Further integration strategies may also include IDSM, ESAP and other energy efficiency programs where pertinent to water and energy conservation.

- c) **Leveraging of Resources:** Please describe if the subprogram will leverage additional investments by market actors or other state, local or federal agencies.

N/A

- d) **Trials/ Pilots:** Please describe any trials or pilot projects planned for this sub-program

The PLA sub-program may include several additional pilots in the 2013-14 Transition Period to evaluate new program delivery methods:

- Market trials to explore sales uplift for PLA targeted products by inviting retailers and or manufacturers to submit proposal for energy efficient PLA sub-program promotion²³.
- Collaborate with manufacturers to provide low-cost ENERGY STAR appliances for lower income customer segments but not qualified for the low-income program services²⁴.
- Field Service teams to provide in-store training of retailer sales staff about energy efficient products; demonstrate energy efficient products to

²³ D&R International, "Massachusetts Market Lift Program - Summary Description and Methodology", April 17, 2012

²⁴ RIA/EMI's Plug Load Market Characterization study

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customers; maintain point-of-purchase education materials and ongoing market surveys of energy efficient products.

- Updating sales channel strategy to respond to growing integration of traditional brick-and-mortar retailers and e-commerce marketing for product evaluation, purchases, and post sales supports.
 - Provide incentives to retrofit projects that used qualified contractors to ensure high quality retrofit and enhance code compliance such as pool pump retrofit projects in compliance with code T20.
 - Coordination with industry partners on an integrated strategy with Codes and Standards bodies around “Horizontal Standards” strategy to influence product standards that lead to energy savings across many product categories.
 - Pilots of Home Energy Centers or Power Management Umbrellas to influence the overall reduction of miscellaneous plug loads in California homes.
 - Coordination with industry partners around voluntary agreements for energy reductions, such as, discussions currently occurring in the Cable and Satellite set-top box space.
 - Technology evaluation and market acceptance testing of PLA emerging technologies, which may include set-top boxes, game consoles, servers, advanced power strips, imaging equipment, audio, video equipment’s and home energy management products and energy saving and demand respond capable appliances and plug-loads.
 - Unit Energy Consumption (UEC) as a long term market transformation indicator for monitoring program influence on overall PLA electricity usage in home instead of product-by-product attribution model.
- e) **Knowledge Transfer:** Describe the strategy that will be used to identify and disseminate best practices and lessons learned from this sub-program

One-Stop-Shop Information Repository

The PLA sub-program supports the Energy Upgrade California web portal to serve as a one-stop-shop for PLA sub-program information, as well as generalized energy education information for residential and small business consumers on efficient PLA products, while still continuing to prompt home and small business owners to immediately take action to participate in available PLA sub-program activities. It should also serve as a repository of information for the utilities,

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practitioners, the California Energy Commission, local government programs, and third-party programs participating in PLA sub-program.

Conference, Seminars and Workshops

Participation in conferences, seminars, and workshops are essential for the PLA market transformation efforts to remain up-to-date on key industry players, new technologies, and best practices to properly support PLA sub-program strategy planning. These events allow the PLA sub-program to expand the network of partners for future collaboration efforts within the energy efficiency and PLA industry. Below are few of the key conferences, seminars, workshops and meetings that PLA sub-program may participate:

- (1) CEE Program Meetings
- (2) EPA ENERGY STAR Products Partner Meeting
- (3) Consumer Electronics Show (CES)
- (4) ACEEE's National Symposium on Market Transformation
- (5) Western Regional Utilities Collaborative Quarterly Meetings

11) Market Transformation Information: For programs identified as market transformation programs, include the following:

i. A summary of the market transformation objectives of the program.

The PLA sub-program aims to transform the market to achieve sustainable adoption of energy efficient PLA products where ongoing intervention would no longer be required. For the short to mid-term time frame where energy efficiency PLA products are still not the market's default choices, the program uses incentive mechanisms, ME&O, WE&T, and strategic industry collaboration to increase availability, awareness, and adoptions of energy efficient products. For the longer-term time frame, the PLA sub-program leverages Integrated Demand Side Management (IDSM) programs to influence the development codes and standards in order to ensure the minimum required energy efficiency levels, promote "Energy Efficiency" as the preferred choice in life-style and new product purchases. The program's long-term strategy seeks to create ongoing demands for "Energy Efficiency" products and thus motivate the industry to produce and sell high energy efficient PLA products as the market standard offering.

ii. A description of the market, including identification of the relevant market actors and the relationships among them;

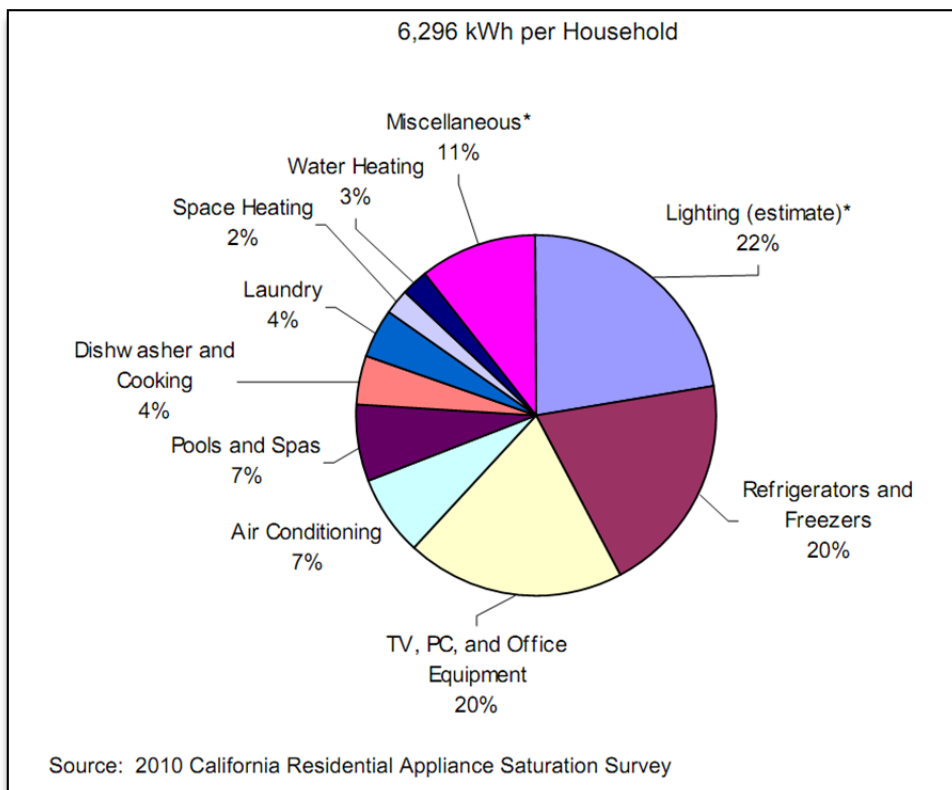
PLA markets comprise of traditional "white" goods or durable appliances such as refrigerators and washing machines, plus miscellaneous plug-load products such as consumer electronic, home office equipment and other small electronics devices requiring external power supply.

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The PLA products consumes about 66% and miscellaneous plug loads (televisions, personal computers and office equipment) accounting for about 20%²⁵. The PLA products comprise one of the largest and fastest growing end-uses of the residential sectors, dwarfing electrical loads from traditional categories such as lighting and HVAC. Clearly, these markets call for strategic interventions if we are to achieve BBEES’s 2020 vision of ZNE for new residential construction and reduction of 40% of residential purchase energy from the 2008 level.

The average annual electricity consumption in California was 6,296 kWh per household. This was an increase of approximately 6 percent compared to the 5,914 kWh per household reported in the 2003 RASS. Televisions, personal computers, and office equipment consume a 5 percent higher proportion of the total consumption compared with the results from the 2003 RASS²⁶. Figure-3 details the breakdown of the 2009 annual household electricity consumption by end use.

Figure-11: 2009 annual household electricity consumption by end use



The average annual natural gas consumption in California households was 354 therms per household based on billing data from PG&E, SDG&E, and SoCalGas.

²⁵ Final Decision for the 2013-14 Transition Period at page 202

²⁶ 2009 California Residential Appliance Saturation Study at page 3

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The household natural gas UEC decreased by approximately 18 percent from the 431 therms per household reported in the 2003 RASS. Figure 3 details the breakdown of the 2009 annual household natural gas consumption by end-use. Compared to the 2003 RASS, consumption for water heating increased by 5 percent to 49 percent, whereas space heating decreased by 7 percent to 37 percent²⁷.

Figure-12: 2009 Annual Household Natural Gas Consumption by End-use

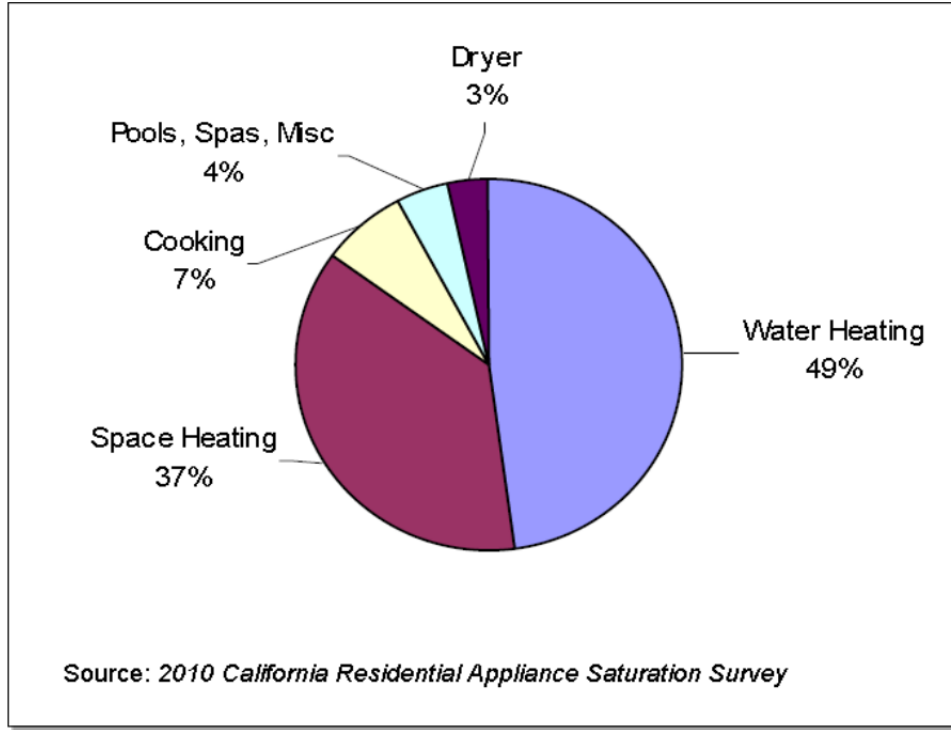


Table-B: PLA Market Actors & Relationships

Relevant Actors	Relationships & Dynamics Among Market Actors
Product Manufacturers	<p>Develop and commercialize a family of technologies based on long-term roadmap planning. The products derived from the manufacturer’s technology roadmap are released to the markets on an annual basis with incremental new features for consumer electronics categories.</p> <p>The effective point-to-influence of manufacturers would be their technology development roadmap whereby IOUs have the opportunities to influence the manufacturers on a longer-term strategic basis.</p>

²⁷ KEMA, 2009 California Residential Appliance Saturation Study at page 9

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Relevant Actors	Relationships & Dynamics Among Market Actors
Distributors	<p>Most of the appliance and electronic products reach the market through two distribution layers – manufacturers to regional distributor, and then regional distributor to local retailers. The distributor layer is an important layer that must be taken into account in the IOU’s program design.</p> <p>The distributor’s key value is to provide product inventory and logistics management on the behalf of the manufacturers and retailers. The manufacturer ideally benefits from working with a distributor as the manufacturer has fewer ship-to locations and fewer retailers to sell their product to. The distributor would break out bulk product packaging and do all the individual shipping and selling to retailers for the manufacturers.</p> <p>Similarly, the retailer ideally benefits from working with a distributor as the retailer has fewer manufacturers to work with in purchasing their products. The retailer would be able to purchase a wide range of products from different manufacturers which the distributor represents. Sometimes the distributor may even own the product inventory thus allowing the manufacturers and retailers to mitigate the financial risk of holding their own product inventories.</p> <p>The distributor has significant influences on the manufacturers and retailers. The distributor would be very selective in which manufacturers to represent, which products to carry in their inventories, and which retailers they would sell to. They look for assurance that the represented products would have high sales volume based on the evaluation of the brand’s marketing strength, brand advertising and other market data.</p> <p>The IOUs, representing large regional markets, could work together to exert coordinated influence on the distributor. This in turn would make it easier to the IOUs to convince the retailers to sell and manufacturers to produce products carried by their distributors.</p>
Retailer – National	Retailers serve their target customer bases with store outlets across the country. The national retailers make product purchasing decisions based on maximum sales potential to their target customer base and bulk discounts for those products.

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Relevant Actors	Relationships & Dynamics Among Market Actors
	<p>One of the retailer’s key objectives is to maximize the sales of their most profitable products. Therefore, the IOUs could influence the retailer’s ability to reach their key objectives through inventive program and joint promotions to generate sales uplifts.</p>
Retailer – Regional	<p>Similar to national retailer chain but operates on smaller geographical market foot print. The regional retailers sell products to their targeted customer base through store outlets located within the regional market. The regional retailers generally have less clout in influencing the manufacturers and distributors due to their lower sales volume.</p> <p>The regional retailers have similar business objectives as any other retailers, maximizing the sales by focusing on highly popular products in the markets. Therefore, the IOUs could influence the retailer’s ability to reach their key objectives through inventive program and join promotion to generate sales uplifts.</p>
Retailer – Small	<p>Most of the small retailers are privately owned and operate with one or two store outlets in local markets. Their small purchasing power does not allow them to purchase products from big distributors. As a result, the majority of small retailers join large buying groups so that they can leverage their collective buying power to compete with the larger retailers.</p> <p>Small retailers could be an effective channel for reaching small hard-to-reach markets for IOUs programs.</p>
E-commerce Retailer/Resellers	<p>E-commerce has a growing importance in the customer’s product purchasing process. The customer toggles back and forth between the traditional brick-and-mortar retailers and e-commerce sites for product research, price shopping, purchases, and post sales support.</p> <p>IOUs will explore new sales channel strategies that include the integration of traditional brick-and-mortar and e-commerce channels to facilitate ease of access to energy efficiency information; enabling customers to readily find information about energy efficient products and services, identify participating retailers in their neighborhoods, and complete on-line sign-ups to receive notification about special efficiency</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
	offerings, rebates, or incentives.
Recycle Service Provider	<p>At least 18 states have enacted landfill bans for appliances since 2000 to extend the life of the nation’s landfills, requiring private industry and public sector to implement recycling of these goods. The recycling service providers enable the customer to dispose unwanted appliances and turn recycled appliances into valuable resources manufacturing raw materials. Recycling appliances has positive impact on the environment, since some material takes four times as much energy to manufacture material from their virgin state as it does to make the same steel from recycled scraps.</p> <p>The typical services provided range from logistic arrangements to pick up of old appliances; tracking recycled items’ serial number, manufacturer, model; dismantling the appliances into various materials; glass recycling by removing all glass and create cullet to be used in remanufacturing; shredding the separated materials to reduce their size; sorting shredded material into non-ferrous metals, plastics and other distinct categories which are then bulk packed for transport; commodity sales of the recycled materials in a wide range of new products and keeping building block materials out of landfills.</p> <p>The recycle service provider works with the retailers for bulk pickup of collected turn-in old appliances from the retailers’ new appliance customers, collaborate with organization such as Utilities to pick up individual old appliances from the Utility’s customers. The bulk pickup from the retailer’s collection point is more cost effective as compare to individual pickup from multiple customer homes.</p>
Pay TV Service Providers	<p>There are nearly 22 million set-top boxes (STB) delivering paid television content to California residential markets. Nearly all of these STBs are owned and installed by approximately nine large Pay TV service providers. In 2009, set-top boxes in California homes consumed approximately 4.4 billion kilowatt-hours of electricity, which is a significant consumption load demanding a strategic approach to improving the efficiency and reducing the cost of operating these electronics relied upon by so many customers.</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
	<p>These service providers have relatively strong marketing power with their customers. They have the opportunity to access a customer’s home, track STB inventory, device configuration and possibly power states of the installed devices. They would be in a unique position to provide home energy management systems through these ubiquitous set-top boxes.</p>
Contractors	<p>Contractors have significant influence on home owner’s purchase of low-touch appliances such as pool-pump/motor and water-heaters. IOUs could use midstream incentive to influence the products that the contractors carry and recommend to their customers.</p> <p>The IOUs have the opportunity to influence the contractors by providing:</p> <ol style="list-style-type: none"> 1. Incentives for projects installed by certified or qualified contractors would be an effective solution to ensure pool pump and motor retrofit projects be in compliance to code T20. 2. Training either at the IOU’s Energy Centers or in conjunction within store retailer trainings on installing energy efficiency products and control system, IOUs energy efficiency programs and codes and standard relating to energy efficiency.
ACEEE	<p>The American Council for an Energy-Efficient Economy (ACEEE) is a nonprofit organization founded in 1980 by researchers in the energy field that aims to advance energy efficiency policies, programs, technologies, investments, and behaviors. ACEEE carries out its mission by collaborating with government, private sectors, research institutions and other nonprofit organizations to cover energy efficiency policy and technology issues.</p>
CEE	<p>The Consortium for Energy Efficiency (CEE) is a consortium of efficiency whereby program administrators from across the U.S. and Canada who work together on common approaches to advancing efficiency. Through joining forces, the individual efficiency programs of CEE are able to partner not only with each other, but with other industries, trade associations, and government agencies. By working together with CEE, administrators leverage the effect of their funding dollars, exchange information on effective practices and, by doing so, and achieve greater energy efficiency for the public good.</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
<p>Advocate Organizations</p>	<p>Non-profit organizations dedicated to advocates for various stake holder groups (end-customer, environment, manufacturers, etc.) and at time exert influences on California’s energy policies making process and California IOUs activities. Examples of such organizations in California would be Natural Resources Defense Council (NRDC) and Division of Ratepayer Advocates (DRA).</p> <p>NRDC is an effective environmental action group, combining the grassroots power of 1.3 million members and online activists with the courtroom clout and expertise of more than 350 lawyers, scientists and other professionals. NRDC staffs work with businesses, elected leaders, and community groups on the biggest issues we face today such as “Curbing Global Warming and Creating the Clean Energy Future”.</p> <p>The DRA is an independent consumer advocate within the California Public Utilities Commission (CPUC) that advocates solely on behalf of investor owned utility ratepayers. DRA plays a critical role in ensuring that the customers of California’s energy, water, and telecommunications utilities are represented at the CPUC and in other forums that affect how much consumers will pay for utility services and the reliability and safety of those services. Additionally, DRA supports environmental protections and seeks to ensure that utility actions comport with CPUC rules and California environmental laws. DRA actively participates in CPUC proceedings to aid the Commission in developing the record from which it will formulate its final decisions. DRA also actively lobbies decision-makers on behalf of ratepayers to ensure that the consumer perspective is heard.</p> <p>Both NRDC and DRC are active key players in California’s energy industry. They provide inputs into CPUC’s policy and rule making processes.</p>
<p>EPA ENERGY STAR</p>	<p>ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping the market to adopt energy efficient products and practices. ENERGY STAR helps customers make energy efficient choices by providing a market accepted energy performance rating system that is being used across the country</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
	<p>on hundreds of thousands of PLA products.</p> <p>ENERGY STAR works with the manufacturers, trade associations, government agencies and utilities to set energy performance rating system.</p>
EPA RAD	<p>EPA Responsible Appliance Disposal (RAD) is a voluntary partnership program that began in October 2006 by the U.S. Environmental Protection Agency to help protect the ozone layer and reduce emissions of greenhouse gases using best practices. As part of the RAD program, partners recover ozone-depleting chemicals from old refrigerators, freezers, window air conditioners, and dehumidifiers.</p> <p>EPA RAD serves as a technical clearinghouse on responsible appliance disposal program development and implementation; calculates annual and cumulative program benefits in terms of ozone-depleted savings and greenhouse gas emission savings and equivalents and, as available, potential cost savings; and provides partner recognition for achievement, such as through press releases, brochures, articles, and awards.</p> <p>EPA RAD partners include utilities, retailers, local governments, manufacturers, universities, and other interested organizations.</p>
CEC	<p>The California Energy Commission (CEC) is the state's primary energy policy and planning agency. It is responsible for promoting energy efficiency by setting the state's appliance and building efficiency standards Title-20 and Title-24 respectively. The CEC works with local government to enforce those standards. The IOUs work very closely with the CEC to develop energy efficient codes for appliances and plug-loads.</p>
Local Government	<p>In D.05-01-055, the Commission also directed the IOUs to initiate energy efficiency partnerships with local governments. Having continued this practice in the 2010-2012 portfolios, the IOUs now have two portfolio cycles and almost seven years of experience with increasing levels of local government. The IOUs continue to partner with local governments to increase the delivery of energy efficiency and enhance code compliance programs.</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
Regional Utilities / IOUs	The IOUs collaborate with each other and other regional Municipality-Run-Utilities to share resources, information, and joint research projects. By working closely with each other, the IOUs seek to increase the collective negotiating power when working with PLA retailers.
Customers	End-user of residential energy efficient products and services that are provided by sales channels through IOUs' EE program intervention. The IOUs may reference to the PLC framework to segment the customer bases for targeted intervention initiatives.

iii. A market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies;

Utilities face uphill battles in influencing the PLA markets due to powerful national market trends that dominate manufacturers and national retailers' choice of product offering. Other market characteristics that pose great challenges to the current product-by-product program design include: small incremental energy savings from many plug load devices resulting in product-based programs that are not cost effective for IOUs; the consumer electronics' rapid product life cycle of 6-12 months pose significant difficulties in establishing saving baselines and timely work-paper approval for individual measures; and growing trends of networked home electronics making energy savings attribution on a product-by-product basis problematic.

There are still specific product-based saving opportunities that address specific market barriers or conditions. However, the big market trends suggest a holistic market transformation approach that targets an overall reduction in plug loads and using Unit Energy Consumption (UEC) as a market transformation indicator (MTI) could be more effective in addressing the market long term barriers. In this approach, the program could rely on California Residential Appliance Saturation Survey or equivalent reports which provide forecast of plug load use in California as a basis for the measurement of program impacts. Once a forecast of plug load energy usage is established, the targets could be set for changing the UEC curve to slow its growth or even lower its intensity over time. This approach could improve flexibility in measure implementation by moving away from the work paper process and short-term cost-effectiveness requirements that hamper effective product based program design in fast-moving markets.

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The PLA sub-programs could evaluate current pilots, such as the PG&E Home Energy Centers that provide consumers with energy usage information from smart meters or SCE's proposed Power Management that provide an umbrella approach to influence the overall reduction in miscellaneous plug loads in California homes. By 2015, we expect smart chip-enabled and networked appliances to be available, and thus fueling the proliferation of more comprehensive home automation and energy management systems (i.e., Intelligent Home Network, comprehensive Home Automatic Network and etc.). These systems will help customers lower their overall energy consumption at home instead of focusing on savings per product basis. The Emerging Technology activities in the 2013-14 period will assess the enabling smart and connected PLA technologies that have the potentials to deliver not only hardware based energy savings, but also information feedback to enable broad customer's behavior savings opportunities.

On the state of recycling, the saturation level of second refrigerators and freezers has been slowly creeping up over the last decade. From the 2009 CEC Residential Appliance Saturation Study²⁸, the second refrigerator and freezer saturation levels are up to 33% for second refrigerator and 23% for additional freezer for the statewide single family home. This is a marked increase of secondary refrigerators from the 2003 RASS results, which may have resulted from the popularity of large super-stores such as Costco and Super Wal-Mart stores in the past ten years. The large discount stores encourage large bulk food purchases, which in turn, generates the need for increased food cooling storage. The current Statewide Appliance Recycling channel offers customers the convenience of free-pickup plus small cash incentives for old working refrigerators to help minimize the return of units back to the used-appliance market as secondary refrigerators. Similarly, the IOUs work with the retailer based appliance recycling channel to offer customers the convenience of "deliver-and-haul" by hauling away the old appliance when the new one is delivered. Furthermore, the PLA sub-program supports the US EPA RAD, which eliminates the current market practice of reselling old appliances removed from customer homes during the delivery of new ones.

Market Actors and Their Relationship in the Markets

Depending on the application and appliances, market actors within the supply chain may be involved in the delivery of products and services to the customers. The list of key market actors and the dynamic relationship among them is discussed in Table-B.

iv. A description of the proposed intervention(s) and its/their intended results, and specify which barriers the intervention is intended to address;

The PLA sub-program is designed with the overarching objectives of influencing the market to produce and sell high energy efficient products, customers to adopt

²⁸ KEMA, 2009 California Residential Appliance Saturation Study

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energy efficient products and employ energy conservation usage behavior, and codes and standards to support minimum energy efficiency levels across all PLA product categories. The PPMs (Section 9, iv, (c)) are goal posts guiding the program’s efforts and MTIs (Section 12, vi) provide feedback on how the program progresses against the overarching objective stated above. Table-C below identifies key market barriers, and the intended market effects from the proposed intervention.

Table-C: Market Barriers and Market Affects from Proposed Intervention

#	Barrier	Interventions & Intended Results
1	High first cost	<p>Applying appropriate incentive to influence the market or the customer through the appropriate stream (upstream, midstream or downstream)</p> <p>The intended results of this intervention are to help customers overcome the high first-cost barrier and encourage adoption of higher energy efficient products over standard offerings.</p>
2	Lack of retailer sales staff knowledge on how to sell energy efficiency products	<p>Providing in-store training for sales staff or associates on program guidelines and energy efficiency.</p> <p>The intended results of this intervention are to increase sales staff’s or associates’ knowledge and increase accessibility to energy efficiency information thus enabling more effective sales efforts.</p>
3	Lack of contractor’s awareness of energy efficiency products and code requirements	<p>a) Providing training for contactors either at IOU’s Energy Centers or in conjunction with the in-store retailer trainings.</p> <p>b) Providing incentives to projects installed by certified or qualified contractors</p> <p>The intended result of this intervention is to increase the contractor’s knowledge on energy efficiency. Thus enable more effective sales efforts and higher efficient installed projects.</p>
4	Lack of customer’s knowledge on benefits of energy efficiency	<p>a) Providing in-store demo to customers</p> <p>b) Enhancing in-store marketing and education materials</p> <p>c) Providing product information on websites and other communication channels</p> <p>d) Providing customer education at community out-reach events</p>

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#	Barrier	Interventions & Intended Results
		<p>The intended result of this intervention is to increase the customer’s knowledge on how energy efficiency benefits their lives and to impart “energy efficiency” as the preferred life style and choice in new product purchases.</p>
5	<p>Incremental savings too small to motivate customer’s behavior changes and not cost effective for IOU’s program</p>	<p>Create a holistic and flexible program to address residential plug loads as a category and develop intervention that targets an overall reduction in plug loads. It would also require an evaluation framework that assesses the overall reduction in plug loads due to multiple measures, instead of focusing on a per-product/per-measure evaluation framework.</p> <p>The intended results of this intervention is to move away from the short-term cost-effectiveness requirements and work paper process that hampers effective product based program design in fast-moving markets.</p>
6	<p>Short product life cycle for miscellaneous electronics make the establishment of baseline difficult and timely work-paper development and approval impractical</p>	<p>Same solution as above – moving toward comprehensive approach rather than focusing on per-product/per measure program.</p> <p>Targeting the same intended results as above.</p>
7	<p>Proliferation of interconnected electronics and small devices making intervention per products less efficient.</p>	<p>Same solution as above – moving toward comprehensive approach rather than focusing on per-product/per measure program.</p> <p>Targeting the same intended results as above.</p>
8	<p>National market trends dominate the PLA markets</p>	<p>Develop longer-term market transformation initiatives that seek to influence key market actors’ long-term technology development roadmap.</p> <p>This also calls for the program design and evaluation framework that address the residential plug loads as a category and develop programs that target an overall reduction in plug loads versus saving per-product/per-measure.</p>

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#	Barrier	Interventions & Intended Results
		Targeting the same intended results as above.
9	The market is able to make more money by selling older but still working appliances to the second-hand markets as compared to permanently dispose them.	<p>Data suggests that around 11% of the customers prefer to sell their old appliances into the used appliance markets. Additionally, about 10% - 25% of old appliances picked up by the retailers are often reconditioned and put back into the used appliance market.</p> <p>Proposed Intervention to address customers that sell their old appliances to used appliance market - Provide free-pickup and downstream incentive and/or other strategies to customer who surrenders their old but still working appliances to IOUs. This strategy will win over customers who seek the most convenient way to dispose of their old appliance.</p> <p>Proposed Intervention to address retailers that sell the collected old appliance to used appliance markets:</p> <ul style="list-style-type: none"> a) Provide higher midstream incentives to retailers that provide completed cradle-to-grave product life cycle management and compliance to EPA RAD b) Provide to customer down-stream incentives plus free-pickup of old but still working appliances c) Increase in-store marketing education's efforts to educate the customer about high operating cost from using old appliances.
10	Customer's lack of awareness of the high energy cost in operating secondary and older appliances. This has led to the significant growth of secondary refrigerators and freezers found in homes over the last decade.	<ul style="list-style-type: none"> a) Increase marketing education and outreach efforts on the high operating cost when using old and or refurbished/resold appliances. b) Provide free-pickup and downstream incentive and/or other incentives to customers who surrenders their secondary old but still working appliances to IOUs. This strategy will win over customers who seek the most convenient way to dispose of their old appliance. <p>To reverse this trend, the IOUs are directing more focus toward retiring secondary units in the 2013-2014 Transition Period. And to better distinguish and track "primary" vs. "secondary" units, the IOUs will explore new program design logic to more clearly differentiate</p>

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#	Barrier	Interventions & Intended Results
		between a primary and a secondary unit. Also, this new process may require additional verification procedures to ensure the participants would demonstrate persistence of this removal and not replace the secondary unit at a later date.

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- v. **A coherent program, or “market,” logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results²⁹;**

Refer to Section 10(l) for detailed diagrams of PLA sub-program logic models that describe the relationship between the proposed interventions and their intended results.

The Principal logic model (PLA Program Logic) for the Plug Load and Appliance Program (PLA) is the governing model for the PLA program components. This program component is responsible for selecting and prioritizing new products to be introduced to incentive programs as well as for judging when markets for products currently in incentive programs have been transformed so that the products can be removed from incentive programs. The PLA Incentive logic model portrays the logic of the incentive program, i.e. the production aspect of the PLA program.

PLA Program Logic

Since the primary function of this program component is to make decisions about the entry and exit of products to and from the PLA Incentive programs, the central activity is represented in the model by the Program Decision Panel (A). The logic of the program component is that this decision panel takes information and research from many sources and makes its decisions, assures that programs are designed and tested and that they are ready as production programs. The sources that feed into and receive feedback from the Decision Panel are: Priority & goals for PLA incentive and program activities (B), market, industry, stakeholder inputs, market research, and M&E studies (C2), codes and standards (C1), and ETP inputs (D). With all of this information the decision panel facilitates solution workbooks, activity tracking workbook, and, of course, lists of new and old measures. More centrally, it oversees the education and influence of market actors and stakeholders (F), which produces collaboration and agreements (M), thus overcoming some market barriers at that level. It also causes trials and pilots to be completed (O), which also feeds into the agreements with PLA stakeholders and manufacturers. These agreements promote end user purchase and installations and recycling among participants and ultimately non-participants as well (spillover).

PLA Incentive Program Logic

The PLA Program Logic described above addresses the collaborations and agreements that the IOUs generate with various market actors and stakeholders, but the PLA Incentive program logic specifies these activities in more detail. The activities at this level include promotion, and outreach events, EA Universal Audit Tool (D), advertising and direct mailing and incentives (G), engaging manufacturers with upstream incentives (B), engaging retailers and distributors (C),

²⁹ If this logic model is the same as that requested in #10.(O), only provide once. As needed, provide a more detailed logic model emphasizing the market transformation elements of the program and/or how such elements integrate with resource acquisition elements.

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and working through professional and trade organizations to engage contractors, architects, and engineers to support best practices (F). These agreements and collaborations yield reductions in market barriers at the upstream and midstream levels so that program products will be stocked and available to customers. The direct mail, advertising, and EA UAT promote the products directly to consumers so that they will look for the products at stores, and purchase them, reflecting the overcoming of barriers sufficient to generate the initial purchase. After the initial purchase, further barriers are reduced and more purchases are envisioned, both under the program and outside of the program (spillover).

vi. Appropriate evaluation plans and corresponding Market Transformation indicators and Program Performance Metrics based on the program logic model.

Due to the need to comply with the Decision’s timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section “18.1. Evaluation Budget” in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation - Market Effects: The market transformation program’s theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program’s scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones.

Formative evaluation: The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program’s direct outputs.

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Prah (MT Workshop, Nov 2011) suggest that declaring the program’s strategic intent through the market transformation initiative’s theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg &Hoefgen (2009) for attributing market effects to

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individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual efforts, and we believe the market transformation evaluation discourse should be focused on collaboration. We will disregard MT attribution by realizing we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals and it doesn’t matter which entity contributed how much but whether, as a state with our numerous market actors, we were successful or not. The PLA sub-program’s MTI will be based on the Commission Staff’s recommendation as shown in Table-D below.

Table-D: PLA Market Transformation Indicators³⁰

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

12) Additional information as required by Commission decision or ruling or as needed:

Include here additional information as required by Commission decision or ruling (As applicable. Indicate decision or ruling and page numbers)

Table-E: Final Decision’s Ordering Paragraphs on PLA Sub-program³¹

Ordering Paragraph	SW PLA PIP’s Response	PLA PIP’s Reference
Include the criteria used to determine the best delivery channel for any given plug load or appliance incentive or intervention - OP 63	Criteria used to determine the best delivery channels for any given PLA product is based on the market characteristics for the products and specific barriers or market opportunities.	Section 10(f) Section 10 (i)(i,ii,iii)
Identify the selected delivery channels for all measures - OP 64	The selected delivery channels for all measures follow practice of the current cycle. For post-2012, the criteria used to determine	Section 10(f) Section 10 (i)(i,ii,iii)

³⁰ Market Transformation Indicator Final List, May 24, 2012

³¹ Final Decision for the 2013-14 Transition Period on pages 411-412 and 434

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Ordering Paragraph	SW PLA PIP's Response	PLA PIP's Reference
	the best delivery channels is based on the current cycle practices	
Identify where synergies allow for more coordinated engagement work with retailers and manufacturers - OP 64	The PLA sub-program framework provides guidance for synergistic collaboration with industry partners as the measures transition through different market adoption stage.	Section 9(a) Section 12(ii)
Simplify and streamline program to maximize synergies with manufacturers and retailers and reduce administrative costs - OP 65	The PLA sub-program framework provides guidance for simplifying and streamlining program in order to maximize the collaboration with industry partners for reducing cost.	Section 9(a) Section 10(c) Section 12(ii)
Explore how to implement voluntary product specifications that support the development of mandatory “horizontal standards” (i.e., product standards that lead to energy savings across many categories) - OP 66	Coordination with NRDC, Code & Standard bodies, manufacturers and other market actors to develop and adopt “horizontal standards” for multiple product groups.	Section 11(d)
Re-orient Appliance Recycling Program and take all feasible steps in minimizing cost while maximizing savings - OP 68	Increase collaboration with retailers and the current appliance recycle service providers to support completed cradle-to-grave product life cycle management and encouraging disposal of older inefficient products from the grid.	Section 10(iv,v)
Discuss how the program advance market transformation toward Title 20 Codes & Standards changes - OP 67	Work with manufacturers, Codes & Standards bodies to influence code development and approval process	Section 12(ii)
Identify potential pilot projects or trials to test new program designs that would improve marketplace innovation and engagement and homeowner awareness within the 2013-2014 timeframe – OP 71	PLA sub-program identifies multiple potential trial and pilot projects planned for the 2013-13 Transition Period to evaluate new program delivery methods through a variety of channels and industry partners.	Section 11(d)
Propose initiatives that have been designed to accomplish “market transformation” – OP 162	Proposing PLA sub-program framework with embedded market transformation functions and dedicated program activities for driving successive waves of advance PLA	Section 9(a) Section 12(ii)

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Ordering Paragraph	SW PLA PIP's Response	PLA PIP's Reference
	technologies through the market adoption life cycle. The proposed PLA sub-program framework employ stage-gate process for managing the flow of technologies through IOUs EE programs.	

Additionally, Table-F below provides the Final Decision's requirements on the Re-orientation of the Appliance Recycling activities and IOUs' responses.

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Table-F: Final Decision’s Requirements on Appliance Recycling³²

Final Decision’s Requirements	SW PLA PIP’s Response	PLA PIP’s Reference
1) Add New Appliances: Expand recycling efforts to include clothes washers and air conditioners - (FD, page 206).	Explore the opportunities to add new appliances but will not consider clothes washers or room air conditioners as both have been proven not to be cost effective.	Section 10(v)
2) Switch to Distribution Center Pick-Ups: Reduce overall program costs by directing retailers to pick up units for recycling. IOU program collections of appliances in the home could be replaced by collections at partner retailer distribution centers. IOUs must avoid duplicating existing efforts with these strategies - (FD, page 206).	Will use the results of SCE’s Retailer Based Appliance Recycling Trial Study to develop the new Retailer Base Appliance Recycling Element.	Section 10(iv)
3) Emphasize High Consumption and Secondary Units: Target units with highest savings potential and emphasize collection and recycling of vintage models, secondary units, and extra freezers - (FD, page 206).	Increasing focus on recycling of higher consumption and secondary units as part of the Statewide Appliance Recycling activities.	Section 10(v)
4) Influence Appliance Purchaser’s Decision: Use the results of current recycling retailer trials to determine the best approaches to partnering with retailers. These partnerships could seek to cost-effectively capture savings through influencing a new appliance purchaser’s decision to retire their old units. IOU retailer partnerships could include delivering new appliances at the	Will use the results of SCE’s Retailer Based Appliance Recycling Trial Study to develop the new Retailer Base Appliance Recycling Element.	Section 10(iv)

³² Final Decision for the 2013-14 Transition Period on pages 206-207

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Final Decision's Requirements	SW PLA PIP's Response	PLA PIP's Reference
<p>same time as collecting old units for recycling. The IOUs should seek to coordinate collection of old units with appliance manufacturers and recyclers - (FD, page 206).</p>		
<p>5) Participants Receive Appliance Incentives upon Surrender of old Appliance: Condition the provision of appliance incentives upon surrender of older units for recycling - (FD, page 207).</p>	<p>Will focus on combining rebates for the purchase of high efficient appliance and Retailer Based Appliance Recycling program. This new strategy allows customers to participate in appliance recycling as part of the new appliance delivery-and-haul away process. This approach will not require customer to surrender their appliance as part of the rebate process but still allows IOU's to reduce program implementation cost while providing options that improve the customer experience.</p>	<p>Section 10(v)</p>
<p>6) Transition of Recycling to Market Actors: Transition the current appliance recycling program to market players by a specific date - (FD, page 207).</p>	<p>Transition of the current appliance recycling program to market players by a specific date could not be answered with certainty at this point. The IOUs will continue to engage the Commission and appropriate market actors on this – See Section 10(v) for more detail intervention treatment in the short-mid and long terms.</p>	<p>Section 10(v)</p>
<p>7) Highest Standard of Recycling: Require ARP participating recyclers to comply with highest standards of recycling, including for GHG emissions in refrigerants and foam insulation - (FD, page 207).</p>	<p>Continue to require all participating recycling service providers to comply with the EPA RAD (Responsible Appliance Disposal) guidance.</p>	<p>Section 10(iv, v)</p>
<p>8) Properly Target Multifamily Residences: Develop new recycling approaches for the multifamily sector, including a bulk exchange approach - (FD, page 207).</p>	<p>Offer bulk pickups (at reduced recycling costs) where feasible and possibly explore adding new program element to include appliance exchange program.</p>	<p>Section 10(v)</p>

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Final Decision's Requirements	SW PLA PIP's Response	PLA PIP's Reference

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1. Program Name: SW-CALS-MFEER
Program ID: SCG 3704
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 - reference the CalSPREE for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the CalSPREE for projected savings details

4. Program Description

a) Describe program

The Multifamily Energy Efficiency Rebate program (MFEER) is a continuation of the existing statewide program within the residential energy efficiency portfolios. In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including: whole house solutions, plug load efficiency, visual monitoring and displays, performance standards, local government opportunities, and DSM integration.

Historically, owners and managers of multifamily properties have been less responsive to energy efficiency efforts than other residential customers. As one of California’s largest segments, this unique market warrants additional attention and effort needed to motivate property owners and managers to actively participate in energy efficiency programs. The MFEER proposes a series of comprehensive measures designed to address systems within multifamily housing.

The MFEER offers a variety of incentives for energy efficient products and services to motivate the multifamily property owners/managers to install energy efficient products in both common and dwelling areas of multifamily complexes and common areas of mobile home parks and condominiums. An additional objective is to heighten the energy efficiency awareness of property owners/managers and tenants.

The creation of energy-efficient complexes provides benefits beyond the direct energy savings. Through the incorporation of energy efficient measures by multifamily property owners and managers, tenant behaviors can be influenced and comfort improved. The hope is that these behaviors can contribute to a virtual cycle of energy efficiency - as tenants receive upgrades that reduce their energy costs and improve comfort, they in turn recruit and mentor other tenants.

The MFEER addresses the ongoing concern with “split incentives”, where the residents are not the owners of the property, so they lack incentive to improve their energy usage.

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Similarly, the property owners do not live on-site and pay higher utility expenses due to inefficient appliances, thus lack any incentive to upgrade. The MFEER is designed to drive this customer segment toward participation by offering property owners a variety of energy efficiency measures and services.

Program Integration: The MFEER marketing plans include print material, direct mail campaigns, print advertisement, trade show exhibitions, and presentations to related target market organizations.;

The program also links program incentives from the PLA and coordinates with the Energy Savings Assistance program Middle Income Direct Install (MIDI) Program, Multifamily Energy Upgrade California (MF EUC) Program, as well as other energy efficiency programs.

Support for ESA Qualifying and Non-ESA- Qualifying Low Income Families: To make property owners/managers aware of income-qualified services available to tenants, the MFEER promotes the ESA program within the customer application and outreach efforts. The MFEER will work with municipal entities to support AB811 to serve the needs of non-ESA qualifying low income families while still adhering to MFEER's program design.

b) List measures

Measures and services to reduce energy usage may include, but are not limited to, the following:

Lighting

- Screw-in CFL Reflector bulbs (ENERGY STAR-Qualified)
- Interior LED Lamps
- Interior CFL Fixtures (ENERGY STAR-Qualified)
- T5 or Lamps w/electronic ballasts
- Exterior CFL fixtures (ENERGY STAR-Qualified)
- Exterior LED lamps
- Exterior LED fixtures
- Occupancy sensors
- Photocells
- Ceiling Fans (ENERGY STAR-Qualified)
- LED Pool and Spa lighting
- Vending Machine Controls

Building Envelope

- High Performance Dual-Pane Windows
- Attic and/or wall insulation

Water Heating

- Electric storage water heaters
- Central system natural gas water heaters

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- Natural gas water heater and/or boiler controllers
- Natural gas storage water heater
- Tankless water heaters

HVAC

- Package terminal air conditioners & heat pumps
- Unitary AC Units
- HVAC Quality Maintenance
- Brushless Fan Motor for Central AC
- Evaporative Coolers
- Programmable Thermostats
- Central natural gas furnace

Appliances

- Refrigerators (ENERGY STAR® Qualified)
- High-efficiency Clothes Washers
- High-efficiency Dishwasher (does not apply to SoCalGas)
- Cold Water Clothes Washers

Pumping

- Variable Speed Pool Pumps
- Programmable Thermostats (Common Areas only)
- Demand Control for Centralized Water Heater Recirculation Pump

Measures may be added or removed from the program as technologies evolve and market potential warrants.

c) List Non-incentive Customer Services

MFEER schedules training workshops to educate contractors about the benefits of the measures offered by this program and other energy efficiency programs, including the ESA program.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless

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indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Multifamily Energy Efficiency Rebate Program (Resolution E-4385, Appendix A):

Table 3 – MFEER PPM

Multifamily Energy Efficiency Rebate	1. Percentage of non-lighting measure savings as compared to the total EE measures adopted in the MFEER program. (KWh for single-commodity IOU and BTU for mixed-commodity IOU.)	2a
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b) Market Transformation Indicators

Resolution E-4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.

c) Program Design to Overcome Barriers

Previous MFEER participants often state their intent to continue upgrading their complexes with energy-efficient products. Lowered energy bills and reduced maintenance efforts (e.g., changing out short-lived incandescent lamps) are economical. Below is a list of program barriers:

Ongoing Concern with Split Incentives

While some market barriers are the same as for other residential programs such as the HEER (described below), others are unique to the MFEER. For this program, which must deal with both owners/managers of multi-family buildings and with tenants, the split-incentive barrier is high. Any measure or appliance that is installed in the tenant dwelling area will provide benefits to the tenant while costs may go to the owner/manager. This fact implies an uphill effort to get owner/manager participation.

In alignment with California’s BBEES and EAP policy initiatives, and advanced by the Strategic Plan, the MFEER is in the unique position to overcome the split incentive barrier by serving two distinct beneficiaries of energy savings, the property owner and the tenant. MFEER design has been overcoming the split incentive barrier since the program's inception in 2002, as had its predecessor; the Residential Contractor Program did since 1999. Program design has been effective to such an extent that the majority of MFEER rebates paid were for products installed in tenant dwelling units.

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The diversity of multifamily building types makes it highly challenging to develop program delivery models, incentives and consistent packages of building upgrade measures that meet the needs of every situation.

The multifamily sector encompasses a range of building sizes, system types and configurations of dwelling units and nonresidential areas. Because multifamily building types are so diverse, it is highly challenging to develop program delivery models, incentive programs and consistent packages of building upgrade measures that meet the needs of every situation.

In many cases, the property owner or manager's energy efficiency knowledge is limited. As such, deciphering through the variety of offered measures can prove to be challenging, and in some cases even discouraging. Additionally, in a multifamily building's lifecycle, there are specific times when it is most cost effective and convenient for the property owners/managers to make energy and green upgrades. The program needs to focus on these triggers or entry points to engage and educate customers on energy efficiency benefits.

MFEER has proven success developing an established network of professionals who are experienced in their specific trade and are effective at both marketing program availability to potential clients and installing the specific set of measures.

This network of professionals tailors their services (lighting, HVAC, appliances, etc.) to take advantage of these entry points.

Difficult to reach due to property owners lack cohesiveness as a group and high turnover rate of property managers

Further planning difficulties are generated by the fact that property owners/managers, in large part, are not a cohesive group. This leads to disparities and gaps in industry knowledge and poses a barrier to knowledge sharing. In addition, since on-site property managers tend to be somewhat transient, maintaining consistent contact is difficult.

The multifamily property sector consists of commercial enterprises that provide residential living spaces. In this quasi-commercial role, the property owner straddles the residential and commercial energy efficiency programs' definitions. The MFEER specifically addresses their often overlooked needs.

The desired outcome of MFEER implementation is to realize long-term energy savings through the installation of energy-efficient products in both the common areas and dwelling units of multifamily complexes and the common areas of condominium complexes and mobile home parks. Another objective is the inclusion of rented mobile homes when those park owners/managers are making replacements in common areas.

The creation of energy-efficient complexes provides benefits beyond the direct energy savings to common areas. Through the incorporation of energy efficiency measures by multifamily property owners and managers, the opinions and behaviors of tenants can be

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influenced. These behaviors can contribute to a self-reinforcing cycle of energy efficiency responsibility throughout a complex as more knowledgeable customers install measures that can reduce the overall energy footprint, with no loss of safety or comfort.

Issue of Affordability

Out-of-pocket costs pose a significant participation barrier for the customer. With the exception of some of the larger property management firms, pay-back terms, no matter how favorable, are perceived as an unacceptable risk by the average customer.

Program Integration to Overcome Barriers

Multifamily building owners and managers find it daunting to sort through the various programs, funding and incentive options, and program requirements. To address the trend toward comprehensive solutions and to reduce the potential for lost opportunities, MFEER will integrate opportunities with other energy efficiency programs and services, such as the existing ESA program and ARP, Energy Advisor as well as the MF EUC and MIDI programs. While programs will be coordinated and integrated, their respective policies and procedures will be followed in the delivery of services. Operational efficiencies will be employed to streamline the application process and installation of measures. This unprecedented integrated approach combines market-rate and income-qualified energy efficiency measures that will benefit multifamily property owners and tenants; providing the opportunity to educate building owners on the benefits of energy efficiency and conservation efforts spanning the range of needs for the multifamily market.

This collaboration should increase participation levels for each respective program:

- The MFEER will continue to work with the ARP to promote the turn-in of inefficient (but functional) property owner-owned refrigerators. To generate interest and gain higher participation levels through joint marketing efforts, MFEER will also consider opportunities to cooperate with other energy efficiency programs or services.
- MFEER will promote the ESA program and the California Alternate Rates for Energy (CARE) program within the application by making the property owner/manager aware of the available income-qualified services for the tenants. Additional marketing efforts may include reaching tenants through direct-mail to promote services not offered under MFEER, such as the CARE electricity bill discount of 20% or more and the income-qualified refrigerator replacement.
- MFEER will coordinate with the Energy Advisor (“EA”) program to promote, and potentially develop, a survey specific to the multifamily segment that engages the property owners/managers by helping identify opportunities for saving energy and money by using MFEER and other energy efficiency programs.
- The MF EUC program seeks deeper energy savings through a comprehensive approach. The program targets property owners/managers with scheduled project

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rehabilitation who are willing to invest in a performance-based whole-building approach. The incentives are designed to influence the implementation of comprehensive measures and therefore are based off of energy reduction achieved. As such, MFEER will guide property owners/managers with comprehensive project potential to the MF EUC program.

d) Quantitative Program Targets

The statewide MFEER is striving to meet the following program activity targets. The proposed targets may be modified due to funding restrictions, especially for the 2013-2014 year.

Table 5: Proposed Program Activity Targets

Program Target	Program Target by 2013	Program Target by 2014
<p>Target #1</p> <p>Direct mailing to reach 5,000 multifamily property owners/manager (SoCalGas)</p> <p>Advertising in trade journal (depended on approved marketing budget) (SoCalGas)</p> <p>Support outreach events such as trade shows (SoCalGas)</p>	<p>Complete 5,000 pieces of direct mailing,</p> <p>place monthly trade journal advertising,</p> <p>attend 2 trade shows per year</p>	<p>Same as 2013</p>
<p>Target #2</p> <p>Require 100% of program participating electrical contractors to meet licensing requirements</p>	<p>100% for 2013-2014 program cycle</p>	<p>Same as 2013</p>
<p>Target #3</p> <p>Deliver program specific communications to participating contractors</p>	<p>2 communications per year</p>	<p>Same as 2013</p>
<p>Target #4</p> <p>Continue to solicit participation from mega property management Company</p>	<p>3 per year</p>	<p>Same as 2013</p>

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Note: The proposed activities above may be limited by program funding restrictions

e) Advancing Strategic Plan Goals and Objectives

In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including: whole-house solutions, plug-load efficiency, performance standards, leveraging of local government energy partnership opportunities, and DSM integration. As technology progresses, this program will adopt newer measures such as home energy monitoring and displays. Each of these measures works to reduce the energy and carbon footprint of multifamily dwellings and will create additional energy savings and integration opportunities through inter-program referral, data sharing, and bundling of DSM solutions across energy efficiency, DR, CSI, smart meter and other IDSM efforts.

The MFEER will support the following Strategic Plan as described below:

- 2.1.3.2. Home buyers, owners, and renovators will implement a whole-house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment, household appliances, lighting and “plug load” amenities;
- 2.1.3.3. Plug loads will be managed by developing consumer electronics and appliances that use less energy and provide tools to enable customers to understand and manage their demand; and
- 2.1.3.4. The residential lighting industry will undergo substantial transformation through the deployment of high-efficiency and high-performance lighting technologies, supported by state and national codes and standards.

The current program design does not specifically address the Energy Division's market transformation goal of having 100% of multifamily households achieve a 40% reduction in energy consumption from 2008 levels by 2020. However, the program is part of the solution to reach the multifamily transformation goal for California. A portion of the 2020 goals could be achieved through codes and standards ratcheting or by other local program's implementations. To become a market transformation program, MFEER will need to make significant changes to program design, program cost effectiveness, and many other economic feasibility issues. Furthermore, the MFEER program will need to be sensitive to the CPUC/CEC market potential studies.

5. Program Implementation

a) Statewide IOU coordination

The MFEER offers a variety of incentives for installing qualified energy-efficiency products in existing apartment dwelling units and in the common areas of apartment and

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condominium complexes, and common areas of mobile home parks. Property owners and managers of existing residential multifamily complexes with two or more dwelling units may qualify.

Table 6: The MFEER offers incentives in the following forms:

- Prescribed rebates;
- Mid-stream incentives through retailers, distributors, and/or contractors; and
- Direct Installation of energy efficiency products

i. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The MFEER statewide marketing plans include print collateral material, direct mail campaigns, print media advertisements, trade show exhibitions and presentations to related target market organizations, and leveraging with other IOU energy efficiency efforts and programs where feasible (see targets above, Table 5). The utilities may use a range of tactics such as; e-mails, flyers, on-Line marketing, direct mail, bill messaging, social media, local events, ethnic media, and other channels that suit the target audience, the message, and the resources. MFEER will also coordinate outreach activity with the ESA program, WHUP, PLA, and HVAC programs to maximize customer engagement and opportunities.

ii. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The MFEER program will coordinate with CEC, ARB, AQMD, and other local agencies and municipalities to implement environmental programs in support of California's long term Strategic Plan and CPUC initiatives.

iii. Similar IOU and POU programs

The MFEER is a statewide program. Programs outside of California are implementing similar program designs (e.g., Austin Energy).

b) Program delivery and coordination

To motivate multifamily property owners/managers to install energy-efficient products in the common areas and dwelling units of multifamily complexes and common areas of mobile home parks and condominiums, the MFEER Program offers prescribed rebates for energy efficient products. An additional objective is to increase the energy efficiency awareness and knowledge of property owners/managers and tenants.

The program leverages an extensive network of contractors to reach property owners and property managers. In addition to these contractors, the program also makes direct outreach to larger property management companies. This network of contractors helps identify prospective properties and contact people. The contractors also help property managers develop lists of improvements that are eligible for utility incentives. When

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ready, the contractors install the measures then often will assist the property owners/managers complete the incentive application paperwork. For marketing and outreach activities, the MFEER not only reaches out to the end users, but will also make special outreach and training sessions available to the specific trade contractors.

i. Emerging Technologies (ET) Program

The program collaborates with the Emerging Technologies Program in assessing energy efficiency technologies that are new and/or underutilized in the residential/multifamily market.

ii. Codes & Standards Program

The MFEER works with the codes and standards group to ensure that all the measures offered by the program are updated timely.

iii. WE&T efforts

The implementation of various training and coverage may differ for each IOU. For SCE, the energy centers traditionally did not offer classes specifically designed for the MFEER contractors and property owners. The MFEER will work with the energy centers to develop new and modify existing education and training classes for contractors and property owners, to assist in advancing the objectives of the Strategic Plan.

iv. Program-specific marketing and outreach efforts

The MFEER marketing plans consist of print collateral material, direct mail campaigns, print advertisement, trade show exhibitions and presentations to related target market organizations, and leveraging other IOU energy efficiency efforts and programs where feasible. Additionally, program-specific marketing and outreach activities are necessary to drive participation and attain program goals.

v. Non-energy activities of program

Training of contractors and outreach to large property owners are part of the program's non-energy activities.

vi. Non-IOU programs

The program allows cross promotion of other applicable programs, such as those of water agencies that offer rebates for clothes washers and dishwashers. Program staff will work with other utilities and groups, as appropriate, to increase program participation and savings levels.

vii. CEC work on EPIC

The MFEER will work with the residential program team to track the latest developments from CEC and EPIC.

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viii. **CEC work on C&S**

MFEER is very sensitive to the codes and standards that the IOUs and CEC are working on. The program will monitor these activities and incorporate any standards ratcheting as appropriate.

ix. **Non-utility market initiatives**

Along with the HEER program, MFEER supports all ENERGY STAR activities. In addition, MFEER also participates in activities with the local and national housing authorities.

c) **Best Practices**

Given the difficulty of reaching potential customers, the MFEER is designed to leverage the knowledge and contacts of its network of contractors. Given the limited marketing budget, this targeted outreach method has yielded fruitful results for the program. It also consistently helped the program in overcoming the split-incentive barrier within this segment.

This program also drives permanent change in California and achieves market transformation through the installation of ENERGY STAR qualified products, thereby reducing tenants' energy usage in apartments and also reducing property owners' energy usage in common areas.

d) **Innovation**

A key program innovation is the customer referral process, which was developed to assist property owners who own apartment buildings served by different IOUs. In this process, a property owner who is working with an IOU and owns properties served by other IOUs is automatically referred to the appropriate program managers at those IOUs. Confusion and barriers that can result when working with multiple entities is reduced since the IOUs operate identical rebate programs and use similar rebate applications.

As one of the few programs in the nation that specifically address this hard-to-serve market segment, this unique and innovative program has developed a model approach for other utilities to emulate. In addition, the program represents an innovative partnership among California utilities, demonstrating the great potential of a statewide energy efficiency program and creating processes, upon which other partnerships can build.

This program is especially innovative since multifamily property owners/managers and tenants have traditionally been unable to receive energy efficiency rebates. Some tenants qualified for the low-income programs, and before 2002, under the RCP program, a few multifamily properties received installation of CFLs, water heater controllers, and duct test and sealing. The development and implementation of the statewide MFEER has increased the participation of not only property owners/managers (for the common area energy efficient measures), but also of tenants who use approximately 80% of the energy

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in multifamily buildings. Traditionally, this has been an untapped market. Each year that rebate funding has been available, energy savings have increased exponentially.

e) Integrated/coordinated Demand Side Management (ISDM)

To identify successful integration approaches and offerings, potential pilot programs and metrics, the IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force.

The MFEER program will work with ISDM initiatives to identify the best possible collaboration. The potential offer could include smart metering, load management and other services, as appropriate. The details of this collaboration will be better defined in the 2013-2014 program cycle.

f) Integration Across Resource Types (energy, water, air quality, etc)

The program allows for cross-promotion of other available programs, such as water companies that offer rebates for clothes washers and dishwashers. SCE agrees to investigate and implement a similar market program to make multiple resource offerings in MFEER consistent statewide. SCE and SoCalGas will identify areas of opportunity to collaborate to create a pilot program specifically for the multifamily market segment.

g) Pilots

MF Audit Tool - Pilot to target other mixed use property types such as: SF HOA common areas, Senior Living facilities and SROs (i.e. dorms), would like to consider including common areas of HOA for single-family home communities, and Single-room occupancy (SRO) facilities, such as dormitories and assisted living facilities; these are not segments currently targeted by other efforts.

SoCalGas– MF Audit Tool: SoCalGas will offer in coordination with the Energy Advisor Program a multi-family survey as a pilot program in 2012. This involves surveys targeted at the facility owners of apartment buildings that will focus closely and specifically on overall property efficiency. SCG will expand the survey in 2013-2014 to mixed use property types such as SF HOA common areas of condominiums and motor home parks in order to assist those hard-to-reach segments in reaching greater energy savings potential.

h) EM&V

The utilities plan to work with each other and with the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the PIPs.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program

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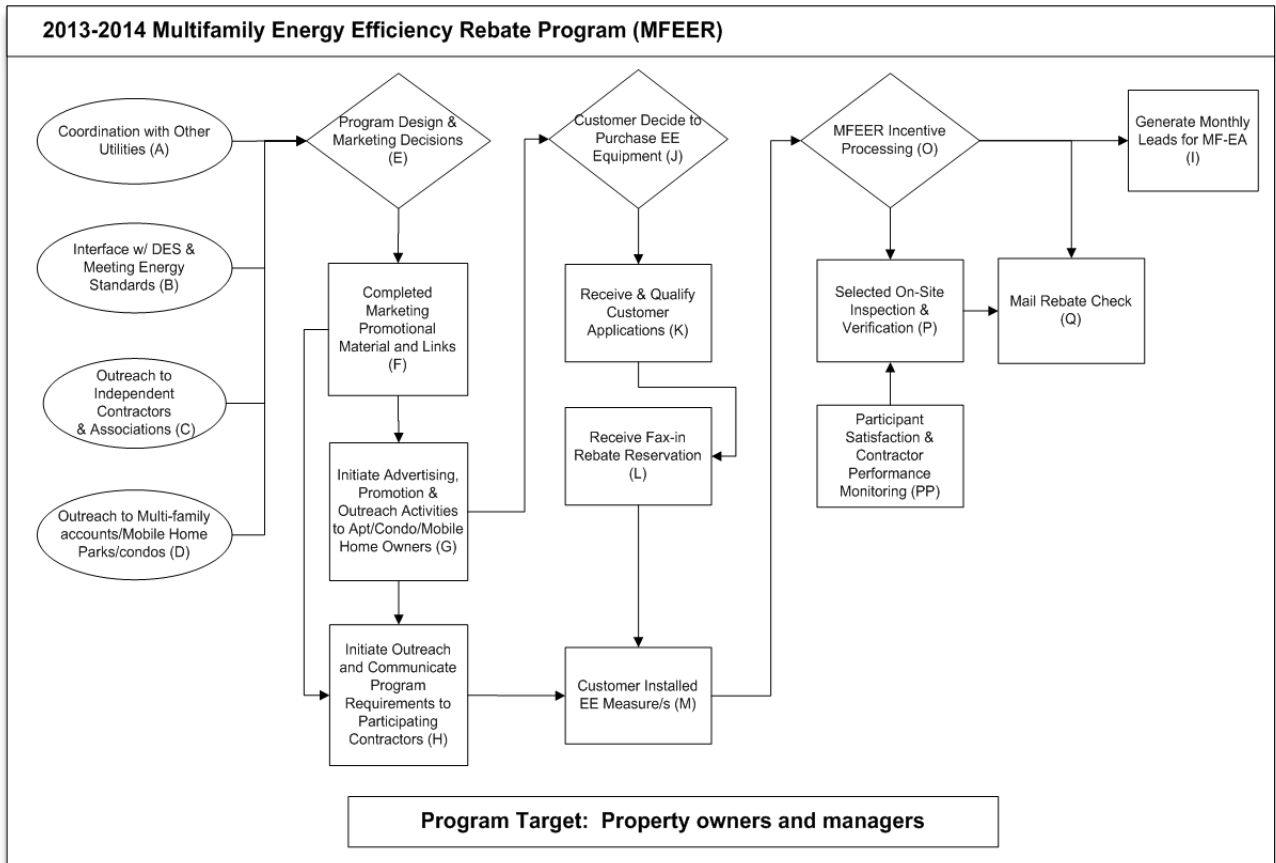
design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

- Work with Energy Division to resolve market baseline and transformation issues;
- Update and repeat CLASS and RASS/RMST Appliance Tracking & Saturation studies, as appropriate;
- Conduct statewide process evaluation to assess the following:
 - i. Track the all proposed key metrics;
- Conduct SCE specific process evaluation to improve program design, implementation and market effectiveness; and
- Design an M&E study to monitor the pilot program mentioned above, especially to examine the conversion rate from multifamily EA to MFEER program participation and assess the level of participation relative to the scope of EA recommendations.

As indicated by the Itron Final Report: Scenario Analysis to Support Updates to the CPUC Savings Goals, 3/2007, the residential sector (single family and multifamily) will be expected to deliver a significant portion of California's energy savings in nearly all scenarios. The statewide MFEER program delivers a portion of the required savings and is part of the total energy efficiency strategy.

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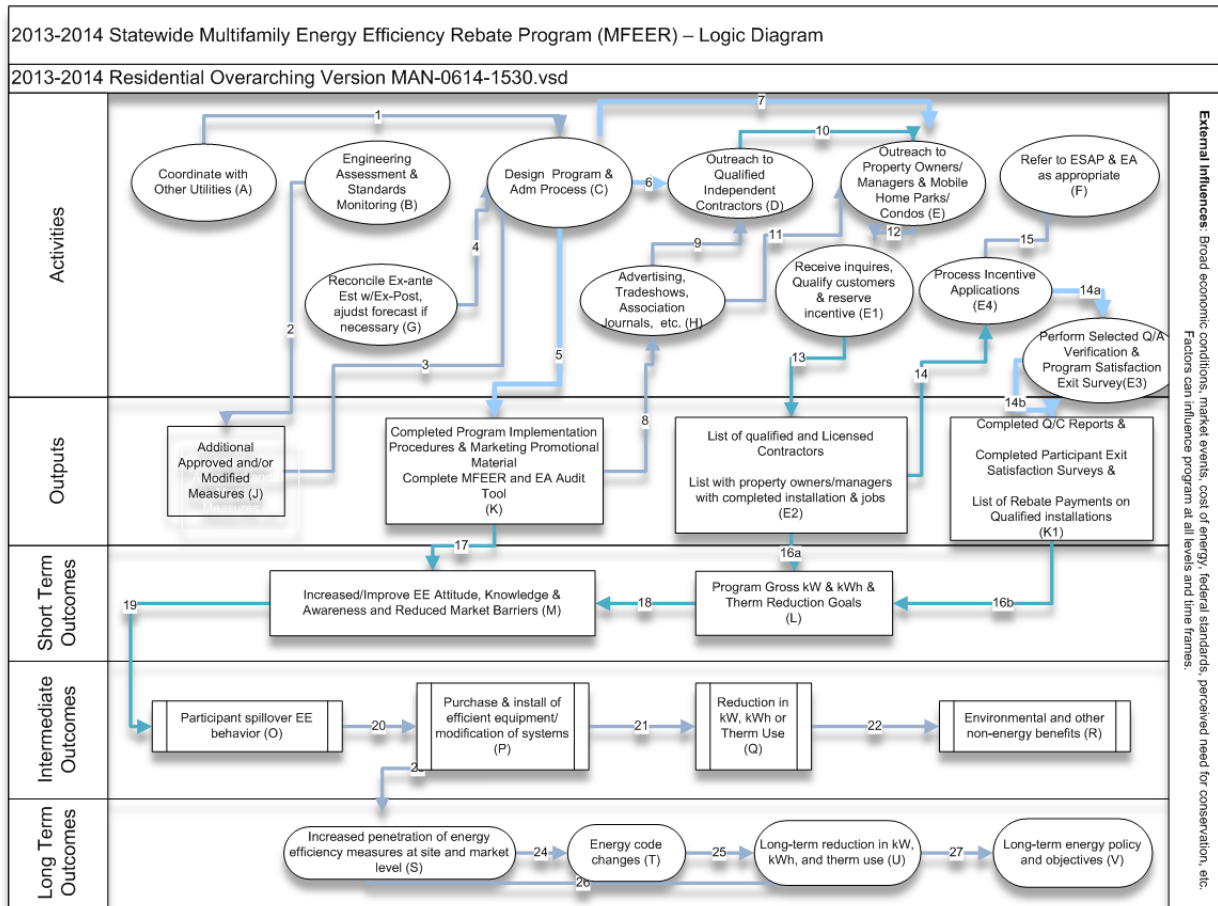
MFEER Process Diagram



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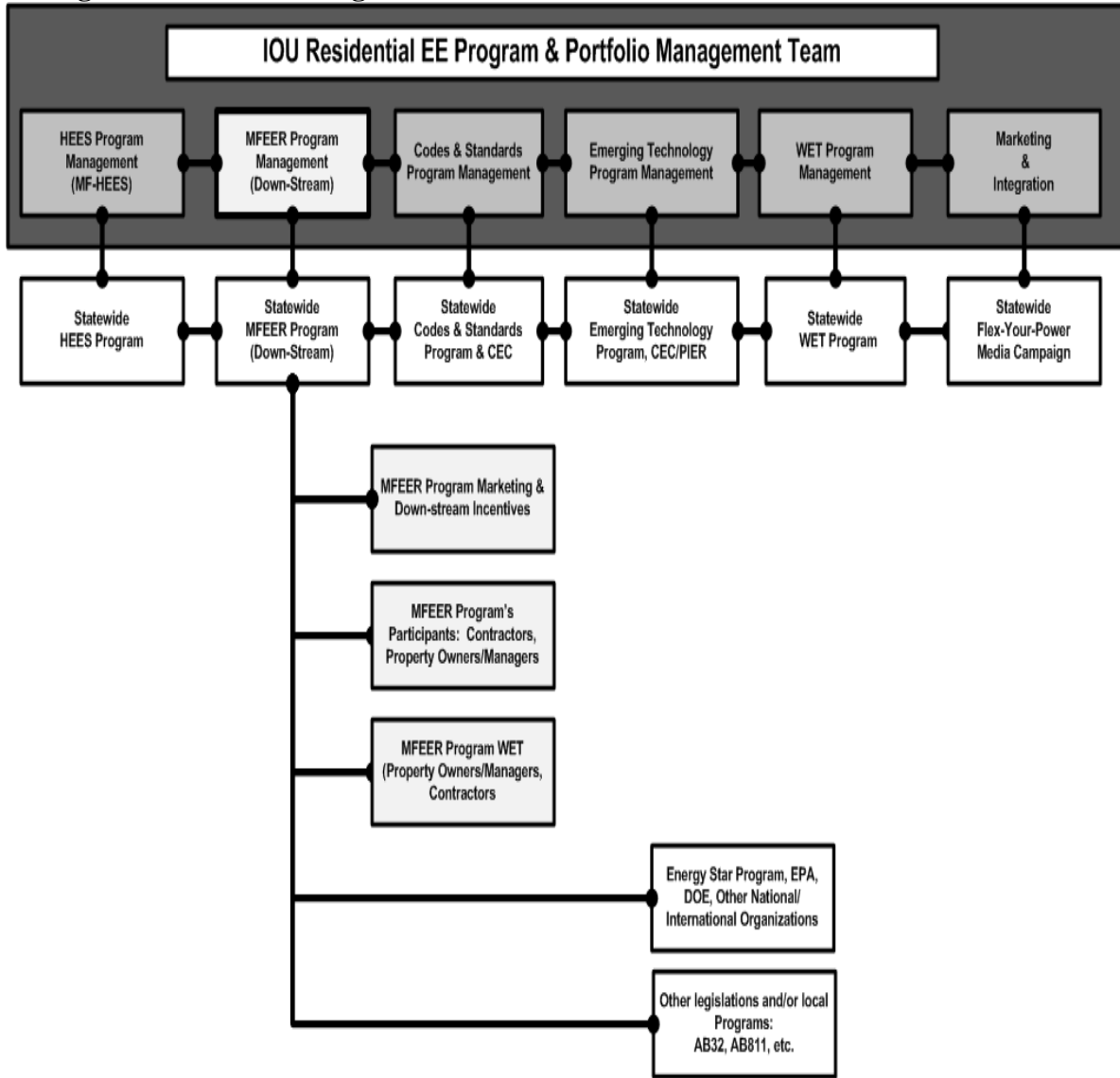
Program Logic Model MFEER

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Multifamily Energy Efficiency Rebate Program.



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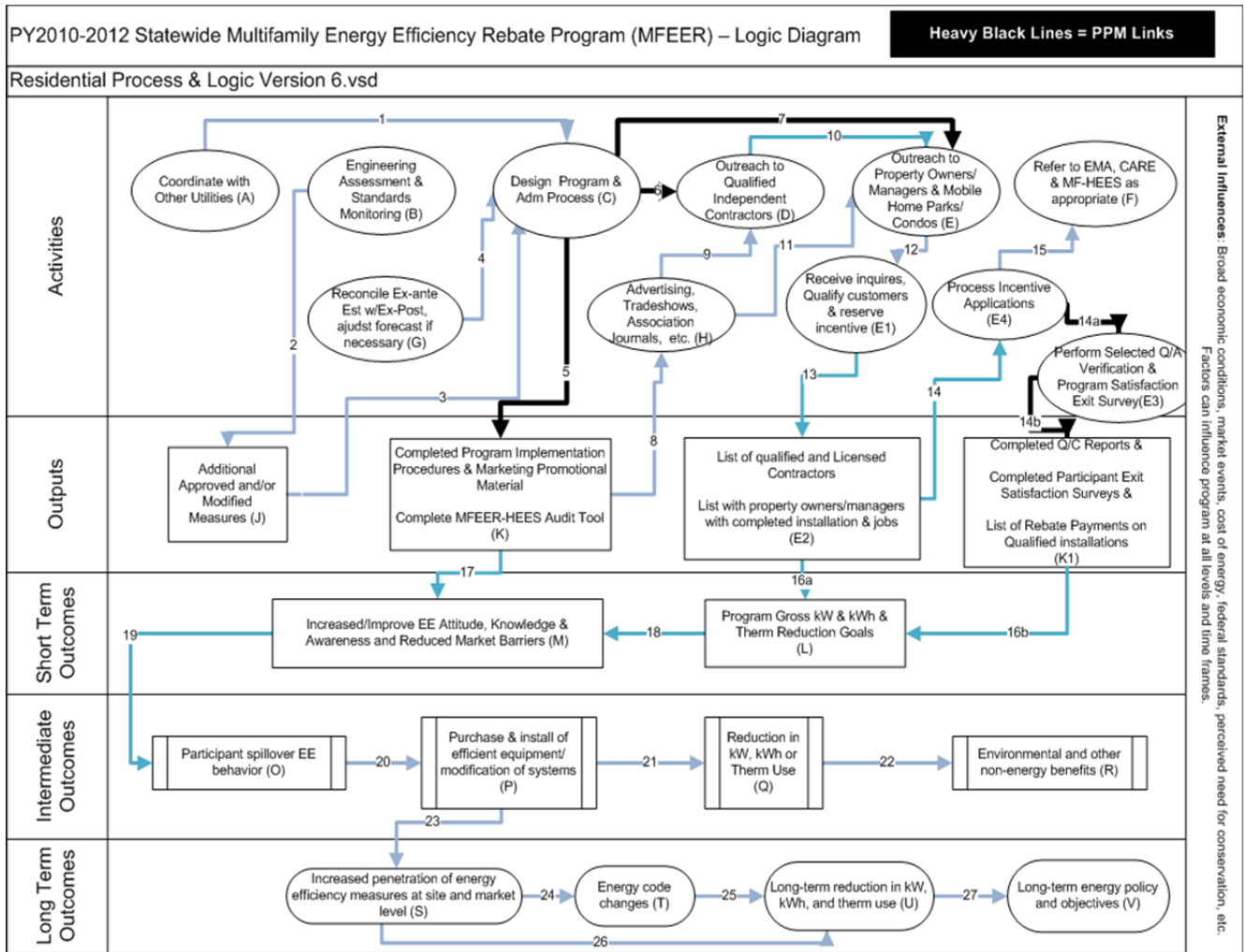
Program Interaction Diagram MFEER



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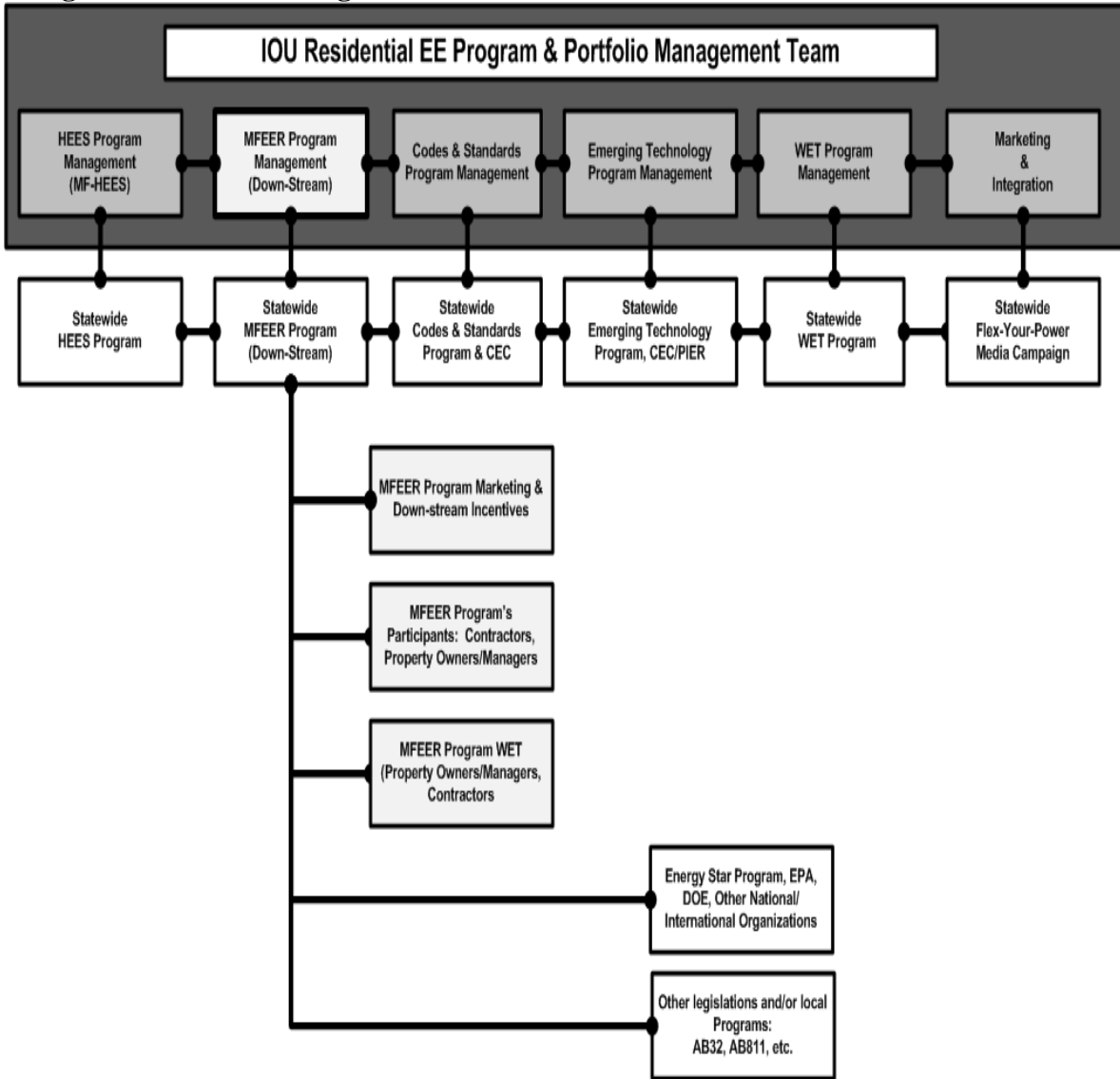
6. Program Logic Model MFEER

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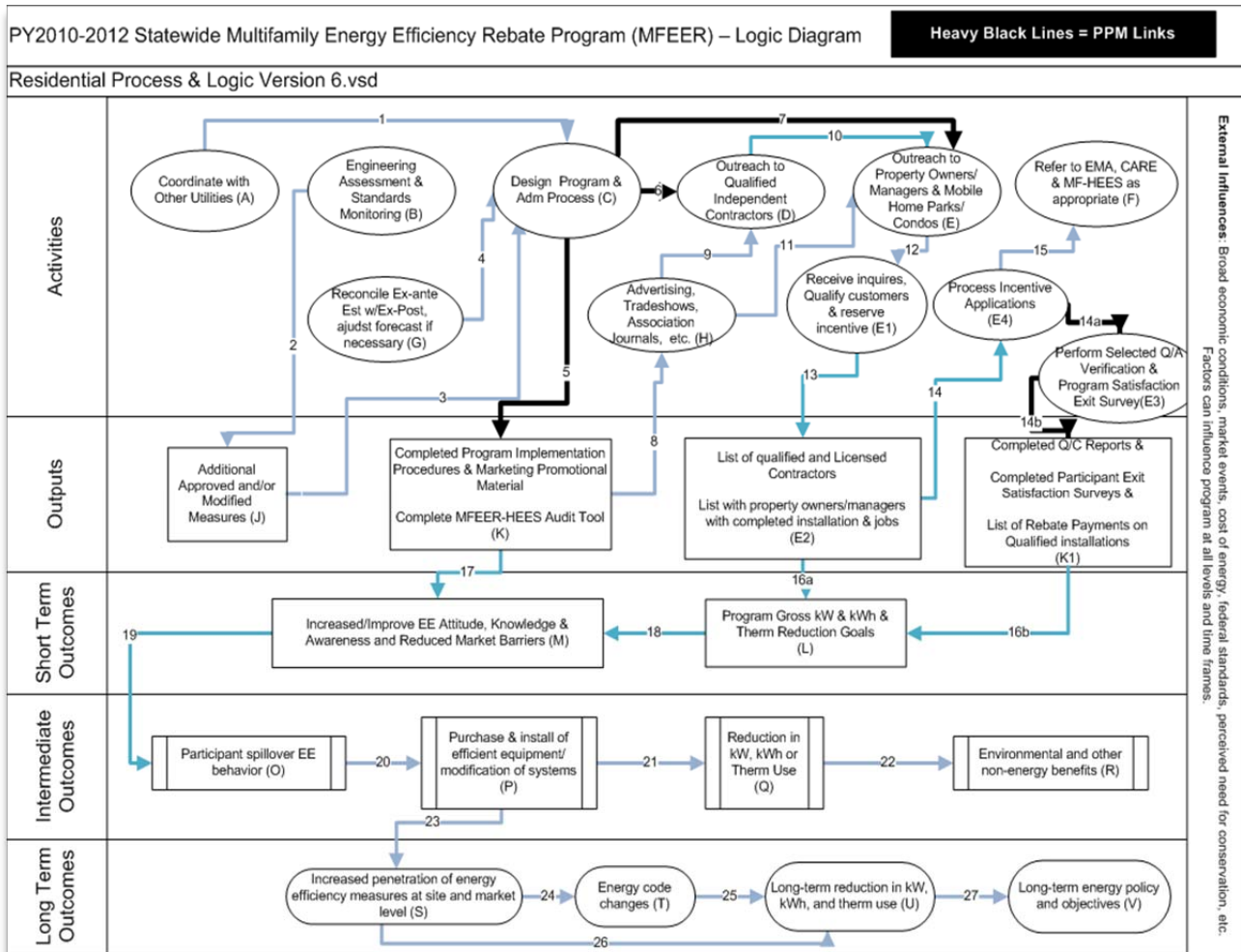
Program Interaction Diagram MFEER



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7. Program Logic Model MFEER

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**1) Program Name: SW-CALS-EUC-WHUP
Program ID: SCG 3705
Program Type: Statewide Core Program**

2) Type of Sub-Program: Core Third Party Partnership

3) Market sector or segment that this sub-program is designed to serve:

- a. Residential
 - i. Including Low Income? Yes No;
 - ii. Including Moderate Income? Yes No.
 - iii. Including or specifically Multifamily buildings Yes No.
 - iv. Including or specifically Rental units? Yes No.
- b. Commercial (List applicable NAIC codes: _____)
- c. Industrial (List applicable NAIC codes: _____)
- d. Agricultural (List applicable NAIC codes: _____)

4) Is this sub-program primarily a:

- a. Non-resource program Yes No
- b. Resource acquisition program Yes No
- c. Market Transformation Program Yes No

5) Indicate the primary intervention strategies:

- a. Upstream Yes No
- b. Midstream Yes No
- c. Downstream Yes No
- d. Direct Install Yes No.
- e. Non Resource Yes No.

6) Projected Sub-program Total Resource Cost (TRC) and Program Administrator Cost (PAC) TRC ___ PAC ___

7) Projected Sub-Program Budget

Table 5. Projected Sub-Program Budget, by Calendar Year
[Table-5 to be provided as an Excel Attachment to this PIP]

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8) Sub-Program Description, Objectives and Theory

a) Sub-Program Description and Theory:

According to a report released by the Office of the Vice President, “homes in the United States generate more than 20 percent of our nation’s carbon dioxide emissions, making them a significant contributor to global climate change.”³³ The challenge of addressing residential emissions has been a significant topic for California stakeholders and was addressed when D.09-09-047 acknowledged, “Improving the energy efficiency of all households is necessary to achieve the target outcome for the 2020 existing residential *Strategic Plan* goals.”³⁴

The Office of the Vice President report also identifies three market barriers to comprehensive residential retrofits:

- 1) Lack of customer and contractor awareness and access to information;
- 2) Lack of access to financing; and
- 3) Lack of access to skilled workers.

A shift in market perception, both for contractors and customers, towards a whole house approach must take place to drive customer action. WHUP is designed to offer a one-stop approach to whole-house energy efficient improvements that recognize the need for customers to participate over varied timelines. To assist in the effort to overcome these problems and market barriers, WHUP for single family residences will:

- 1) Offer a statewide entry level pre-set measures based approach (*Basic Path*) and a comprehensive and flexible performance based approach (*Advanced Path*) whole house incentives to help build the home performance contracting industry and offer customers and building owners and managers an easy entry point on the path to home performance (barrier 1);
- 2) Educate customers on the house-as-a-system concept and to encourage behavior changes that increase residential energy efficiency (barrier 1);
- 3) Educate contractors on the benefits of learning how to properly sell and install whole house measures as part of coordinated WE&T efforts (barrier 1 & 3);
- 4) Offer incentives that influence customers to undertake comprehensive residential retrofits (barrier 1); and
- 5) Coordinate with relevant utility financing programs and external funding and financing mechanisms at the county, state and federal levels (barrier 2).

In addition, energy efficiency efforts for the multifamily (MF) segment must overcome a number of barriers, primarily:

- 1) Lack of knowledge regarding energy efficiency, as well as the comprehensive energy efficiency EE programs offered by IOUs;

³³ Middle Class Task Force. Council on Environmental Quality. “*Recovery Through Retrofit*.” October, 2009. Page 1.

³⁴ D. 09-09-047. Page 110.

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- 2) The economics of “split-incentives” where the building owner invests capital but the savings primarily benefit the tenants;
- 3) Access to investment capital and insufficient return on investment (ROI). Up-front out-of-pocket costs and extended payback periods required pose a significant participation barrier for property owners and managers;
- 4) Hassle of dealing with multiple contractors and visits required;
- 5) Time burden for tenants and owners;
- 6) Impact on rental income; and
- 7) Business policy/ profit incentive from replacing equipment on burn-out and unwillingness to negate remaining life in building components requiring capital outlay.

The *Multifamily Path* is envisioned to include a number of tactics to overcome these barriers, primarily:

- 1) To improve a property owner or manager’s energy efficiency knowledge, the *Multifamily Path* would seek to leverage comprehensive investment grade building assessments to identify potential energy efficiency opportunities. (barrier 1).
- 2) To address split incentives and cost of upgrades, the *Multifamily Path* would integrate with the existing Energy Savings Assistance Program (“ESAP”) and the Multifamily Energy Efficiency Rebate (“MFEER”) Program. This would provide comprehensive services to the building, including “low cost” or “no cost” tenant measures in conjunction with the WHUP *Multifamily Path* whole building incentives in order to maximize energy savings for the up-front investment. (barrier 2).
- 3) Incentives would assist property owners or managers with overcoming a wide array of market and financial barriers which may otherwise prevent energy efficiency upgrades (barrier 1 and 5).
- 4) Create a single point of contact that would assist the property owner or manager navigate through the incentive and retrofitting process. This approach would provide support in understanding the various program rules and assistance in determining eligibility. The property owner or manager would be guided through an easy and streamlined preliminary assessment to establish feasibility and estimate project cost for the *Multifamily Path*, with an eye toward leveraging all eligible programs. (barrier 4).
- 5) Target buildings planning on or undergoing renovation projects to limit customer time burden and lost rental income. (barrier 4 and 5).
- 6) Multifamily sector is comprised of a wide diversity of properties which can be segmented by: 1.) rental rate (low – medium – or high; and/or 2.) size of the building and also size of the company that owns or manages the building. Defining the unique concerns and needs of building owners and managers by these variables of tenant socio-economic status and ownership/management

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structure will allow much more effective messaging and marketing communications. (barrier 1, 2, 3, 4, 7)

- 7) Statewide EE energy efficiency financing (SW Fin) which could be focused on the tenant or the common property energy agendas. This program will provide access to capital to fund investments in energy efficiency upgrades for buildings at an attractive interest rate. (barrier 2, 3, 7).

Other considerations to meet all income strata and address split incentives for property owners and tenants may include a direct install strategy, as well as prescriptive rebates through the existing MFEER Program. While programs will be coordinated and integrated, their respective policies, and procedures will be followed in the delivery of services. Efforts at operational efficiencies would be made to streamline eligibility, income verification, and installation of measures. Despite the noted barriers, the multifamily sector presents a significant opportunity for whole building energy efficiency programs with a deep energy reduction approach. A whole building offering has the potential to achieve deep energy savings because:

- 1) Building owners can leverage incentives to address common areas and systems as well as individual unit upgrades to make more cost effective improvements.
- 2) Major rehabilitation projects are common in the multifamily sector. It is theoretically more cost effective to include energy efficiency upgrades at the time of these renovation projects. These projects typically have well-financed construction budgets and broad scopes that could include energy efficiency measures.
- 3) Multifamily properties tend to be operated and maintained by professional building staff. Providing resources to building staff would theoretically would increase the odds that the building will be operated efficiently after energy upgrades are installed, perpetuating savings benefits.
- 4) Within the tenant units, the energy efficiency upgrades will often be duplicated – allowing for efficiency in bulk purchases of supplies and equipment, as well as hiring of specialized workers with less non-productive set-up/break-down and travel time.

The WHUP is a Market Transformation orientated program and is a continuing program which began in the 2010-2012 residential energy efficiency portfolio of the four California Investor Owned Utilities (IOUs) – Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas).

As a recognized market transformation program only halfway through its second full year of statewide rollout, the WHUP is expected to be a major contributor to achieving the goals of the California Long Term Energy Efficiency Strategic Plan (*Strategic Plan*) as it relates to existing residential homes, and it faces significant

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hurdles in customer and contractor awareness, industry and workforce development, and traditional cost effective metrics towards measuring effectiveness and success.

This Program Implementation Plan (PIP) is for the statewide WHUP that will be offered consistently across the IOU service territories. The PIP is intended to align with the goals established in the *Strategic Plan* and is a culmination of ongoing statewide efforts to design WHUP.

WHUP is designed to build customer and contractor³⁵ awareness of the house-as-a-system approach to residential retrofits and the many corresponding benefits of improving the energy savings potential and comfort of their dwelling. It promotes the idea that energy efficiency measures are most effective when taking into account interactive effects of measures.

The WHUP moves customers from a prescriptive, widget or single-measure based approach to energy efficiency to one of deeper, comprehensive energy retrofits that respect the energy efficiency loading order³⁶, and which takes the approach that a house is a series of interdependent systems that must be considered holistically. In addition, this approach optimizes building shell (thermal boundary) provides increased comfort and indoor air quality while enabling smaller and more affordable space conditioning equipment and reduced energy use associated with space heating and cooling. The thermal boundary consists of two layers or components – air barrier and insulation – which should both be continuous as well as contiguous (in contact with each other) for optimum performance. Because of the interaction between the thermal boundary and space conditioning loads, heating or cooling system upgrades are ideally not to be performed until the building shell is optimized. Building shell and duct air sealing will be addressed in conjunction with combustion appliance safety and indoor air quality tests. Base load reduction measures involving major electrical appliances, lighting, plug loads, and demand response can be performed at any time without compromising the loading order.

Customer outreach and education efforts for the WHUP will be coordinated with other IOU Demand Side Management (DSM) program offerings (e.g. Energy Advisor, Plug Load and Appliance (PLA), Comprehensive HVAC, SmartAC and other Residential Demand Response programs, Energy Savings Assistance program, California Solar Initiative (CSI)) to leverage multiple customer touch points.

³⁵ A successful program recognizes the need to develop the pool of qualified home retrofit contractors (with the help of third party implementers) to engage in – and have the opportunity to profit from – performing quality work. Through comprehensive training curricula (currently available in the marketplace) broken into the key elements of a home: Building Envelope and Lighting, and Heating, Cooling and Hot Water delivery (major systems); skilled tradespersons will have the opportunity to enter the home retrofit market and grow their businesses.

³⁶ The loading order specifies improvements in the following sequence: (1) air sealing to obtain a tight building envelope; (2) insulation to complete the thermal boundary; (3) proper sizing, design, installation and commissioning of space heating and cooling systems; (4) proper sizing, design, installation, commissioning and insulation of the hot water system, including distribution; (5) efficient lighting and appliances, and demand response measures; and (6) renewables.

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For single family residences, the whole house approach of WHUP promotes two paths, a prescriptive based *Basic Path* and a comprehensive, measured *Advanced Path*. These complimentary paths will be presented to customers³⁷ as one comprehensive offering.

For multifamily buildings, building owners and managers will be able to participate in the WHUP *Multifamily Path*. WHUP will offer a consistent program model that can be contractor or rater driven and/or adopted by local governments for roll-out in their communities.

In sum, these paths will provide an ideal platform to utilize the concept of continuous energy improvement for residential customers; tracking and encouraging a logical sequence of energy improvements made by customers over time, creating an ongoing, actionable dialogue with each customer regarding their energy use.

WHUP *Advanced Path*

WHUP *Advanced Path* offers customers a customized path to comprehensive whole house energy efficiency that drives the customer to deep retrofits. *Advanced Path* solutions will require Participating Contractors to obtain higher levels of expertise than those who perform the *Basic Path* installations. Customers can also participate in *Advanced Path* by using a Participating Rater. The *Advanced Path* requires diagnostic “test-in” and “test-out” whole house assessments. The “test-in” assessments will generate a comprehensive work scope and the “test-out” assessments will be used to document that specified improvements have been properly sized and installed. The *Advanced Path* will build off of the pre-set measures of the *Basic Path* and:

The *Advanced Path* delivers comprehensive energy efficiency improvement packages tailored for both the home resale and home remodeling markets. The *Advanced Path* solicits, screens, and trains qualified residential repair and renovation contractors and HERS II Raters, to assemble capable contracting teams and perform whole-house diagnostics, propose a comprehensive energy efficiency improvement package, and install the improvements. The program also includes marketing activities to help educate customers on program services, and in some cases may provide additional customer leads to trained and experienced contractors. Incentives and resources for available financing options will be provided to help offset the initial homeowners cost for the energy efficiency improvements.

WHUP *Basic Path*

During the 2013-2014 transition cycle, the IOUs will convene interested stakeholders at the state and/or regional level to propose one or more statewide and/or regional pilot programs to explore potential changes to the *Basic Path* in order to make it more appealing to customers, particularly moderate income households.

³⁷ Residential customers including homeowners, renters, and multifamily properties when these services are available to them.

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WHUP *Basic Path* will offer customers and contractors an easy entry point on the path to home performance with a defined package of measures. Incentives will be available for customers to offset a portion of the cost of specific comprehensive retrofits. The *Basic Path* will allow customers to reduce their energy usage while increasing the energy performance of their existing homes and minimizing lost opportunities for future comprehensive retrofit options.

The *Basic Path* will also educate contractors and customers on the benefits of implementing comprehensive whole house retrofits on existing buildings that will provide systematic reductions in energy use. The *Basic Path* will help to:

- Utilize no-cost (to customer) surveys (Energy Advisor) as an entry point to identify opportunities for efficiency improvements³⁸;
- Offer targeted marketing campaigns to engage participants that receive stand-alone EE rebates for completing qualified home improvement measures;
- Promote completion of retrofits based on preferred building science loading order;
- Offer incentives to encourage progression along a preferred approach towards comprehensive retrofits;
- Continuously engage customers over time as they progress toward a home performance approach;
- Leverage available opportunities to move customers to the *Advanced Path* by informing them about available local or third-party financing options and other complementary revitalization efforts that may be available within a particular jurisdiction;
- Offer a holistic path towards home performance by aggregating key elements of a dwelling into its core elements: building envelope and fixed lighting; heating, cooling and hot water, and appliances;
- Coordinate with communities, local governments, workforce education & training, industry organizations and allied third-parties for outreach on local retrofit and contractor training opportunities available.

³⁸ The Energy Advisor provides residential customers with entry-level energy surveys online, over the phone, or by mail. The surveys are not intended to serve as an audit but are meant to provide consistent messaging and an easy on-ramp to WHUP. The Energy Advisor surveys are also an ideal link between the California Solar Initiative (CSI) and EUC WHP. This synergy will be discussed later in the document.

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The WHUP *Basic Path* offers a comprehensive approach to delivering prescriptive pre-set retrofit solutions to Californians by recognizing the essential interplay and relationships between groups necessary in the delivery of a successful program.

SoCalGas Gas Only Whole House Retrofit Program 2013-2014

SoCalGas will continue implementing a “gas only” Whole House Retrofit program that will service those customers that are in a municipal electric service provider territory. This enables SoCalGas to reach out to approximately 1.7 million customers who are not eligible for the joint SCE/SoCalGas Energy Upgrade California Whole House program. Due to our single fuel utility effort, we can only substantiate the therm savings for our program hence the difference in the incentive amounts from the other IOU incentives. SoCalGas will look for additional partnership opportunities with municipalities’ EE programs to maximum savings to shared customers.

SoCalGas will also continue its efforts to implement a joint program with SDG&E that would result in a shared application and single streamlined process for our contractors and the customers. Additionally, besides QA/QC shared costs, SoCalGas will look for other synergies between our programs in our joint PG&E/SoCalGas service territories (i.e.; one shared application, processing).

WHUP *Multifamily Path*

The vision of a WHUP *Multifamily Path* is to deliver comprehensive energy efficiency upgrades tailored to the needs of existing multifamily dwellings and their owners, tenants and management companies

The *Multifamily Path* will is envisioned to specifically target the multifamily housing (MF) retrofit market and would promote long-term energy benefits through comprehensive whole building energy efficiency retrofit measures—including building shell upgrades, high-efficiency HVAC units, central heating and cooling systems, central domestic hot water heating and other deep energy reduction opportunities. These energy efficiency measures would be identified through an investment grade assessment.

This performance-based approach would assist property owners and managers with making informed decisions, identify measures for energy savings, and to maximize energy reductions for each property owner, manager, and tenant, as applicable. The *Multifamily Path* is envisioned as a logical next step to the prescriptive based MFEER and would be coordinated with the ESA Program and MFEER to present a singular and streamlined approach for multifamily tenants, property owners and property managers, in accordance with the Strategic Plan. A key feature of the *Multifamily Path* would be a single point of contact to assist multifamily raters and

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customers and to streamline their experience. The single point of contact will recruit and assist multifamily owners and property managers to evaluate specific property and advise the program that best suits the needs of particular buildings.

This integrated approach combines market-rate and income-qualified energy efficiency measures and educates building owners on the benefits of energy efficiency and conservation efforts spanning the range of needs for the multifamily market. The *Multifamily Path* will leverage and integrate the MFEER resource components and ESA program offerings in a singular customer facing program that presents a simplified view from the customer perspective.

The *Multifamily Path* would guide multifamily customers towards deeper, comprehensive energy efficiency measures, including: whole house solutions, plug load efficiency, visual monitoring and displays, performance standards, local government opportunities, and IDSM integration. The *Multifamily Path* will support the strategies, where possible, in the Low Income Proposed Decision.

b) Sub-Program Energy and Demand Objectives-

Table 6. Projected Sub-Program Net Energy and Demand Impacts, by Calendar Year

[Table-6 to be provided as an Excel Attachment to this PIP]

c) Program Non-Energy Objectives:

Table-16: Non-Energy Objective

[Table-16 to be provided as an Excel Attachment to this PIP]

d) Cost Effectiveness/Market Need:

The California IOUs look forward to continue playing a leading role, in collaboration with local governments, in moving the existing residential homes market towards larger reductions in energy usage and towards the *Strategic Plan* goal of achieving 40% purchased energy reductions in all existing homes by 2020.

At this time, current market conditions and barriers are:

1. Relatively high cost of home assessments.
2. Relatively high gross costs of comprehensive energy upgrades.
3. Market unawareness of non-economic value to comprehensive energy upgrades.
4. Fledgling contracting and supporting industry for existing home energy upgrades.
5. Low consumer awareness of incentive programs and the concepts of comprehensive home energy assessments and upgrades.

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6. Lack of common home rating protocols and common vernacular for the market to assign value to homes which undergo comprehensive energy upgrades.

The WHUP seeks to address these barriers through:

1. Continued marketing of Energy Upgrade California and whole house concepts. (barrier 3, 5).
2. Continued contractor recruitment (at a pace aligned with demand), training and mentoring. (barrier 4, 5).
3. Continued customer uptake through WHUP incentives. (barrier 1, 2, 5).
4. Continued stakeholder outreach to address barriers. (barrier 1, 3, 4, 5,6).
5. Continued partnerships with local and state government to address barriers. (barrier 1, 2, 3, 4, 5, 6).

It will be critical to establish market transformation (MT) metrics and milestones that are in alignment with cost effective metrics that can more accurately assign cost effectiveness of resources expended towards MT goals. As the Value Proposition figure below represents, there currently is significant non-economic value being assigned by the marketplace towards whole house projects but which are not accounted for in cost effectiveness metrics currently used.

Non-economic value can be assigned as:

Gross Cost – (annual savings x EUL) – (assigned increased market value of home)

By this definition, and information regarding gross costs and savings to date, it would appear that the market currently is assigning significant non-economic value to WHUP projects. However, current cost effective metrics assign all value towards economic value related to energy savings only. Failure to align MT goals and cost effective metrics will result in inaccurate measurement of resource impacts on MT goals.

The IOUs during the 2013-2014 cycle recommend the Commission remove the WHUP from the EE portfolio cost effective analysis and to work with commission staff and relevant stakeholders to develop meaningful cost effective metrics during the 2013-2014 cycle that aligns MT goals of WHUP towards the *Strategic Plan*.

VALUE PROPOSITION

(Greater the Value Proposition = Faster Market Transformation and Consumer Uptake)

	Consumer Value	Consumer Costs
Economic Value	<ul style="list-style-type: none"> • Monthly utility bill savings (kWh, kW, therm) • Recognized Market Value of EE home 	<ul style="list-style-type: none"> • Gross Project Costs

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Non-Economic Value	<ul style="list-style-type: none"> • Health & Comfort • Altruistic <ul style="list-style-type: none"> • Environment • National Security • Being part of Green Movement 	<ul style="list-style-type: none"> • <i>Offsets:</i> <ul style="list-style-type: none"> IOU Incentives Financing
	Driving Up Value	Driving Down Costs
	<ul style="list-style-type: none"> • Standard Ratings where the Market can assign value • Higher monthly utility bills 	<ul style="list-style-type: none"> • More Qualified Providers • Higher Demand • Streamlined Processes • Innovative Marketplace

e) **Measure Savings/ Work Papers:**

- a. WHUP *Basic Path* utilizes deemed savings values by climate zone for building vintages pre-1979 and by climate zone post- 1979

WHUP *Advanced Path* utilizes CEC approved software (i.e. Energy Pro Res Module at the time of this PIP) for calculated project savings.

WHUP *Multifamily Path* envisions measured savings for all low-rise multi-family buildings utilizing the Energy Pro, Residential Performance Module (for Site savings calculations). For all high-rise buildings, would utilize the Non Res Module.

- b. Indicate work paper status for program measures:

Table 4 – Work paper Status

[Table 4 Work paper Status to be provided as an Excel Attachment to this PIP]

9) Program Implementation Details

In addition to traditional marketing efforts, the IOUs will work through service providers and vendors to engage qualified tradespersons in the crafts that they have chosen and will continue to invite input from stakeholders to further develop additional ways to meet program objectives.

One of the avenues that the IOUs plan to pursue to advance the program’s efforts to achieve deeper energy savings retrofits in homes is to build closer partnerships with

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California's real estate industry, including via such activities such as voluntary training and outreach partnerships. Based on input already gathered from relevant stakeholder groups, experts, and Commission Staff, the IOUs plan to implement the following main areas of activities for this initiative to leverage partnerships with the real estate industry:

- 1) Training for all relevant aspects of the real estate industry and point of sale chain (real estate agents, lenders, inspectors, green/efficiency specialists, appraisers, rater's public agencies and contractors). An emphasis will be placed on training the cross-functional teams that already work together in the market, since all pieces of the process needs to be covered to be effective, especially on the financing side. The use of successful case studies will also be explored.
- 2) Driving customer demand for energy efficient homes via collaborative consumer education and outreach, using easy to understand messaging and including efforts such as the promotion of home energy improvements and "green" labeling around the time of purchase and sale of a home. This is a critical timing in the market that can be leveraged. The Joint Center for Housing Studies estimates that home buyers spend more than \$6,000 per year on home improvements in the first two years after buying homes. In subsequent years, the annual average outlay drops to \$2,500.³⁹

A key to success for this initiative is properly aligning design with the personal and business interests of the stakeholders involved particularly the Realtors, home buyers, and sellers. While promotion of energy efficiency and green building practices is the paramount objective, the initiative would remain consistent with stakeholders' interests. By remaining stakeholder focused, the initiative aligns short-term private interests with long-term public interests.

Further details and continuous improvement of this plan will be developed by inviting additional input from an ongoing set of stakeholder collaboration discussions. Identification of appropriate regional differences and their implications to implementation will be incorporated into the plan. And short- and long-term success criteria and a periodic assessment timeline for evaluation of this initiative will be developed.

Also, during the transition cycle the IOUs will explore potential of offering pilot tests of expanding building science certifications and home evaluation and performance improvement processes beyond BPI to potentially include equivalent certifications, and home evaluation and performance improvement processes such as those through ACCA. To increase the number of qualified participating contractors and contribute to the creation of a sustainable workforce, third party program implementers will solicit and

³⁹ Joint Center for Housing Studies of Harvard University (2011), *The State of the Nation's Housing: 2011*, http://www.jchs.harvard.edu/research/state_nations_housing

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screen qualified contractors. The program will also include marketing activities to help educate customers on program services and other activities to provide additional customer leads to trained contractors.

The program will employ a number of integrated delivery strategies:

- 1) Educate contractors and residential customers on the concept of home performance;
- 2) Coordinate with existing residential program offerings (e.g. ESA, HVAC, HEER, Energy Advisor and MFEER) within the utility portfolios;
- 3) Provide robust quality assurance and quality control protocols that encourage quality installation and drive contractors to obtain additional training and qualifications;
- 4) Provide robust EM&V feedback loops to inform program enhancements;
- 5) Integrate with marketing efforts of the broadened statewide “Energy Upgrade California” brand, when launched, and deliver complementary marketing messaging to drive customer demand and contractor participation;
- 6) Coordinate contractor training, marketing and outreach efforts with local governments, as appropriate; and
- 7) Develop an incentive structure that drives customers to undertake comprehensive residential retrofits.

Statewide Steering Committee

Given the ambitious market transformation goals of WHUP, it’s relatively new entrance into the IOU EE portfolio, and its challenges during the first two years of rollout, the IOUs during the 2013-2014 transition cycle are committed to providing the leadership and working with CPUC, CEC, local government staff, as well as relevant stakeholders to convene a statewide WHUP steering committee to address relevant and significant issues for adoption in the 2015 IOU program cycle.

Where feasible, necessary and relevant, the IOUs will retain the services of qualified consultants or other entities with experience in the whole house retrofit industry to assist in these efforts in the areas of research, facilitation, or other assistance as may be required. IOUs will also engage utilities, non-profits and other stakeholders who may have experience in other parts of the country in deploying whole house programs. The steering committee will as necessary to focus on the following issues on a statewide level for consideration in the 2015 program cycle:

1. Role of local governments
2. Software standards
3. Data collection standards
4. Home Assessment standards
5. Home Assessment reporting standards
6. HERS II Ratings and alignment with WHUP EE Programs

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7. Contractor certification standards
8. QA/QC standards
9. Streamlined project reporting and programmatic best practices
10. Integration of HVAC programs
11. Engagement of California Real Estate Market
12. Future of Basic Path
13. Identification of Market Transformation Milestones and Metrics
14. Cost effectiveness metrics aligned with Market Transformation goals.
15. Long term incentive structure

a) **Timelines:**

Table 5: Sub-Program Milestones

[Table-5 to be provided as an Excel Attachment to this PIP]

b) **Geographic Scope:**

Table 6: Geographic Regions Where the Program Will Operate

[Table 6 Geographic Regions to be provided as an Excel Attachment to this PIP]

c) **Program Administration**

Table 7: Program Administration of Program Components

[Table 7 to be provided as an Excel Attachment to this PIP]

d) **Program Eligibility Requirements:**

i. Customers:

Single family or multi-family building customers with an active IOU account OR owners or property management firms who own or operate single family or multifamily buildings that are served by an active IOU account, may participate in WHUP provided they utilize a Participating Contractor or a Participating Rater per program guidelines.

Participating Contractors or Participating Raters shall be the single point of contact for customers and are responsible for submission of all program requirements. Participating Contractors and Participating Raters will install or ensure installation of all measures in accordance with IOU QA/QC and Measures Installation Standards guidelines in accordance with applicable contractor/ rater participation agreements.

Table 8: Customer Eligibility Requirements (Joint Utility Table)

[Table 8 to be provided as an Excel Attachment to this PIP]

ii. Contractors/Participants:

Participating Contractor Requirements for Basic Path and Advanced Path

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Participating WHUP Contractors must be certified and licensed according to all applicable federal, state and local laws. Participating Contractors shall meet, and provide sufficient evidence and supporting documentation for the following minimum requirements:

1. Contractor State Licensing Board (CSLB) license in the appropriate specialty;
2. Bonding and in good standing.
3. Insurance to IOU minimum insurance standard;
4. Execution of a contractor participation agreement;
5. Completion of all utility training course requirements, including Participation Workshop and a 3-Day Basic and/or Energy Upgrade Training, Workshop, if not BPI-certified Basic or Advanced Training, as appropriate;
6. BPI-certified Building Analyst (BA) to complete Combustion Safety and Carbon Monoxide Protection and all other minimum Health and Safety Requirements specified in the BPI Technical Standards for Building Analyst Professional;
7. Ensure HVAC permits will be pulled on all work that is appropriate per local jurisdiction requirements;
8. Participating Contractors who participate in *Advanced Path* projects, must employ at least one staff person who holds an active BPI Building Analyst certification. BPI accreditation is strongly encouraged and may be required of all participating contractors at some point during the program cycle;
9. Additional IOU requirements, as appropriate.

Participating Rater Requirements for All WHRP Paths

Participating Energy Upgrade Raters must meet all requirements as a Participating Contractor and must be both HERS II certified and hold an active BPI Building Analyst certification or BPI MF Building Analyst certification as may be applicable. WHUP *Basic Path* and *Advanced Path* projects submitted by a Participating Rater must utilize a WHUP Participating Contractor for installation of the measures specified by the Participating Rater.

Table 9: Contractor/Participant Eligibility Requirements (Joint Utility Table)
[Table 9 to be provided as an Excel Attachment to this PIP]

e) **Program Partners:**

a. **Manufacturer/Retailer/Distributor partners:**

Table 10: Manufacturer/Retailer/Distributor Partners

[Table 10 to be provided as an Excel Attachment to this PIP]

b. **Other key program partners:**

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Table 15: Energy Division, California Energy Commission, local governments, BPI and other standards bodies, as well as other partners
[Table 15 to be provided as an Excel Attachment to this PIP]

f) **Measures and incentive levels:**

Advanced Path Incentives

Incentives for the *Advanced Path* will be paid based upon modeled site savings energy utilizing any CEC approved simulation modeling software approved by IOUs. Incentives for *Advanced Path* are designed to encourage customers to reach for deep energy savings. *Advanced Path* incentives are for both gas and electric measures provided by the customers' participating utility program.⁴⁰ Currently, Energy Pro simulation modeling software is the only approved software for use with WHUP. During the 2013-2014 transition cycle, the IOUs will work collaboratively with the CEC and other stakeholders to identify potential approaches to adequately broaden the allowable software under the WHUP while containing costs required for needed Commission Staff reviews.

Savings/ Participation Level: % Reduction	Incentive Amount
<i>Basic Package: 10%</i>	<i>\$1,000</i>
10%	\$1,000
15%	\$1,500
20%	\$2,000
25%	\$2,500
30%	\$3,000
35%	\$3,500
40%	\$4,000
45%+	\$4,500

⁴⁰ In various service territory where one of the customer's utility service provider (municipality), is not a program participant adjustments may be necessary to the incentive.

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Basic Path Incentives

The *Basic Path* customer incentive is up to \$1,000. The customer will receive the entire rebate amount as a direct result of participating in *Basic Path*. Additionally, *Basic Path* incentives will be:

- Consistent statewide;
- Lower than the *Advanced Path* incentives;
- Compatible with municipal financing options; and
- Implemented so as to leverage external funding where appropriate.

Multifamily Path Incentives

Incentives for *Multifamily Path* will be paid based upon modeled site savings energy utilizing any CEC approved simulation software approved by IOUs. Incentives will be offered on a tiered structure, paid per building on a “per dwelling unit” basis according to the total building energy savings percentage. The tiered approach will reward participants for realizing deeper savings. While a “per unit” approach enables participants to experience economies of scale with larger multifamily buildings.

Ten Year Stepwise Incentive Structure

During the 2013-2014 transition period the IOUs will meet not fewer than two times with statewide stakeholders to develop a 10 year stepwise incentive structure which will be triggered at defined market transformation milestones. It is anticipated that the plan will include a defined timeline, for incentive update decisions and that incentive level changes will be updated at defined market trigger metrics associated with the number of participating homes towards the *Strategic Plan* goals. As the number of participants increases over time, incentive levels will be lowered accordingly to reset the incentive amounts.

The IOUs will invite statewide stakeholder inputs to lock in these targets prior to the start of 2015, using every 20,000 homes/dwelling units treated and decreasing incentive levels in \$250 increments as a starting point for discussion. Once the statewide target is confirmed, the IOUs will notify contractors when the program has reached 75%, 90% and 95% of the goal so contractors can plan accordingly.

Table 11: Summary Table of Measures, Incentive Levels and Verification Rates
[Table 11 to be provided as an Excel Attachment to this PIP]

Permitting Requirements

No incentives for equipment requiring a building permit shall be provided any contractor or customer without that contractor or customer certifying that s/he has complied with all permit requirements and utilized a licensed contractor.

Qualified Measures

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During the transition cycle, the IOUs will work to better leverage WHUP to achieve greater energy savings from plug loads, appliances and swimming pools through:

1. Greater cross marketing of HEER and WHUP customers.
2. Work with EnergySoft to find solutions to pool pump modeling.
3. Incorporate lighting and appliance options as a more predominate feature in standard assessment reports to customers.

Required *Basic Path* Measures Installed Per Measures Installation Standards:

- Whole House Air Sealing
- Attic Insulation
- Duct Test and Seal
- Domestic Hot Water Pipe Insulation
- Thermostatic Shut-Off Valve
- Low-Flow Shower Head

***Advanced Path* Measures Installed Per Measures Installation Standards:**

- Attic Insulation
- Cool Roof Installation (CRRC-certified)
- Cooling System Upgrade
- Domestic Hot Water Heater Upgrade (non-solar)
- Domestic Hot Water Pipe Insulation
- Duct Insulation
- Duct Test and Seal
- Exterior Lighting Upgrade – Permanently Installed High-Efficacy
- Floor Insulation
- Heating System Upgrade
- Interior Lighting Upgrade – Permanently Installed High-Efficacy
- Low-Flow Shower Head
- Radiant Barrier Installation
- Thermostatic Shut-Off Valve
- Wall Insulation
- Whole House Fan Installation
- Whole House Air Sealing
- Window Upgrade
- Other Measures as may be modeled and allowed by IOUs per regional market needs

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Ineligible Measures

- Screw-In Lighting Fixtures and Lamps
- Solar Domestic Hot Water Heater System
- Distributed Generation Systems - Solar PV, Fuel Cell, Wind, etc.
- Pool Pump Upgrade
- Clothes Washer Upgrade
- Clothes Dryer Upgrade
- Dishwasher Upgrade

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Multifamily Building Eligible Measures

- Attic insulation upgrade
- Wall Insulation upgrade
- Floor insulation upgrade
- Window replacements – 2008 T-24 standard or better
- Cool roof – CRRC rated product
- Radiant barrier
- Window shading – permanent, non-retractable
- Duct Sealing - with HERS test
- A/C equipment replacement – Must meet current T-20 standard
- Furnace replacement – Must meet current T-20 standard
- Premium efficiency motors (ECM included)
- VFD controls for CHW, HW, CW pumps
- VFD controls for cooling tower fans
- Pipe insulation – From ½ inch to 1-inch, or none to 1-inch
- Controls optimization (OA reset, zone reset)
- Boiler or DHW replacement – Must meet current T-20 standard
- Insulate hot water piping – From ½-inch to 1-inch, or none to 1-inch
- DHW tank insulation
- Add VFD to circulation pump
- Update central DHW pump to demand control – From no control to demand control
- Common area lighting fixtures – high efficacy hardwired fixtures
- Dwelling unit lighting fixtures – high efficacy hardwired fixtures
- Lighting controls – Occupancy sensor, photo sensor, or dimmer switch
- Outdoor lighting retrofits – high efficacy hardwired fixtures
- ENERGY STAR Refrigerator
- ENERGY STAR Dishwasher (if a dishwasher is installed in pre-retrofit condition)

g) Additional Services:

Table 12: Additional Service

[Table 12 to be provided as an Excel Attachment to this PIP]

h) Sub-Program Specific Marketing and Outreach:

IOUs will conduct integrated as well as program-specific marketing and outreach which will be coordinated with the statewide marketing and outreach program. The utilities may use a range of tactics such as; e-mails, flyers, on-Line marketing, direct mail, bill messaging, social media, local events, ethnic media, and other channels that suit the target audience, the message, and the resources.

Marketing, Education and Outreach plans

1) Objectives

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- Generate greater awareness, understanding and for the whole house system concept;
- Drive response amongst qualified customers to seek out whole house projects; and
- Build demand in the marketplace for home retrofit services.

2) Target Audiences

WHUP marketing and outreach aims to include all stakeholders in the retrofit process, throughout the life of the program. This will help to ensure that all audiences receive consistent information and will enable a more informed dialogue about program specifics, in an effort to continuously engage stakeholders in the energy efficiency retrofit process. The initial target group is comprised of the following audiences listed below. Based on the results of the statewide market survey research.

Target Group:

- Single family residential customers in proposed targeted segments
- Multifamily residential customers
- Residential customers with a history of prior EE engagement including, but not limited to: rebates, online tool enrollment and energy audits
- Local governments, community-based organizations and other stakeholders (i.e. the realtor community)
- Efforts may target select public events and work with local earned media to publicize the program's benefits.

3) Keys to Success

Execution of a successful campaign that introduces customers and contractors to the benefits of comprehensive home energy efficiency retrofits will largely be dependent on funding available to support outreach to all audiences. With that in mind, following is the proposed approach and specific tactical recommendations that the IOUs aim to pursue, funding permitting:

- Continue to utilize a statewide brand and message; and a creative envelope for WHUP marketing efforts to avoid market confusion;
- Co-brand where feasible;
- Coordinate with local governments;
- Engage contractors, stakeholders and local governments in generating customer demand; and
- Provide collateral pieces to participating contractors to assist in lead generation and education;
- Employ expanded community based marketing approach; and

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- Use a variety of innovative marketing strategies such as time of sale assessment vouchers.

i) Sub-Program Specific Training:

Specific workforce development efforts supporting WHUP include the following:

- CEC/EDD: California Clean Energy Workforce Training Program Community college programs;
- Third party programs; and
- IOU training offerings (IOU trainings will serve as backup if required. IOU courses do not duplicate modules available in the marketplace but will serve backup role in the event that a market need is identified and best served by the IOU Energy Training Centers).

WHUP will be coordinated with the statewide IOU WE&T program, local government residential retrofit and contractor training programs that are tied directly to workforce education and training efforts on a state and federal level. In addition, IOU WE&T programs will continue to offer both building-block house as a system courses that educate students on the concepts that form the foundation of home retrofit programs when a needs assessment determines that these areas require attention. Those concepts include:

- Advanced house-as-a-system concepts and issues;
- Combustion and other safety training updates;
- Green building techniques applicable to the program;
- Blower Door Based Air Sealing;
- Codes and standards (Title-24) implications;
- Advanced lighting, HVAC technologies and problem solving; and
- Business training (including the enhancement of sales, marketing, training, and accounting skills).

Contractor training requirements will be based WHUP requirements and will provide contractors necessary training without sacrificing any considerations for applicable safety requirements.

Contractor recruitment efforts will be conducted primarily by third party program implementers – a model that has proven successful in statewide IOU HVAC programs in the 2010-12 program cycle. Program implementers will continue to primarily recruit contractors through:

- The network of contractors already participating in IOU HVAC, insulation and weatherization programs;
- Direct outreach through trade groups with locally active memberships;

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- Workforce development departments (to target unemployed general contractors)

Program implementers will verify and enroll Participating Contractors and Raters and provide required program participation related training. Once enrolled, the Participating Contractor and Rater lists will be posted in a centralized location for customers to view. IOUs will direct customers to appropriate websites for lists of eligible Participating Contractors and Raters.

Upon completion of 2012 Energy Upgrade California process evaluations, the IOUs will convene a workshop to review workforce training needs.

j) **Sub-Program Software and/or Additional Tools:**

a. List all eligible software or similar tools required for sub-program participation.

- Energy Pro energy simulation modeling software

b. Indicate if pre and/or post implementation audits will be required for the sub-program.

Pre-implementation audit required Yes ___ No

Post-implementation audit required Yes ___ No

c. As applicable, indicate levels at which such audits shall be rebated or funded, and to whom such rebates/funding will be provided (i.e. to customer or contractor).

Table 13: Post-implementation Audits

[Table 13 Program to be provided as an Excel Attachment to this PIP]

k) **Sub-Program Quality Assurance Provisions:**

Payment of customer incentives will be tied to the contractor's delivery of full job required program documentation. Program implementers will randomly select a minimum of 5 percent of each participating contractor's reported retrofits for onsite job verification and review 100 percent of the job data inputs from contractors. Verifications will include homeowner interviews, intensive visual checklist inspections, and selective retesting of key items. A subset of these energy savings estimates may later be validated against the first year's after-retrofit utility bills plus climate data and homeowner interviews as needed to identify changes in other factors affecting energy use. IOUs will collaborate to develop QA/QC plans and documents that reflect statewide uniformity to the greatest extent possible. QA/ QC documents and standards will be updated regularly with contractor input and will include:

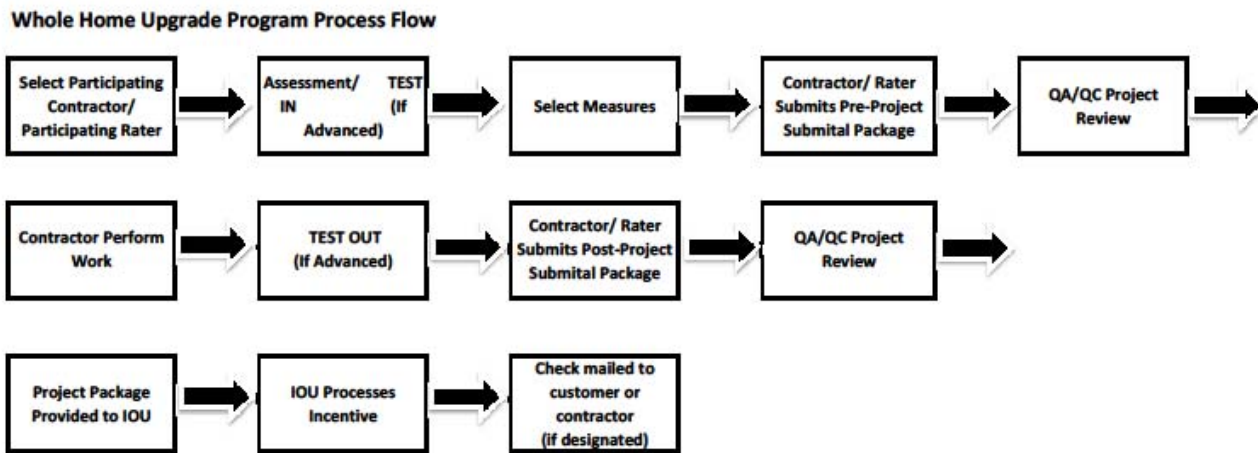
1. QA/QC Process and Protocols

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2. Minimum installation standards for all allowable measures
3. Emergency and Fast Track equipment replacement protocols.
 - a. Exhibit A attached includes existing and continuing IOU Emergency and Fast Track protocols.
4. Permitting requirements
 - a. WHUP shall support Heating Ventilation and Air Conditioning permit acquisition as a matter of course.
 - b. WHUP jobs involving HVAC replacement must include submittal of the HVAC permit number and a contractor certification that appropriate permits have been obtained, for inclusion in program records.

Table 14: Quality Assurance Provisions
[Table 14 to be provided as an Excel Attachment to this PIP]

Sub-program Process Flow Chart:

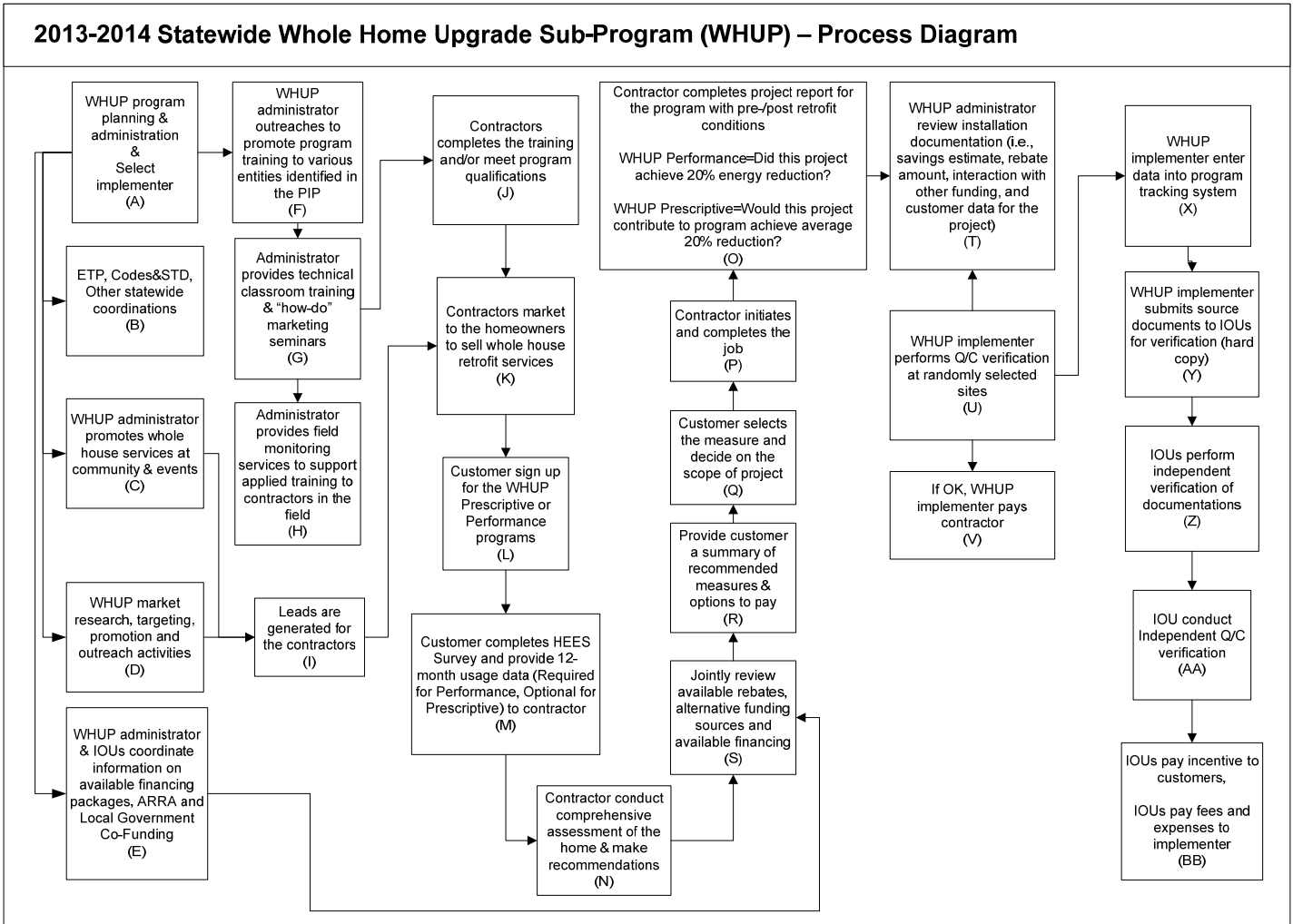


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l) **Cross-cutting Sub-program and Non-IOU Partner Coordination:**

Table 15: Cross-cutting Sub-program and Non-IOU Partner Coordination
[Table 15 to be provided as an Excel Attachment to this PIP]

m) **Logic Model:**



10) Additional Sub-Program Information

a) **Advancing Strategic Plan Goals and Objectives:**

The WHUP is consistent with the requirements of the *Strategic Plan*. The program addresses the Whole-House Strategy of the *Strategic Plan* by influencing contractors and customers to implement comprehensive home retrofit energy efficiency measures through either the *Basic Path* on-ramp, *Advanced Path* or *Multifamily Path*.

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WHUP responds to the need for much larger energy savings in existing homes and multifamily buildings than is possible with conventional checklist audits or single measure improvement (prescriptive) programs. WHUP addresses the key “whole house” strategy of the *Strategic Plan* by influencing “decision triggers” to improving energy efficiency and understand advantages to expand participation to reach savings goals. This program is also a vehicle to increase penetration of shell upgrades and cost effective, high efficiency appliances, water heaters and HVAC upgrades. The *Strategic Plan* further states that a similar approach must be developed for multifamily housing. The program will help to achieve the following goals identified in Section 2 of the *Strategic Plan*:

Table 6. Whole House Alignment with California Long Term Energy Efficiency Strategic Plan			
Residential and Low Income Goal 2: Existing Homes			
Goal Number	Strategy	WHUP Strategy	Integrated Programs & Activities
2-1	Deploy full-scale Whole-House programs.	Monitor performance of selected lower energy homes. Design implement, monitor and continuously improve full-scale programs for whole-house energy efficiency and renewable energy retrofits.	Programs: WHUP, Solar, Demand Response, MFEER, Plug Loads, ESAP Marketing: Customer segmentation and local coordination EM&V: Studies to provide early feedback and establish baselines
2-2	Promote effective decision-making to create widespread demand for energy efficiency measures.	Continue to offer Energy Advisor programs online, by mail, and over-the-phone to provide customers with information to promote effective decision-making, in combination with other segment specific marketing outreach and educational activities.	Programs: Energy Advisor WHUP, MFEER Marketing: Customer and contractor education to promote building efficiency and appropriate EE behaviors in a segmented manner
2-3	Manage research into new/advanced cost-effective innovations to reduce energy use in existing homes.	Coordinate with Emerging Technologies and other programs to integrate market-ready technologies into the Whole House offering when appropriate. Promote commercialization of home energy management tools including AMI-based	Programs: Emerging Technologies, Demand Response, Solar, and others

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		monitoring and display tools	
2-4	Develop financial products and programs such as on-bill financing to encourage demand for energy efficiency building products, home systems, and appliances.	Ensure that customers are aware of the most effective and attractive financing packages that are available to them.	Programs: WHUP Coordination: Local government partnerships and other state/federal financing entities
2-5	Increase Title 24 compliance through specific measures leading to aggressive statewide enforcement.	Partner with local governments to expedite the permitting process to decrease the barriers to entry in the home performance industry.	Coordination: Local government partnerships

b) Integration

- i. **Integrated/coordinated Demand Side Management:** As applicable, describe how sub-program will promote customer education and sub-program participation across all DSM options. Provide budget information of non-EE sub-programs where applicable.

The IOUs have identified IDSM as an important priority. The IOUs plan to monitor the progress of other IDSM efforts and to work closely to identify comprehensive integration approaches that feed into the overall statewide strategy and to implement best practices as rapidly as practical.

The statewide WHUP is a platform for integration of solutions to the residential customer and is intended to provide an easy entry point for customers and contractors that ultimately integrate other programs for whole house and customer solutions. As awareness of the cost-effective opportunities in whole house retrofits grows through training and education efforts, customers will be presented with the ability to integrate Demand Response and properly-sized onsite generation.

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With the inherent synergy that exists between the energy efficiency awareness efforts of CSI and the Whole House programs, WHUP information will be made available to IOU teams in call-centers with the intent of providing a WHUP introduction to customers or contractors interested in CSI.

Coordination with stakeholders who maintain approved solar contractor lists may also provide an opportunity to deliver the whole house message to parties interested in installing solar systems.

The statewide Energy Advisor program will also provide a unique nexus between CSI and WHUP. CSI customers are required to conduct an energy efficiency survey prior to installing solar, which presents a unique opportunity to educate customers on the benefits of improving the efficiency of their home prior to purchasing solar equipment. These efforts are expected to include, but will not be limited to:

- WHUP links and information on IOU CSI sites;
- Links to WHUP landing pages from Energy Advisor;
- Targeted messaging during and after each survey;
- Information about WHUP incentives; and
- Educational information that encourages customers to “reduce then produce.”

In addition, any contractors who work onsite with customers can provide delivery channels for DR programs information or installation of DR technology.

WHUP will also serve as a platform to integrate technology advancements in DR and Advanced Metering. IDSM efforts will be part of an ongoing conversation with customers to enhance program offerings and increase their participation in DSM efforts over time.

Table 16: Non-EE Sub-Program Information

[Table 16 to be provided as an Excel Attachment to this PIP]

- ii. **Integration across resource types** (energy, water, air quality, etc): If sub-program aims to integrate across resources types, please provide rationale and general approach.

WHUP is designed to deliver comprehensive solutions to customers while integrating across resource types to maximize customer benefits not only in terms of energy savings, but through improvements to occupant health, safety and comfort. Primarily, there are opportunities for water efficiency and indoor air quality improvements.

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One of the major benefits of comprehensive home retrofits is improved indoor air quality. Residents will notice more consistent temperatures throughout their home and in many cases, improved indoor air quality.

The embodied energy in water distribution will become an increasingly important part of utility programs. The consumer education process in the house-as-a-system approach will provide an opportunity for local governments to present customers with information on non-energy savings inherent in comprehensive retrofits.

[This information can be found in Table 16 Non-EE Sub-Program Information to be provided as an Excel Attachment to this PIP]

c) Leveraging of Resources:

Local Governments

i. SDG&E

Local Governments play a unique and important role in the promotion and advancement of Energy Upgrade California. Beginning in 2009, when the American Recovery and Reinvestment Act was passed and programs like the State Energy Program and the Energy Efficiency & Conservation Block Grant program, jurisdictions across the state were given the unique opportunity to make significant investments on energy programs. Because of the unique and collaborative relationship that exists among the local jurisdictions and SDG&E, and the existence of a non-resource local government partnership program, the San Diego region saw the development of a number of community focused residential retrofit programs including innovative marketing pilots, specialized workforce education & training programs, and a variety of rebate and loan programs that sought to incentivize residents to perform energy upgrades in their homes.

Over the course of the last few years, SDG&E has worked closely with each local government to ensure local programs are closely coordinated and achieve the highest level of collaboration and consistency across the region. Building off the lessons learned over the course of the last few years as well as the unique authorities afforded local governments, SDG&E and the local government program advisory group has developed the following list of key roles that local governments will play to advance Energy Upgrade California during the transition cycle.

1. Incorporate building retrofits & building occupant health and safety issues into Climate Action Plans, General Plans, and other relevant planning and long term strategy documents;

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2. Leverage community relationships and resources to market Energy Upgrade California including targeted outreach and education to the community;
3. Provide targeted education on EUC and its benefits to key community stakeholders, business sectors and elected officials
4. Coordinate workforce education and training program activities;
5. Leverage building permit interactions to encourage WHUP enrollment and work to develop streamlined permitting process as it relates to WHUP;
6. Leverage unique authority to encourage/require building rating/audits to drive customers to EUC;
7. Pilot unique incentive programs such as point of sale audits, to encourage participation in Energy Upgrade California;
8. Work with the financing community to deploy innovative products and services to further enable residential and commercial energy upgrades throughout their jurisdictions.
9. Pilot incentives for Whole Home Energy Rating System II assessment as part of the WHUP.

Please refer to the Local Government Partnership Program PIP for budget details associated with these activities.

WHUP will coordinate IOU incentives and marketing outreach with local government efforts in neighborhood outreach and contractor recruitment. This effort allows for multiple levels of engagement that, through coordination with local entities, will reach to a neighborhood level that will drive awareness and market adoption.

ii. PG&E

During the development and implementation of the 2010-2012 Whole House Program PG&E partnered and coordinated closely with recipients of American Recovery Reinvestment Act (ARRA), State Energy Program (SEP), and Energy Efficiency & Conservation Block Grant (EECBG) statewide and within the PG&E service territory. In the 2013-2014 Transition Period, PG&E plans to continue to work with and leverage these partners as described in further detail in the Local Government PIP.

iii. SoCalGas

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SoCalGas has worked closely with local governments who received American Recovery Reinvestment Act (ARRA), State Energy Program (SEP), and Energy Efficiency & Conservation Block Grant (EECBG) in the last couple of years. This has allowed SoCalGas and local governments to achieve a high level of collaboration and consistency across the service territory. In conjunction with SCE, SoCalGas is in discussion with local governments who are interested in continuing collaboration post ARRA, SEP, and EECBG era. These discussions will determine key roles for local governments, based on lessons learned and their successful offerings from ARRA, SEP, and EECBG grants. Such activities may include:

1. Expanding existing outreach programs to the Real Estate Community
2. Leveraging existing low-interest financing
3. Drawing upon LA County's experience with FlexPath for modifications to meet the CPUC's goal for a more appealing approach.
4. Marketing and Workforce Development support for contractors

iv. SCE

SCE has worked closely with local governments who received American Recovery Reinvestment Act (ARRA), State Energy Program (SEP), and Energy Efficiency & Conservation Block Grant (EECBG) in the last couple of years. This has allowed SCE and local governments to achieve a high level of collaboration and consistency across the service territory. SCE is in discussion with local governments who are interested in continuing collaboration post ARRA, SEP, and EECBG era. These discussions will determine key roles for local governments, based on lessons learned and their successful offerings from ARRA, SEP, and EECBG grants. Such activities may include:

1. Expanding existing outreach programs to the Real Estate Community
2. Leveraging existing low-interest financing
3. Drawing upon LA County's experience with FlexPath for modifications to meet the CPUC's goal for a more appealing approach.
4. Marketing and Workforce Development support for contractors

d) Trials/ Pilots:

1) SCE/ SoCalGas Moderate Income Direct Install-MIDI

The Local MIDI Program will be offered by SCE and SoCalGas to eligible customers residing in single family and multifamily properties (multifamily common areas excluded) served by SCE and SoCalGas. The MIDI Program will coordinate with SCE and SoCalGas' Energy Savings Assistance program (ESAP) to deliver MIDI measures through select ESAP Contractors. ESA Program infrastructure will be used to administer the MIDI Program. When working in joint SCE/SoCalGas territory, shared contractors will offer both

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IOU's Program measures. The MIDI Program will encourage residential owners/property managers of single family and multifamily properties to install comprehensive energy efficiency improvements.

The EUC Program traditionally requires significant financial contributions by customers who wish to participate. The MIDI Program closes the financial gap by installing no-cost measures thereby reducing the total amount of money a customer would need to invest in their property in order to participate in the SF or MF EUC Program.

SCE and SoCalGas propose:

- To implement a MIDI trial with a set goal of 1,000 units served
- Develop a scalable program design for larger rollout in future cycles.
- Evaluate delivery of MIDI Program utilizing existing ESA program infrastructure.

a) Customer/Living Unit Eligibility

To participate, the following guidelines must be met:

- i. participants must be income eligible (between 201% and 250% of FPG)
- ii. living unit must not have received ESAP services after January 1st, 2002
- iii. living unit must meet the current ESAP/MIDI minimum measure requirements

b) Measures

ESA program approved measures excluding appliances

c) Contractors

SCE and SoCalGas will coordinate with select experienced joint ESAP contractors to perform an assessment of the living unit, complete customer enrollment, and install measures as applicable in the MIDI Program trial.

2) SDG&E Trial Incentives

SDG&E may explore additional incentive trial offerings for customers who perform an HVAC QI installation as part of a scope of work. Additional trial integration offerings may include offering IHDs, PCTs, or other enabling technologies for advance path customers who achieve certain saving levels.

11) Market Transformation Information:

1) Summary of the market transformation objectives of the program.

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The WHUP program is designed to fulfill the goals of the *Strategic Plan* by guiding and incenting home and building buyers, owners and renovators to implement a whole house approach in energy consumption undertaken in their purchase and use of existing and new homes and buildings, home and building equipment (e.g. HVAC systems), household appliances, lighting and “plug load” amenities. The target is all existing homes in an effort to realize the maximum energy efficiency potential via the delivery of a comprehensive package of cost-effective whole-house and whole-building energy efficiency retrofit measures. These programs will include building shell upgrades, high-efficiency HVAC systems – appropriately sized for the building structure, and emerging deep energy reductions in the lighting, appliance, plug-load and other residential oriented sectors. This initiative will be structured around a comprehensive audit, installation of the variety of retrofits required across the entire building structure, and access to attractive financing programs. The WHUP effort will be achieved via the parallel and coordinated efforts of the utility programs, partners and other private market actors, and the State and local government policies and programs made available. As IOUs implement a system of automatic meters and wide-area network to enable data transport, the IOUs and customers will have the opportunity to integrate additional home automatic systems and integrated energy management features into the home (i.e., interim Intelligent Home Network, comprehensive Home Automatic Network and etc.) to support IDSM integration and deployment. The Plug Load and Appliance Program will have the potential to offer not only hardware based energy savings, but also comprehensive behavior savings opportunities.

2) Identification of the relevant market actors and the relationships among them.

The Whole Home Upgrade program is designed to serve residential homeowners, moderate income households and property owners and managers. For the 2013-2014, the program consists of the following paths:

- *Basic Path,*
- *Advanced Path*
- *Multifamily Path*

The Whole Home Upgrade Program is a contractor lead program in that it is the local contractor who interfaces with the customer, markets and sells the concept of Whole House Retrofits, and completes the actual work. The Statewide Process Evaluation (5/1/12) revealed that 32% of participants first heard about the EUC program from a contractor. A number of Local Governments, most initially supported by CEC/ARRA funding during the 2010-12 time frame, also support the program via local marketing and incentive offerings. Coordinated on a Statewide basis – the IOUs offer consistency in program scope (to the degree possible) and a consistent marketing message.

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3) A market characterization and identification of key barriers and opportunities to advance demand-side management technologies and strategies

Market Characterization

The IOUs statewide Whole House Program has initially focused on training a pool of qualified contractors available to perform these comprehensive retrofits. The number of individuals with active BPI certifications grew dramatically between January 1, 2010 and November 1, 2011. Total active certified individuals grew from 65 to 1,596. The number of certifications (individuals may have more than one type of BPI certification) grew from 88 to 2,349. The 2010-2012 PG&E and SCE Whole-House process evaluation study by SBW/ODC/ASW, produced a number of findings, including:

Overarching program participant profile

- The program participation is primary through the *Advanced Path* and there is little engagement in the *Basic Path* service.
- *Advanced Path* jobs report energy savings of 30% average in this first program phase.
- The average cost per job ranges from \$13,000 to \$16,000
- The utility incentives covered typically 23% to 27% of the project costs.
- Despite the large supply of program contractors, only a limited pool of larger contractors complete the majority of the projects
- Many – 44% of participants – used financing to pay for their projects.

Contractor recruiting/training/mentoring—from SCE’s in-depth assessment

- There are widespread contractor performance gaps despite a certification requirement (i.e., BPI).
- The current contractors’ participation training does not adequately prepare them for job processing expectations and the rigor of the QA/QC process,
- BPI certification does not guarantee a standardized job performance level
- Since the requirements for certification often vary (i.e., (1) on-line training versus in-person classes, (2) different region may place different emphasis, i.e., Vermont may focus more on heating, while California may focus more on HVAC).

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For the targeted population—from PG&E’s in-depth market effectiveness assessment

- 29% of the targeted population are aware of Energy Upgrade California (EUC),
- 13% of the targeted population reported seeing logo displayed,
- 3% of the targeted population have visited the website,
- 43% of the targeted population has been exposed to at least one marketing treatment from EUC.
- Among those “aware” in the targeted population, 27% first heard of the program from radio, (PG&E did not do radio ads but the local governments did), 18% from direct mail, 11% Newspaper, and 10% each for Word-of-Mouth, Internet and Television.
- Among workshop participants, word-of-mouth and events are the most effective communication channels.
- Program homeowner participants ranked “comfort”, “reduced energy bill”, “benefits of the incentive” and “home energy assessments” as important reasons for why they participated.
- Contractors report the most effective messaging in their opinion are the messages of: Comfort, Incentives, Lowering energy bills

Market Actors:

- Homeowners/renters & property owners/managers
- Contractors
- Realtors
- Financial Institutions
- Property Appraisers
- Local governments

Relationship Among the Market Actors:

The contractor community is the key actor with the WHUP. They are the program actor who outreaches personally to the owner of the building and home and communicates the concepts of approaching a building on an entire whole basis. And it is the contractor who proposes the appropriate work and completes the retrofit. The contractor provides the linkage between the WHUP and the customer who receives the rebate.

Working together, the realtor, appraisal and financial communities are market actors that can help push energy efficiency in the home resale market. Realtors can be educated to differentiate the advantages of purchasing energy efficient existing residential structures to prospective home buyers. Working with the appraisal community to perceive installed energy efficient measure in a home as monetary assets to a structure thus increasing the property’s value can be a significant push to the acceptance and importance of energy efficiency and financial institutions

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recognizing this effort to provide exceptional financing opportunities to prospective home buyers for their investment in an energy efficient home.

Many local governments were very active in the EUC sector in the prior 2010-12 cycle as supported by ARRA funding. Some of those local government programs will be continuing on into the 2013-14 program cycle. The IOUs will continue to provide WHUP as a foundation offering to our customers, and local governments can continue to build upon these (with additional rebates) or support these with customized marketing programs. The IOUs will coordinate and partner with local governments in an effort to achieve the synergy possible between these aligned efforts.

Opportunities to advance demand side management technologies and strategies:

Building owners who have committed to a WHUP retrofit solution will have taken the ultimate step in applying energy efficiency technology to minimize their energy usage. They have evidenced their willingness to pursue minimizing energy usage, and are therefore self-identified as highly likely to embrace the next step(s) of demand side technologies and strategies to further minimize energy usage. So the next phase of energy reduction for the EUC retrofit customers will be the variety of demand side reduction programs that the IOUs can make available.

Key Barriers & Opportunity for Intervention:

The barriers for this program for the homeowner sector are the:

- (1) Relatively high cost of home assessments,
- (2) Relatively high gross costs of comprehensive energy upgrades,
- (3) Market not aware of additional non-economic values resulting from comprehensive energy upgrades,
- (4) Fledgling contracting and supporting industry for existing home energy upgrades,
- (5) Low consumer awareness of incentive subprograms and the concepts of comprehensive home energy assessments and upgrades,
- (6) Lack of common home rating protocols and common vernacular for the market to assign value to homes which undergo comprehensive energy upgrades,
- (7) The economic downturn and its impact on the residential housing sector.
- (8) Contractor awareness and access to information,
- (9) Access to financing,
- (10) Lack of access to skilled labor.

Note: Potential participants who have attended a workshop (PG&E) also explain their lack of participation in that they haven't been able to contact/find a contractor yet.

For the owners and/or managers of multifamily buildings, there are another set of barriers, closely aligned to those for private single-family homes, but different in some very important dimensions:

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- (1) Lack of knowledge regarding energy efficiency as well as the comprehensive programs that are offered by the IOUs,
- (2) Challenge of the “split incentive” where it is the building owner/manager who must pay for all building improvements, including those inside of the individual rental units. But it is the tenants of the unit that pay the energy bills and therefore receive the immediate benefits of the energy efficient investment (by the landlord),
- (3) Multifamily buildings are managed as businesses, where capital for major improvements must be borrowed. But the extended ROI for most energy efficiency projects is longer than the few years that most business allow for recouping their investments,
- (4) To implement a “whole building” retrofit, the apartment owner/manager must typically bring in several specialty contractors for multiple visits, which in tenant occupied units is a very challenging task,
- (5) Tenants having to out of the rental units during retrofit work, as well as the management time required on behalf of the building owner/manager – is a costly investment of resources,
- (6) Major retrofit often can only happen when the rental unit(s) is unoccupied – which is a significant loss of income for the owner/manager,
- (7) Managed as a business – multifamily building owners/managers are not inclined to replace any major building component or energy system prior to its actual wear-out/break-down. Building retrofits usually take place toward the “end-of-life” of key components (HVAC – for example) – but not when they break-down. Building owners/managers cannot afford the impact on tenants of having key systems not functioning for any length of time.

4) A description of proposed intervention(s) and its/their intended results

The WHUP seeks to address these barriers for private single-family homes through:

- Continued marketing of Energy Upgrade California and whole house concepts. (Barrier 3, 5, 8)
- *Intended Results:* Increase awareness

- Continued contractor recruitment, training and mentoring. (Barrier 4, 5, 8, 10)
- *Intended Results:* Continue to maintain and improve the supply and quality of the contractors serving the program

- Expanded customer uptake through WHUP incentives. (Barrier 1, 2, 5)
- *Intended Results:* Use incentives to reduce the barrier of entry into the comprehensive retrofit projects
- Offering of Financing programs (by IOUs and/or other entities) (Barrier 1,2, 9)

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- *Intended Results:* Provide building owners the upfront cash they need to borrow
- to invest in a retrofit project, and amenable loan terms by which to repay that loan (note: this program component will be particularly important in the multifamily sector).

- Continued stakeholder outreach to address barriers. (Barrier 1, 3, 4, 5, 6, 8, 10)
- *Intended Results:* Leverage resources outside the IOUs to address market needs

- Continued partnerships with local and state government to address barriers. (Barrier 1, 2, 3, 4, 5, 6, 8, 9, 10)
- *Intended Results:* Leverage local government resources to engage communities and targeted population to participate in the program

The IOU's considered the following when determining the Program's low, medium and high scenarios for program

<i>SoCalGas</i>					
Scenarios	2013		2014		Assumptions
	SF Homes	Budget	SF Homes	Budget	
Low	508		508		<ul style="list-style-type: none"> · <i>ARRA sunset more challenging</i> · <i>Competition from Local Government</i> · <i>Further challenges with the economy</i>
Medium	725		725		<ul style="list-style-type: none"> · <i>Expected program performance</i>
High	870		870		<ul style="list-style-type: none"> · <i>Efficiencies and improvement in</i>

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					<ul style="list-style-type: none"> · <i>New financial options coming o</i> · <i>Increase local government invo</i>
<p><i>Note: These scenarios include SoCalGas only and shared IOU territories.</i></p>					

And for WHUP *Multifamily* the barriers will be addressed by these actions:

- 1) To improve a property owner or manager’s energy efficiency knowledge, the *Multifamily Path* would seek to leverage comprehensive investment grade building assessments to identify potential energy efficiency opportunities. (Barrier 1)
- 2) To address split incentives and cost of upgrades, the *Multifamily Path* would integrate with the existing Energy Savings Assistance Program (“ESAP”) and the Multifamily Energy Efficiency Rebate (“MFEER”) Program. This would provide comprehensive services to the building, including “low cost” or “no cost” tenant measures in conjunction with the WHUP *Multifamily Path* whole building incentives in order to maximize energy savings for the up-front investment. (Barrier 2)
- 3) Incentives would assist property owners or managers with overcoming a wide array of market and financial barriers which may otherwise prevent energy efficiency upgrades (Barrier 1, 5)
- 4) Create a single point of contact that would assist the property owner or manager navigate through the incentive and retrofitting process. This approach would provide support in understanding the various program rules and assistance in determining eligibility. The property owner or manager would be guided through an easy and streamlined preliminary assessment to establish feasibility and estimate project cost for the *Multifamily Path*, with an eye toward leveraging all eligible programs. (Barrier 4)
- 5) Target buildings planning on or undergoing renovation projects to limit customer time burden and lost rental income. (Barrier 4, 5)
- 6) Multifamily sector is comprised of a wide diversity of properties which can be segmented by: 1.) rental rate (low – medium – or high; and/or 2.) size of the building and also size of the company that owns or manages the building. Defining the unique concerns and needs of building owners and managers by these variables of tenant socio-economic status and ownership/management structure will allow much more effective messaging and marketing communications. (Barrier 1, 2, 3, 4, 7)
- 7) On Bill Financing or Repayment program which could be focused on the tenant or the common property energy agendas. This program will provide access to capital to fund investments in energy efficiency upgrades for buildings at an attractive interest rate. (Barrier 2, 3, 7)

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5) A coherent program or “market” logic model

The WHUP is designed to use a market transformation framework to pull in new measures and push out the mature measures. The diagram below describes this iterative process.

The Whole House Program will be serving both homeowners and property owners/managers, with the intent to coordinate its program activities with the low-income program to meet special needs. Like the other market transformation programs, the Whole House program, will work with Emerging Technology (I), Plug Load & Appliance, Residential HVAC Programs and other residential programs to leverage new and innovative technologies and applications, while pruning more mature technologies and applications from program offerings. These program interactions are described in the Whole House Program Key Support Activity Process Diagram below. These interaction and coordination decisions will be facilitated by IOUs' Decision Panel (A) as indicated in the logic model.

To reduce market barriers, the program's activities are designed to “get the word” out about the benefits of comprehensive retrofits through both mass marketing (D) as well as ground-up individual outreach for neighborhoods and communities (C), by working with local governments and entities. To help property owners understand their energy consumption profile (E), the participants will be encouraged to use a Energy Advisor survey (E) to gauge the overall consumption profile prior to making retrofit decisions, thus respecting the load order of implementation cost effectiveness, and to engage and motivate additional behavior-oriented energy efficiency and conservation actions. To ease the financial burden of the project cost and investment, the program will make financing packages and information available to prospective participants (G).

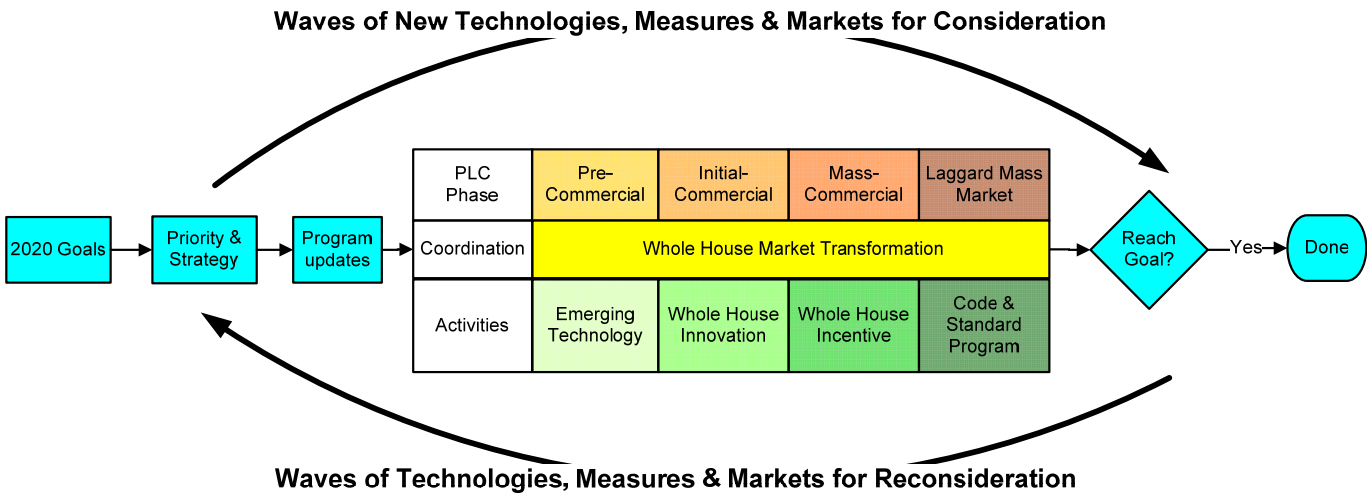
The program recognizes the importance of having a pool of qualified and competent contractors available to meet the market needs (J & O). The program offers BPI certification training as well as participating contractor ongoing training and mentoring to meet the needs of the workforce and program quality control requirements. This increase in the quality and the quantity of the labor pool, will contribute to contractors' performing projects, outside of the program, to meet deep energy retrofit needs, leading to non-participant spillover effects (R, S & V).

The expected outcome of this program includes increased and improved awareness, knowledge and attitude (AKA) of homeowners and apartment owners towards understanding the benefits of deep energy retrofits (P). After realizing these benefits from program participation, the participant further enjoys other non-energy benefits such as improved comfort of the house and increased value of their properties. The increased value in the property will become more pronounced as the state finalizes its home rating system, so the home purchasers will be aware of the inherent value of properties complete with deep energy reduction retrofits (U). All of these benefits

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will help the program participants to continue property improvements outside of the program and outside of the program offerings, leading to spillover effects (T). These participant and non-participant spillover effects will eventually change the overall composition of the housing stock at the market level, making housing and building code ratcheting possible for society (X & Y). These codes and standards changes will lead to further reduction of energy consumption at the market level leading to fulfilling the objectives of the California Long-Term energy and environmental policies (AA).

For the benefit of readers, the associated Program Performance Metrics (PPMs) and appropriate Market Transformation Indicators (MTIs) are identified in this logic model. Additional key program support activities are diagrammed as a process diagram for further illustration. The Whole House program will have the option to conduct additional pilots/trials to test technologies, applications or other programmatic design and marketing possibilities. The learning from those activities is expected to contribute to the program innovation and further learning.



Within this context, a decision making body, the IOUs Decision Panel, is formed to manage and guide this process. (Please refer to logic model & activities below)

6) Appropriate evaluation plans, corresponding Market Transformation Indicators and Program Performance Metrics based on the program logic model

Due to the need to comply with the Decision’s timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section “18.1. Evaluation Budget” in Decision R.09-11-014. Until then, we suggest the following approach:

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Summative evaluation: Market Effects. The market transformation program’s theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program’s scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program “spillover” and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

Formative evaluation: The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program’s direct outputs.

Program Performance Metrics:

This information can be found in Table 3 PPM Information to be provided as an Excel Attachment to this PIP

Market Transformation Indicators:

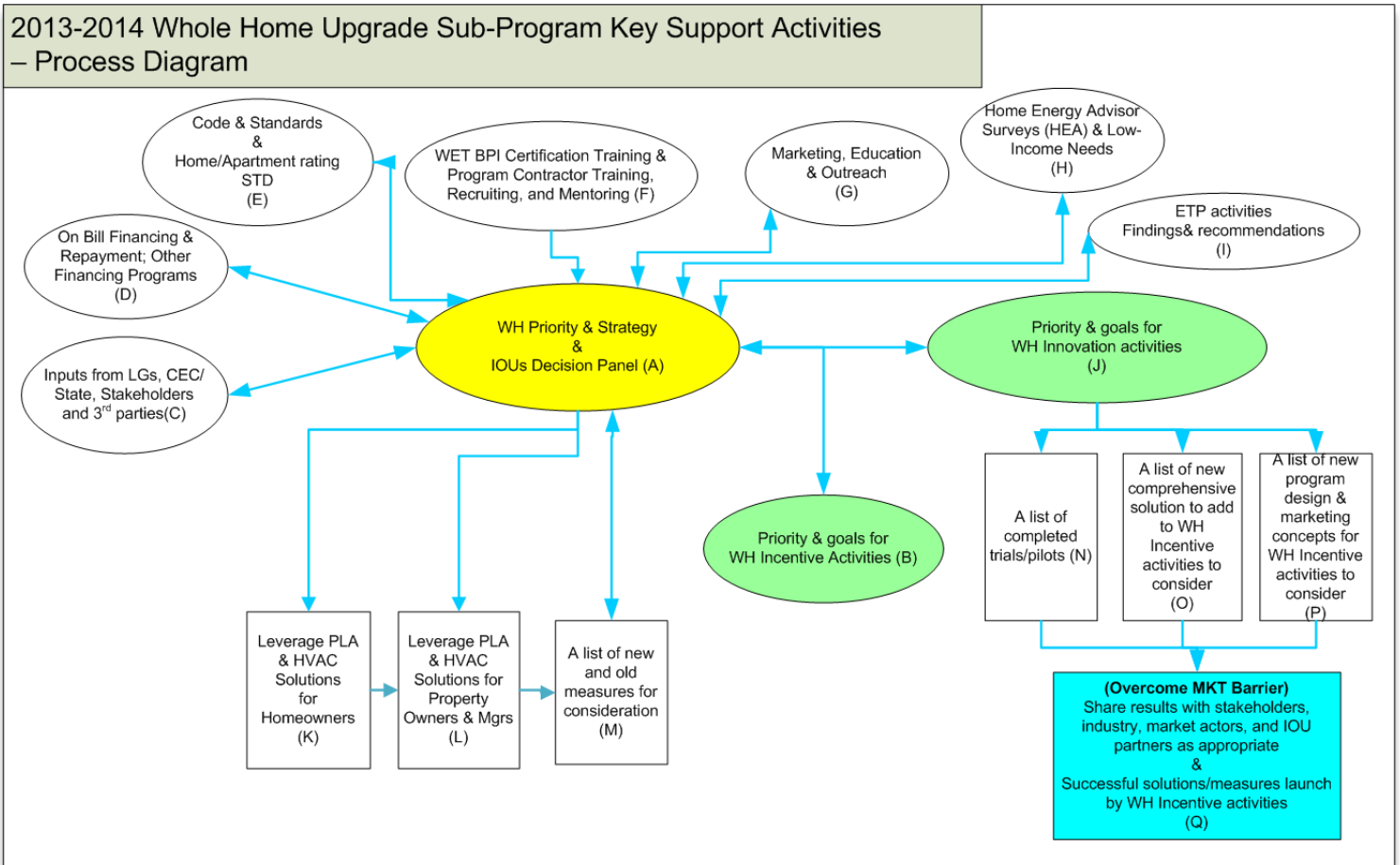
DeepRetrofit-2 The number of households that elect to perform comprehensive energy upgrades.

Market transformation indicator results shall be reported, as available, by Energy Division or the IOUs, depending upon who conducts the necessary market studies. (Res. 4385, 12/2/10)

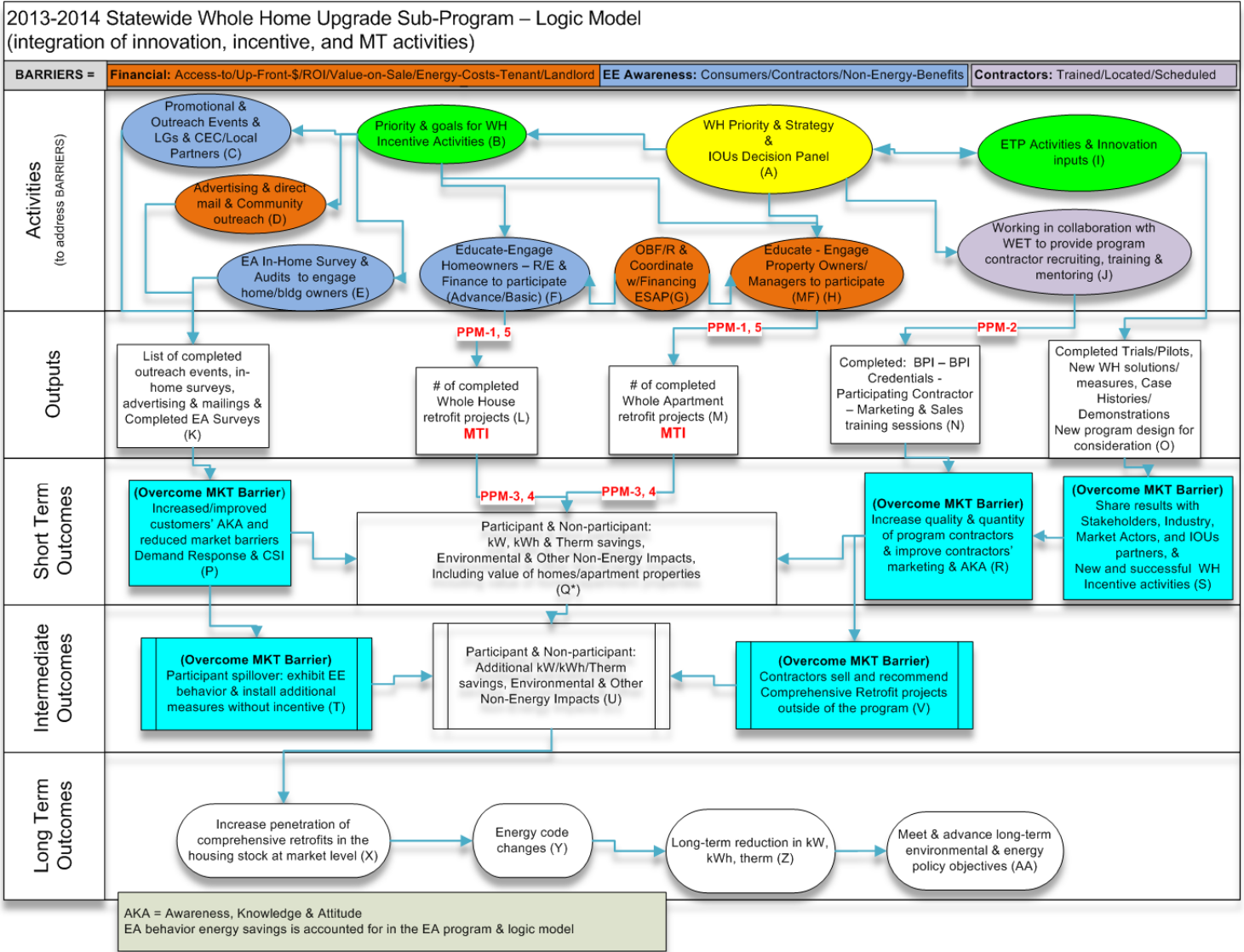
Attribution. Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Pahl (MT Workshop, Nov 2011) suggest that declaring the program’s strategic intent through the market transformation initiative’s theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by

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nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.



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12) Additional information as required by Commission decision or ruling or as needed:
 Include here additional information as required by Commission decision or ruling (As applicable. Indicate decision or ruling and page numbers):

IOU Streamlined Emergency Replacement Protocol and Streamlined High Performing Contractor Protocol

1. SDG&E

a. Streamlined Emergency Replacement Protocol

Per section 7 of SDG&E's QA/QC Quality Assurance and Quality Control Plan:

7.0 Emergency Replacement of Major Systems

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- 7.1 *It is recognized that there may be instances whereas immediate replacement of major systems is required due to health, safety and quality of life circumstances. In the event the customer has immediate need for equipment replacement, the QA/QC process will not interfere with a customer's ability to participate in the WHUP.*
- 7.1.1 Major systems that qualify under this provision are identified as:
- a. HVAC Systems or components
 - b. Hot water heater replacements
- 7.1.2 In the event that a contractor wishes to install a major system identified herein under the provisions of an emergency replacement, the contractor shall contact and notify the QA/QC vendor immediately of the customer's emergency situation and to request accommodation under this provision. The QA/QC provider will determine if the circumstances warrant this provision.
- a. The contractor will provide the QA/QC the customer contact information, make/model/serial numbers of existing equipment and date the replacement will be installed.
 - b. The QA/QC vendor may field-verify the equipment to be replaced.
 - c. The contractor can proceed with emergency work.
 - d. To include the emergency work as part of any WHUP project scope, contractors must follow all other procedures for participation in the WHUP program.
 - e. Any and all changes to the home prior to submitting a Pre-Retrofit Project Submittal Package shall be only for the immediate emergency need pre-approved by the QA/QC vendor and must be documented in the Pre-Retrofit Project Submittal Package.
 - f. All other project scope work outside of the approved emergency work must go through the standard QA/QC process as defined in this plan.

b. Streamlined High Performing Contractor Protocol

Per SDG&E's Quality Assurance and Quality Control Plan, SDG&E QA Review turnaround times are guaranteed to be 3 working days or less for both pre and post QA Review (desktop). This time period is consistent with state contracting laws concerning consumer's 72 hr. right to rescind.

Tier 3 contractors, meaning those contractors who have successfully completed a minimum of 30 projects are eligible for random QC Inspection sampling rate of 10% pre and 5% of post project submittals.

In essence this means that high performing contractors with at least 30 projects will have 90% of their pre project submittals and 95% of post project submittals reviewed within 3 working days.

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2. PG&E

a. Streamlined Emergency Replacement Protocol

The following process that is already in place in 2012 serves the purpose of both an emergency replacement protocol, as well as a Fast Track process for all participating contractors in good standing.

The general policy for all equipment replacements performed within the PG&E program is that participating contractors and their subcontractors should wait for a Notice to Proceed to be issued before commencing work on a job for the program. However, in order to proceed with emergency replacements or expedited upgrades due to customer specific needs, contractors may proceed within the guidelines of this Fast Track Process. In order to be eligible for this Process, participating contractors must be active and in good standing under the PG&E program.

Upgrades may be started before the Notice to Proceed is issued if the participating contractor is confident that the job qualifies for the Program. Prior to adjusting or installing measures, the contractor must perform a comprehensive test-in, including combustion safety testing, to document the pre-existing conditions. The contractors should take pictures to document uncommon or unique situations.

Participating contractors that choose to perform work without the Notice to Proceed accept full liability that the rebate funds have not been reserved and that their customers may not be eligible.

In order to make the Fast Track Process work for participating contractors and their customers, the PG&E program recommends that the contractors do the following:

- Ask for a copy of recent PG&E bill to validate that the customer has an active account and have a clear understand the Program eligibility requirements.
- Make sure to understand how to use and model homes in EnergyPro proficiently to reduce the chance of error in rebate calculation or delayed application processing.
- If providing a rebate estimate, make it clear in the proposal that it is based on the un-validated energy model savings and may change after the quality control review process.
- Participate in the Process after completing at least 10 upgrades without desktop or field QA issues.
- Submit the application as soon as possible to ensure timely payment to the customer.

3. SCE

a. Streamlined Emergency Replacement Protocol

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Southern California Edison & Southern California Gas Emergency Equipment Replacement Policy for HVAC/DHW System

Due to the climate of Southern California, during the first few months of summer and winter there is a rise in the volume of HVAC emergency replacements driven by homeowners re-engaging their HVAC systems after periods of non-use. Participating Contractors will be involved in these replacements and they have the opportunity to inform homeowners of the additional benefits of the Program. The Emergency Equipment Replacement Policy for HVAC/DHW Systems allows homeowners to take credit for energy savings from emergency equipment replacement provided **all of the following conditions are met.**

Eligibility

1. The homeowner meets all mandatory *Advanced Path* program requirements as described in the Advanced Package Minimum Specifications and this Emergency Equipment Replacement Policy for HVAC/DHW Systems.
2. The space heating and/or domestic hot water system must have been 'red tagged' or deemed unsafe by the utility, service technician or building inspector; or the system has failed, cannot be repaired and must be replaced.
3. The contractor submits the completed Record of Emergency Equipment Replacement Form within the timelines indicated in the Notification/Authorization Requirements section.

Note: In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

Notification/Authorization Requirements

To submit notification and receive authorization to proceed for an eligible emergency equipment replacement, the following steps must be followed:

Step 1: Submit for Pre-Replacement Approval

1. The contractor is required to submit a Record of Emergency Equipment Replacement Form.
2. The contractor is required to complete Sections 1 – 4 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, provide detailed photographic evidence of the existing equipment installed in the residence (clearly showing the area around the existing unit) to include nameplate information (make, model, serial number, etc) and then provide a scanned copy in .PDF format to EUCA_Processing@icfi.com.
3. Upon receipt of the completed form, ICF will provide written notification of Authorization to proceed via e-mail to the contractor within one business day (8-10 business hours).

Step 2: Receive Authorization to Proceed

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Upon Authorization to proceed the contractor may commence installation of the new HVAC and/or DHW equipment.

Step 3: Complete Emergency Replacement and Submit Final Paperwork

1. Upon completion of the installation of the new equipment the contractor shall complete Section 5 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, detailed installation invoice, and then provide a scanned copy in .PDF format to ICF (EUCA_Processing@icfi.com) within five (5) business days of the new equipment installation. If measures installed exceed the scope of written authorization given, credit will not be given for those additional measures. If the paperwork is not received within those 5 business days, the final decision to allow the credit for the installed equipment will be at the sole discretion of Program Management and will not be able to be appealed.
2. The Incentive Reservation Form must be turned into the Program within 30 calendar days of Emergency Equipment Replacement Approval. Failure to do so will result in not receiving credit for installed equipment.

While age, size and efficiency of the existing system are a factor, it shall not be the sole determining factor for selection of equipment replacement. Best practices dictate that any replacement of central heating or cooling systems require submittal of a Manual J load calculation and must take into account all existing and/or proposed energy efficiency measures that will significantly impact load and allow for correct equipment sizing.

If HVAC re-ducting is required in this emergency, the pre-retrofit building simulation model will automatically use the default vintage default tables for total duct leakage. This percentage is not able to be contested, should an appeal situation arise.

Mandatory Documentation for Emergency Space Heating Equipment Replacement

The contractor shall provide information about the existing equipment being removed utilizing the Record of Emergency Equipment Replacement Form. At a minimum, the information collected regarding the existing space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of removal
- Reason for replacement (operational failure; health and safety)
- Manufacturer's name and model number of space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)

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- Type of venting (e.g. chimney, side vent, barometric damper)

The existing space heating equipment must be replaced with equipment meeting the Advanced Package Minimum Specifications. New gas-fired furnaces must have an Annual Fuel Utilization Efficiency (AFUE) of 92% or greater to qualify under the Emergency Replacement Policy for HVAC Equipment.

The contractor shall provide a copy of the invoice for the new space heating equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed with the new equipment installation. At a minimum, the invoice for the new space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of installation
- Manufacturer's name, model and serial number of new space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)
- Type of venting (e.g. chimney, side vent, barometric damper)

While replacing the space heating equipment, this may be an opportunity to also replace the central air conditioner with a higher efficiency model. The existing equipment must be replaced with equipment meeting the requirements listed in the Advanced Package Minimum Specifications. Contractor will need to supply the following information about both the new and existing air conditioning unit:

- Contractor's business name, address and phone number
- Date of installation
- Reason for replacement (operational failure; health and safety; Other, please explain)
- Manufacturer's name and model number of cooling equipment
- Type of system (central air, heat pump)
- Rated efficiency (SEER, HSPF), unit size, and cooling output from the nameplate

Mandatory Documentation for Domestic Hot Water Equipment Replacement

The existing domestic hot water system must be replaced with equipment meeting Advanced Package Minimum Specifications. In addition, new domestic hot water heaters must have an Energy Factor (EF) of 0.62 or greater, and new domestic tankless hot water heaters must have an Energy Factor (EF) of 0.82 or greater to qualify under the Emergency Equipment Replacement Policy.

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The contractor shall provide a copy of the invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed with the new equipment installation. At a minimum, the invoice for the new domestic hot water equipment shall include the following:

- Manufacturer's name and model number of domestic hot water equipment
- Type of system (gas, electric)
- Rated efficiency (energy factor)
- Unit size (gallons)
- Input from the nameplate (Btu's)

Mandatory Requirements for Emergency Equipment Replacement Approval

Once administrative approval and written authorization to proceed is granted, the contractor may immediately install the individual measures if the following conditions are met:

1. Provide photographic evidence of the existing system installed in the residence clearly showing the area around the existing unit and detailed pictures of the existing equipment to include nameplate information (make, model, serial number, etc.).
2. The contractor shall provide a copy of the Invoice for the new space heating and/or cooling equipment and the completed Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).
3. The contractor shall provide a copy of the Invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).

In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

b. Streamlined High Performing Contractor Protocol

Contractors who have completed 10 Basic or 10 Advanced projects and have completed all of their field mentoring and online learning center modules with a passing score can be eligible for their projects to be sampled instead of being selected for 100% pre and post on-site inspection.

4. SoCalGas

a. Streamlined Emergency Replacement Protocol

Southern California Gas Emergency Equipment Replacement Policy for HVAC/DHW System

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Due to the climate of Southern California, during the first few months of summer and winter there is a rise in the volume of HVAC emergency replacements driven by homeowners re-engaging their HVAC systems after periods of non-use. Participating Contractors will be involved in these replacements and they have the opportunity to inform homeowners of the additional benefits of the Program. The Emergency Equipment Replacement Policy for HVAC/DHW Systems allows homeowners to take credit for energy savings from emergency equipment replacement provided **all of the following conditions are met.**

Eligibility

1. The homeowner meets all mandatory *Advanced Path* program requirements as described in the Advanced Package Minimum Specifications and this Emergency Equipment Replacement Policy for HVAC/DHW Systems.
2. The space heating and/or domestic hot water system must have been 'red tagged' or deemed unsafe by the utility, service technician or building inspector; or the system has failed, cannot be repaired and must be replaced.
3. The contractor submits the completed Record of Emergency Equipment Replacement Form within the timelines indicated in the Notification/Authorization Requirements section.

Note: In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

Notification/Authorization Requirements

To submit notification and receive authorization to proceed for an eligible emergency equipment replacement, the following steps must be followed:

Step 1: Submit for Pre-Replacement Approval

1. The contractor is required to submit a Record of Emergency Equipment Replacement Form.
2. The contractor is required to complete Sections 1 – 4 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, provide detailed photographic evidence of the existing equipment installed in the residence (clearly showing the area around the existing unit) to include nameplate information (make, model, serial number, etc) and then provide a scanned copy in .PDF format to EUCA_Processing@icfi.com.
3. Upon receipt of the completed form, ICF will provide written notification of Authorization to proceed via e-mail to the contractor within one business day (8-10 business hours).

Step 2: Receive Authorization to Proceed

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Upon Authorization to proceed the contractor may commence installation of the new HVAC and/or DHW equipment.

Step 3: Complete Emergency Replacement and Submit Final Paperwork

1. Upon completion of the installation of the new equipment the contractor shall complete Section 5 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, detailed installation invoice, and then provide a scanned copy in .PDF format to ICF (EUCA_Processing@icfi.com) within five (5) business days of the new equipment installation. If measures installed exceed the scope of written authorization given, credit will not be given for those additional measures. If the paperwork is not received within those 5 business days, the final decision to allow the credit for the installed equipment will be at the sole discretion of Program Management and will not be able to be appealed.

2. The Incentive Reservation Form must be turned into the Program within 30 calendar days of Emergency Equipment Replacement Approval. Failure to do so will result in not receiving credit for installed equipment.

While age, size and efficiency of the existing system are a factor, it shall not be the sole determining factor for selection of equipment replacement. Best practices dictate that any replacement of central heating or cooling systems require submittal of a Manual J load calculation and must take into account all existing and/or proposed energy efficiency measures that will significantly impact load and allow for correct equipment sizing.

If HVAC re-ducting is required in this emergency, the pre-retrofit building simulation model will automatically use the default vintage default tables for total duct leakage. This percentage is not able to be contested, should an appeal situation arise.

Mandatory Documentation for Emergency Space Heating Equipment Replacement

The contractor shall provide information about the existing equipment being removed utilizing the Record of Emergency Equipment Replacement Form. At a minimum, the information collected regarding the existing space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of removal
- Reason for replacement (operational failure; health and safety)
- Manufacturer's name and model number of space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)
- Type of venting (e.g. chimney, side vent, barometric damper)

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The existing space heating equipment must be replaced with equipment meeting the Advanced Package Minimum Specifications. New gas-fired furnaces must have an Annual Fuel Utilization Efficiency (AFUE) of 92% or greater to qualify under the Emergency Replacement Policy for HVAC Equipment.

The contractor shall provide a copy of the invoice for the new space heating equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed with the new equipment installation. At a minimum, the invoice for the new space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of installation
- Manufacturer's name, model and serial number of new space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)
- Type of venting (e.g. chimney, side vent, barometric damper)

While replacing the space heating equipment, this may be an opportunity to also replace the central air conditioner with a higher efficiency model. The existing equipment must be replaced with equipment meeting the requirements listed in the Advanced Package Minimum Specifications. Contractor will need to supply the following information about both the new and existing air conditioning unit:

- Contractor's business name, address and phone number
- Date of installation
- Reason for replacement (operational failure; health and safety; Other, please explain)
- Manufacturer's name and model number of cooling equipment
- Type of system (central air, heat pump)
- Rated efficiency (SEER, HSPF), unit size, and cooling output from the nameplate

Mandatory Documentation for Domestic Hot Water Equipment Replacement

The existing domestic hot water system must be replaced with equipment meeting Advanced Package Minimum Specifications. In addition, new domestic hot water heaters must have an Energy Factor (EF) of 0.62 or greater, and new domestic tankless hot water heaters must have an Energy Factor (EF) of 0.82 or greater to qualify under the Emergency Equipment Replacement Policy.

The contractor shall provide a copy of the invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed

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with the new equipment installation. At a minimum, the invoice for the new domestic hot water equipment shall include the following:

- Manufacturer's name and model number of domestic hot water equipment
- Type of system (gas, electric)
- Rated efficiency (energy factor)
- Unit size (gallons)
- Input from the nameplate (Btu's)

Mandatory Requirements for Emergency Equipment Replacement Approval

Once administrative approval and written authorization to proceed is granted, the contractor may immediately install the individual measures if the following conditions are met:

1. Provide photographic evidence of the existing system installed in the residence clearly showing the area around the existing unit and detailed pictures of the existing equipment to include nameplate information (make, model, serial number, etc.).
2. The contractor shall provide a copy of the Invoice for the new space heating and/or cooling equipment and the completed Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).
3. The contractor shall provide a copy of the Invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).

In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

b. Streamlined High Performing Contractor Protocol

SoCalGas follows the Home Performance with ENERGY STAR® guidelines for QA/QC protocols. Since the implementation of the SoCalGas EUC Program, SoCalGas has established an adjustable onsite inspection rate for contractors based on job experience and performance.

SoCalGas conducts onsite inspections, at set inspection rates, of the work of all participating contractors. This inspection rate is reduced as the contractor gains experience in the program and as onsite inspections show the contractor is performing at a satisfactory level per program requirements. See chart below

- a. Tier 1 Contractor- 60% onsite inspection of first five project
- b. Tier 2 Contractor- 27% onsite inspection of next 15 projects
- c. Tier 3 Contractor- 5% onsite inspection after 20th project

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ATTACHMENT 1

Program Non-Energy Objectives

Table 3 provides targets per approved PPM's for single family homes. Additional PPM's for multifamily may be developed as program develops.

Table 3. Quantitative Program Targets (PPMs)

[Table 3 to be provided as an Excel Attachment to this PIP]

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- 1. Program Name: Residential HVAC**
Program I.D.: SCG 3706
Program Type: Statewide Core Program
- 2. Projected Program Budget Table**
Table 1 - reference the CalSPREE for budget details
- 3. Projected Program Gross Impacts Table – by calendar year**
Table 2 - reference the CalSPREE for projected savings details

4. Program Description

a) Describe Program

The Residential HVAC Program is a Statewide program that will continue the transformation process of California’s HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.

The IOUs propose building towards this vision for HVAC by implementing a comprehensive set of downstream and midstream strategies that builds on existing program, education, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality driven market. Through this Statewide HVAC Program and a Statewide HVAC Industry Leadership Task Force (Western HVAC Performance Alliance), we will gain a better understanding of the market response to our programs, as well as the behavioral implications of the various market participants, and then actively revise/update strategies and programs accordingly, as guided by the California Long-term Energy Efficiency Strategic Plan (Strategic Plan).

The IOUs cross-sector collaborative activities and information-sharing tools that have been developed through the 2010-2012 Statewide HVAC programs will be discontinued. These programs were distributed in the Residential, Commercial, WE&T and Emerging Technologies Statewide programs. The Quality Maintenance, Quality Installation Development, and HVAC Core (Western HVAC Performance Alliance) programs will be implemented under this Residential HVAC Subprogram.

Market transformation and direct energy savings and demand reductions will be achieved through a series of sub-programs that are described in detail and summarized below:

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Residential HVAC Quality Maintenance

Residential HVAC Quality Maintenance program represents one of the more creative aspects of the HVAC “Big Bold Energy Efficiency Strategy.” It is based on the assumption that there are energy and demand savings achievable through the regular application of quality maintenance (QM) procedures applied to existing residential HVAC equipment. This program intends to (1) quantify those potential savings and (2) develop and implement a residential maintenance program. This program will be focused on comprehensive, continuously improving O&M activities that capture energy savings and provide a high value to the end-user thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

Residential HVAC Quality Installation Development

Residential Quality Installation Development is applicable to quality installation (QI) of split or packaged HVAC systems, with a rated capacity up to 65,000 BTU/H. This Residential sub-program element is based on the assumption that energy and demand savings are achievable through the application of QI in accordance with appropriate industry standards (e.g., ACCA, SMACNA and ASHRAE) applied to new HVAC equipment.

This sub-program intends to:

- Collaborate with EM&V efforts to quantify those potential savings;
- Develop and implement a sub-program focused on comprehensive, continuously improving installation activities that capture those savings and provide a high return on investment to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan;
- IOU’s will continue to development in 2013. The sub-program will be developed in collaboration through stakeholder input from the HVAC industry.

For SDG&E the Quality Maintenance and Quality Installation program may be implemented by a third party through a competitive bid process for the purpose of soliciting innovative ideas and proposals for improved portfolio performance.

b) List of Measures

To achieve the market transformation desired by the Strategic Plan, a variety of appropriate financial and non-financial incentives is required to influence specific market actions. Incentives will be targeted to services including Quality Maintenance and Quality Installation Development.

Residential HVAC Quality Maintenance

In support of both the market transformation and the energy resource savings goals of the program, rebates are available for specific measures. The intention of these rebates is to

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help offset the extra cost of providing a higher quality comprehensive service performed in accordance with the ACCA 4 industry standard for Quality Maintenance. Additionally, in coordination with the Emerging Technologies Program, the Residential HVAC QM program will continue to consider higher initial incentives for any HVAC emerging technologies that may be newly introduced to the market place via this program. Once the new products have taken hold in the market place, such incentives would be adjusted to reflect market conditions. The current set of measures is as follows:

Table A – List of Residential Quality Maintenance Measures

Measure	Prerequisite	Measure Requirements	Range
QM-Standard Basic Assessment	No prerequisite measures.	Must cover all the steps included in the Assessment Process, including a conversation with customer about their goals and concerns.	\$50
	All measures must be performed by a participating contractor’s qualified technician.	Must include a report with a written estimate for work required to meet standard.	
Advanced Air Flow Correction	Completion of the Assessment	Must address any deficiencies in air flow per the standards identified in the Assessment process.	\$250
Blower Motor Retrofit	Completion of the Assessment	The installed motor model must be a direct drive, permanent magnet, and constant speed motor.	\$150
Refrigerant System Service	Completion of the Assessment and Air Flow Correction	Work must meet the protocols covered in training and is expected to be incorporated into a software tool.	\$50 to \$100
		Must be done when weather conditions will support accurate results.	
		Must be done within eight months of completion of Air Flow Correction work (the delay is allow time for proper weather conditions to resume).	
QM-Standard Preventive Maintenance Agreement	Completion of the Assessment • Completion of either Air Flow Correction or Blower Motor Retrofit	The optional standard service agreement must include the provided Service Agreement QM Addendum. • The optional agreement must cover at least one year of service with two seasonal visits.	\$50

Residential HVAC Quality Installation Development

At this point, providing a list of measures and incentive levels is premature, as a valid quality installation based sub-program must be well planned and vetted through the Western HVAC Performance Alliance (WHPA). This sub-program will be designed

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during 2012 and 2013 for the 2013-2014 program cycle and therefore will not be providing incentives, at least not initially.

c) List Non-incentive Customer Services

Residential HVAC Quality Maintenance

- Education of the market on the value of selecting high-efficiency systems.
- Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program.
- Training for contractors on HVAC industry standards, sales and marketing of the value of those standards, and their implementation in the field.
- Education for customers on how HVAC industry standards can help them compare bids of contractor services and select those with high-road skills.
- Customer education about the benefits of establishing a long-term trust relationship with a qualified contractor, which can lead to future energy and cost savings, such as from better planning for future HVAC system replacements and the quality installation of those systems when replaced.
- Improved comfort and indoor air quality for customers.

Residential HVAC Quality Installation Development

This sub-program development process will be performed with HVAC industry involvement to ensure that:

- The measures eventually included in the program can be reasonably assured to save energy and lower peak demand;
- A clear value proposition can be demonstrated so that contractors will see the path for a profitable business opportunity based on QI and customers will understand the benefits of equipment maintained at a higher level of quality;
- An effective training program will be put in place to ensure that technicians can properly implement QI services;
- The processes employed will document that work performed in the field meets minimum program quality control standards and can be validated.
- The initial QI efforts will focus on uncovering the root causes, rectifying design and implementation shortcomings, determine realistic energy savings estimates, and then launch program incentives.

The following non-incentive services will be offered through this sub-program:

- Active enrollment and promotion of qualified contractors
- IOU promotion of QI through the Whole-Home Upgrade subprogram and other customer marketing.
- Contractor training on quality installation practices, selling and marketing QI, service management of QI, etc.

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- If incentives are offered for energy savings and the measures are cost effective, the program will comply with Senate Bill 454 on HVAC permit acquisitions with the work completed by a licensed contractor.
- The program will retain appropriate combustion safety testing and other procedures to ensure customer safety.

Western HVAC Performance Alliance Activities

The program will be active in a number of additional non-resource activities. These activities are required to ensure that the HVAC industry is fully involved in the development and implementation of the many tactics required to address the short and long-term goals of the Strategic Plan. One such non-resource activity is an Western HVAC Performance Alliance that will be initially chartered and funded by the IOUs. The Western HVAC Performance Alliance is necessary to keep the industry engaged in the Strategic Plan process and to provide guidance and support for the implementation of the various tactics required to transform the industry. Mindful that HVAC industry organizations are not traditionally structured or staffed, and have not traditionally allocated enough resources to achieve the level of involvement envisioned by the Strategic Plan, the HVAC Convener’s Report concluded that: *“The agencies and utilities should work together to ensure the working group is adequately funded to meet its responsibilities.”*⁴¹

It is envisioned that this Western HVAC Performance Alliance will involve high-level HVAC industry stakeholders, such as manufacturers, distributors, contractors, associations, organized labor and influential end-user customers—to coordinate industry sponsorship of and participation in HVAC strategies. Membership should also include other key players, including the CPUC, the California Energy Commission (CEC), utilities, building owners/managers, university researchers, consumers, and the Federal Government. The Western HVAC Performance Alliance will be charged with establishing and prioritizing a substantial IOU-funded response (recognizing the roles of other appropriate organizations including CEC, the publicly-owned utilities, and local governments) to the activities described in the suite of IOU-proposed HVAC Programs — both utility administered programs and third-party administered programs which focus on HVAC efficiency — resulting in a structured roadmap with specific actions, schedules, and the technical and financial resources identified to initiate near-term, mid-term and long-term issue resolution.

The Western HVAC Performance Alliance will provide the necessary guidance to both California and the western U.S. so that the many issues required to transform the industry can be prioritized and facilitated by the IOUs and the WCEC (as described in the HVAC Technologies and System Diagnostics Advocacy sub-program).

Some of the actions of the Western HVAC Performance Alliance may include:

⁴¹ HVAC Convener's Report, Appendix B.5, Pg 10.

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- Recommending guidelines that would make it possible for IOUs to directly contract with existing HVAC industry institutions (e.g., associations, societies, conference hosts, and the trade press) through a rigorous Request For Quotation (RFQ) or similar processes to implement specific aspects of IOU-administered energy efficiency programs.
- Making recommendations for standards and qualification guidelines for trainers and educators who receive funding from the IOUs.
- Update the “HVAC Action Plan” that prioritizes specific actions required to address the Strategic Plan.
- Formally reaching out to utilities in neighboring states, including Arizona, Colorado, Nevada, New Mexico, and Utah, and energy organizations in the Pacific Northwest, to involve them in the overall planning and implementation processes.
- Identifying for inclusion in the HVAC Action Plan other HVAC technical work underway through the existing IOU programs, CEC/EPIC-BERG, LBNL, HVAC industry vendors, and others inside and outside California. Much of this work is continuing in a fragmented way. A cohesive planned and prioritized framework and action is needed.
- Channeling appropriate HVAC work through the existing IOU program framework, on a fully-planned basis, not on an *ad hoc* basis.
- Integrating all efforts as appropriate with the current and out year work plans of the WCEC.
- Integrating the suite of demand response/demand side management (DR/DSM) options that are already considered in utility DR/DSM programs as well as additional solutions that are emerging for residential and small commercial markets.
- Create a sustainable governance of the Western HVAC Performance Alliance to assist in meeting the deliverables of the CLTEESP and HVAC Action Plan.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Quality Maintenance Program (Resolution E-4385, Appendix A, pp 35-36):

Table 3 – Residential HVAC Quality Maintenance

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Program	Metric	Metric Type
<i>Residential Quality Maintenance</i>	1. Measured progress towards specific milestones provided in the project GANTT chart indicating the development/finalization of this IOU program based on Quality Maintenance standards.	2a

Residential HVAC Quality Installation Development

Program	Metric	Metric Type
<i>Residential Quality Installation Development</i>	1. Percentage of HVAC contracting companies that are participating in statewide residential QI program as a share of the targeted market* * "Target market" defined as C20 licensed HVAC contracting companies in CA.	2a

b) Market Transformation Information

MTI Language – Based on the email received from Carmen Best on 6/19, we have updated the language for all PIPs with MTIs as follows:

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

Market Transformation metrics should neither be used for short-term analyses nor for specific program analyses; rather, should focus on broad market segments. Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”⁴² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁴³.

⁴² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

⁴³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

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Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴⁴. Markets are social institutions⁴⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁴⁶ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁴⁷. According to York⁴⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation⁴⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

⁴⁴ Peloza, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁴⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁴⁶ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁴⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁴⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

⁴⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). “Market Transformation: Substantial Progress from a Decade of Work.” American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

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Market transformation draws heavily upon diffusion of innovation theory⁵⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades⁵¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects⁵². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"⁵³ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts⁵⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions⁵⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers⁵⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we

⁵⁰ Rogers (1995) *Diffusion of Innovations*, 5th Ed.

⁵¹ Example in bottom chart of this graphic from the New York Times:
<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

⁵² Sebold et al (2001) p. 6-5,

⁵³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

⁵⁴ CPUC (2008) Strategic Plan, p. 5.

⁵⁵ Nadel, Thorne, Saches, Prindle & Elliot (2003).

⁵⁶ Peloza & York, (1999).

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can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Historically, the nonresidential retrofit programs have had very low uptake rates on high-efficiency HVAC systems. Consequently, a first step towards market transformation is to do what it takes to achieve a high level of program participation, thereby increasing market share of high-efficiency equipment sales and quality installations. An initial increase in market share allows for increased levels of customer, installer, and distributor/manufacturer knowledge and interest in these systems, which should make further increases easier. In addition, tracking the ratio of certified HVAC technicians in the field, over time, can provide a gauge of the likelihood for quality installations and maintenance.

c) Program Design to Overcome Barriers

Residential HVAC Quality Maintenance and Residential HVAC Quality Installation Development

The program addresses the following barriers:

Recent data available from AHRI indicates that as a result of the 2006 increase in federal residential equipment efficiency standards, which increased equipment costs significantly, unitary equipment sales have dropped while repairs to existing systems (low efficiency compressor replacement) have increased nationwide by more than 25 percent and window unit sales have increased by a similar amount. A similar trend occurred in 2002 when ENERGY STAR® increased its qualifying efficiency level to Seasonal Energy Efficiency Rating (SEER) 13. Prior to the change, ENERGY STAR® Central Air Conditioner (CAC) sales had an average market share of 33 percent⁵⁷. After the change, the average market share of ENERGY STAR® units fell to 7 percent. Additionally, recent studies indicate that 30 to 50 percent of existing systems have not been installed properly. Further, Title 24 compliance rates for replacement systems are approximately 10 percent⁵⁸. The net effect of this market failure is a 20 to 30 percent increase in space energy use⁵⁹.

- **Lack of awareness:** By demonstrating the energy efficiency benefits of QI/QM, the benefits of QI/QM will be better understood by program participants. It is our goal to discover the evidence, and expected return on

⁵⁷ Itron, "California Residential Efficiency Market Share Tracking," 2006, pp.3-6.

⁵⁸ Quantec LLC, "Statewide Codes and Standards Market Adoption and Noncompliance Rates," pp. 4

⁵⁹ Strategic Plan, Appendix A, HVAC Convener Report, pp. 38-39

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investment, that customers will require to authorize payment for these measures (and those premium measures that prove to outperform the QI/QM ANSI standards) when subsidies are removed.

- **Performance uncertainties:** Much research has been conducted on the energy savings achievable through HVAC system maintenance measures such as RCA and Duct Sealing, but despite all this research many performance uncertainties still exist. The implementation of this program with an increasing set of customers and the corresponding EM&V efforts shall be coordinated through the HVAC EM&V Project Coordination Group (PCG).
- **Asymmetric Information:** Delivering QI/QM training opportunities through existing industry channels (e.g., distributors, trade associations) will provide a higher level of credibility for QI/QM training rather than offering exclusively through IOUs.
- **Bounded rationality:** It is logical to assume that the HVAC industry would want to deliver quality service; however, market dynamics have not supported such logic as the industry has largely become commoditized and low price/low quality typically wins out. The program supports HVAC contractors that perform quality work. This helps to build momentum towards market transformation.
- **Hidden costs:** By promoting the concepts and value of quality maintenance at the time of system installation, the customer is assured that the energy efficiency performance benefits of their new system will continue throughout the life of their system.
- **Organizational customs:** The HVAC industry has largely become commoditized into an industry driven by low costs and quality, where quality is assumed but not understood or valued by the customer. This is a result, in part, by contractors having minimal success in communicating the value of QI/QM to consumers and consumers not understanding the linkages between comfort and energy use. The HVAC QI/QM Program demonstrates the value proposition of a high quality contracting business and educating consumers on the energy benefits of QI/QM.
- **Product cost:** Substantial incentives for equipment and QI will offset a substantial percentage of product costs. Customers will be encouraged to participate in the program and use one of the qualified program contractors to install their new HVAC system.

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- Lack of awareness: Focused marketing and training on QI and code compliance for consumers, contractors, and building inspectors⁶⁰ will ensure that the importance of complying with Title 24 will be better understood by program participants. Additionally, requiring demonstrated code compliance (e.g., CF-6R) in order to qualify for program rebates will further reinforce the importance of permitted installations.
- Information or search costs: Active support of qualified program contractors and listing them on IOU websites will increase consumer confidence in having a reliable source of quality contractors. Moreover, satisfied customers will recommend these contractors to friends and neighbors and thus create additional momentum for using contractors with a reputation for high-quality work.
- Transaction costs: Potential for streamlined incentive application processes that require the same information required for Title 24 compliance (e.g., CF-6R) will reduce the difficulty of participating in the program and complying with permit requirements. Furthermore, the high incentive levels offered by the program will reduce the likelihood that customers will choose not to participate in the QI activity.
- Hidden costs: Promoting the concepts of QI at the time of system installation will increase the likelihood that customers will understand the energy efficiency performance benefits resulting from maintenance, and will continue such periodic maintenance over the life of their system.

Additionally, several other issues could potentially influence sub-program design, including:

- Other organizations have established processes and procedures for QI. These processes should be evaluated to determine how well they perform in comparison to minimum QI standards.
- Lack of industry consensus on QI standards and technical protocols
- Overcoming market barriers to exceeding Title 24 Standards
- Cost-effective constraints arising from limited savings for QI measures exceeding Title 24.
- Forging sustainable HVAC industry and market actor support.
- Addressing challenges in standard applicability across a range of commercial building types and HVAC systems.
- True energy savings measurement procedures.

d) Quantitative Program Targets

⁶⁰ See the HVAC WE&T Sub-program PIP, below, for more information.

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The program will achieve the following program targets:
See Table 5 above.

e) Advancing Strategic Plan goals and objectives

The Residential HVAC Quality Maintenance and Residential HVAC Quality Installation Development program helps to achieve the following near-term strategic goals as identified in Chapter 6 of the Strategic Plan:

- 2-1: Create a Statewide QI/QM Brand – In addition to promoting the industry standards for QI and QM, leveraging the program statewide Energy Upgrade California (EUC) brand for all IDSM efforts is a cost effective approach to branding QI/QM. In order to help residential consumers more clearly recognize contractors and technicians who can truly deliver QI/QM, the program also aggressively helps the HVAC industry to more firmly establish the higher value/consumer benefit of its own industry standards and credentials. This program is based on and promotes the use of ACCA Standard 4 for Quality Maintenance and examples of consensus HVAC credentials are the Industry Competency Exam (ICE), technician certification by North American Technician Excellence (NATE), a variety of union “Journeyman” designations, TABB, NEBB, AABC, NBC and STAR® certifications.
- 2-2: Launch Statewide Brand – The Energy Upgrade California IDSM umbrella brand will be expanded via the statewide ME&O program efforts and the Residential HVAC QM program will make corresponding adjustments accordingly to leverage that brand within a reasonable time during 2013-14. This branding activity will help participating contractors to promote the QI/QM effort. The program will continue to communicate information about the QI/QM branding effort to contractors, technicians and other HVAC industry stakeholders via such means as inserts in trade journals such as Indoor Comfort News, The ACHR News, and Contracting Business.
- 2-3: Provide expanded QI/QM training – The program continues to ensure that HVAC service technicians of participating contractors are fully trained on the delivery of the measures promoted by the Program. Furthermore, feedback mechanisms will be utilized to continually evaluate technician performance to ensure that they are applying the information they are being taught in the QI/QM training. As part of the program’s market transformation efforts and to ensure quality services are provided to customers, the program will continue to work with the HVAC industry to reduce (and wherever possible eliminate) the direct costs of this transformative training to technicians and contractors willing and able to apply their skills and new tools to delivering industry standard and energy saving Quality Maintenance services.

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- 2-4: Implement contractor accreditation program – Additional consideration will be made for program efforts to promote NATE and any other certifications that the consensus of the HVAC industry determines to be appropriate.
- 3-3: Accelerate whole-building educational opportunities - Create pathways for HVAC contractors to evolve into whole building contractors by partnering with private and public community colleges and/or universities to develop the appropriate curriculum on whole building design practices.
- 4-1: Pursue regional climate-optimized equipment standards - IOU staff, in close consultation with WCEC/CEC and other appropriate parties, will continue to stay attentive to and engaged in the federal proceeding as it continues into 2011
- 4-3: Accelerate market penetration of advanced technologies - Partnering with manufacturers through activities such as the WCEC's Western Cooling Challenge will increase their dedication to developing climate-appropriate equipment that delivers energy savings and peak load reduction.
- 4-4: Adopt a progressive set of building codes that support peak-efficient equipment - Through the efforts proposed by the Statewide Codes and Standards Program, the IOUs will continue to work with the CEC to advance current building codes.
- 4-5: Develop standards for on-board diagnostic functionality – In coordination with HVAC efforts within the Emerging Technologies program, the program leverages the use of hand held and other types of systems in the field to assist in determining viable protocols for residential applications.
- 4-6: Prioritize in-field diagnostic approaches – Through coordination with the Emerging Technologies program, the program leverages the use of hand held and other types of systems in the field to assist in determining viable protocols for residential applications and contributes information to the HVAC industry that is expected to be helpful in targeting future efforts based on quantifiable energy efficiency benefits.

6) Program Implementation

a) Statewide IOU Coordination

The IOUs will jointly participate in California's residential HVAC efforts to achieve real-market transformation. In order to accomplish this task, the IOUs will use the principles of adaptive management and follow a structured process to continuously

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update and enhance the program throughout the 2013-2014 Transition Period. The process will continue as follows:

IOU Program Lead – The process for adaptive management will begin with each IOU designating an HVAC Program Lead. The lead will be the conduit through which information between IOUs will flow and will investigate new innovations, special accomplishments and challenges faced by sub-program managers and the managers of cross-cutting Statewide programs within their own IOU. Where such innovations or challenges intersect HVAC and show potential for improving the HVAC program, the Program Lead will present such information to a quarterly HVAC Program Management Team meeting.

Hold Quarterly HVAC Program Management Team Meetings – At this quarterly meeting, individual innovations and accomplishments experienced in one IOU will be transmitted to all IOUs. The HVAC Program Management Team will evaluate the innovations and accomplishments of the individual IOUs, hear ideas for course corrections and overcoming challenges, measure the HVAC program’s progress against Statewide metrics and goals, and prepare summations for presentation to the Western HVAC Performance Alliance at its semi-annual meeting.

Adopt Program Enhancements – Once the HVAC Program Management Team agrees that a particular idea or innovation has merit on a Statewide-level, each IOU Program Lead will distribute the information to their sub-program managers for adoption and integration as appropriate. In some cases, it may be necessary to invite the sub-program managers to the HVAC Program Management Team to get their feedback and ensure they receive the same message.

Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the HVAC Program Management Team will track the program’s accomplishment of Statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The HVAC Program Management Team will determine whether future course corrections are needed, and if so, will activate a fresh start of the adaptive management cycle to generate the improvements necessary to stay on track.

All California IOUs continue to work together and jointly with the HVAC industry to lead efforts to implement and explore design enhancements for a viable residential HVAC program. Specific areas of coordination include:

- **Program delivery mechanisms**
Residential Quality Maintenance
The program is delivered to customers via qualified participating contractors. Training of participating contractors and management of the program includes a combination of third-party implementers and internal administrative staff. This follows the adaptive management process. The

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program is targeted to consumers and contractors to create a push/pull dynamic that influences the achievement over time of sustained market transformation.

Residential Quality Installation Development

The IOUs will jointly coordinate and work with industry groups to prepare a design for a statewide-consistent program design that is cost effective and meets California’s market transformation objectives.

After the new program design is launched, the IOUs will manage the program through a combination of third-party programs and internal administrative staff, and will follow the adaptive management process. The program will be targeted to consumers and contractors to create a push/pull dynamic that influences sustained market changes.

Western HVAC Performance Alliance

The IOUs will deliver the program through a combination of third-party vendors and internal administrative staff. The program will be delivered in collaboration with existing industry infrastructures in order to increase its overall effectiveness. Program guidance will be provided to the CPUC/IOUs through the Western HVAC Performance Alliance as described above.

- **Incentive levels**
See Section 4.b above.

- **Marketing and outreach plans**
Residential Quality Maintenance

Program marketing includes common outreach materials shall be developed by the IOU’s in partnership with HVAC industry, including feedback from HVAC contractors. This QI/QM branding shall be under the statewide Energy Upgrade California brand efforts after the expansion of that brand. The program will continue to work with industry and participating contractors for additional methods to promote the program and the value of QI. If warranted by such feedback, the program may explore providing additional point-of-purchase information on QI that would be made available for equipment dealer locations and building departments (where residential customers may be receptive to “neutral” public service messages).

Residential Quality Installation Development

Common outreach materials will only be available to participating contractors. Additional point-of-sale information on QI will be made available for equipment dealer locations and building departments.

Western HVAC Performance Alliance

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Specific outreach efforts are currently being facilitated to the industry to keep it engaged in the Strategic Plan process (both updates to and implementation of). On a macro level, this outreach is occurring through the Western HVAC Performance Alliance and any subcommittees established by this group. On a micro level, each sub-program has specific tactics in place to engage the industry in its own particular demand reduction, energy savings and market transformation objectives.

Utilities will conduct integrated as well as program-specific marketing and outreach which will be coordinated with the statewide marketing and outreach program. The utilities may use a range of tactics such as; e-mails, flyers, on-Line marketing, direct mail, bill messaging, social media, local events, ethnic media, and other channels that suit the target audience, the message, and the resources.

- **IOU program interactions**

- **Residential Quality Maintenance**

One of the strategies outlined in the Strategic Plan HVAC chapter is to create a better linkage between the CEC's Title 24 compliance efforts with the IOUs energy efficiency programs. Previous efforts have been managed with different yet consistent purposes. The IOU's will continue the market transformation goals of the Strategic Plan; the IOUs will support CEC and CPUC efforts to develop one common effort.

- **Residential Quality Installation Development**

In order to support the need for increased code compliance, the program will cooperate with CEC training and enforcement activities targeted at local building departments. Such activities will also be used to promote the economic and performance benefits of QI/QM. The program will also coordinate its activities with IOU local government partnerships and third-party programs, to ensure that code compliance could become integrated into these programs.

- **Western HVAC Performance Alliance**

One of the strategies outlined in the Strategic Plan HVAC chapter is to create a better linkage between the CEC's Title 24 compliance efforts with the IOU energy efficiency programs. Previous efforts have been managed with different, yet consistent purposes. In order to achieve the market transformation goals of the Strategic Plan, the IOUs will support CEC and CPUC attempts to develop one common effort. Interaction with other IOU programs will be coordinated through the adaptive management process described above. Within this process, a Joint HVAC/Emerging Technologies/Codes and Standards Program Management Team ("Joint Program Management Team") will be established to ensure that the

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individual program efforts are aligned and progressing towards the same near and long-term goals.

- **Similar IOU and POU programs
Residential Quality Maintenance**

As a result of increased federal equipment efficiency standards, many utilities across the country have begun to offer service-based programs that independently offer measures such as RCA and Duct Sealing. It is expected that the HVAC QM Program could stimulate a paradigm shift through its delivery of a comprehensive suite of maintenance services that comply with or exceed ACCA industry standards (premium maintenance) designed to address the full range of efficiency measures available for residential HVAC systems.

Residential Quality Installation Development

The ENERGY STAR Residential QI program was introduced in early 2008. Several utilities, including Oncor, National Grid, Nstar, and Puget Sound Energy, are either offering or planning to offer this program. Both PG&E and SCE piloted the program in 2006 and 2007 respectively, and the program continued in SCE's territory from 2009 to 2012. SDG&E launched the program in 2010. Such program design, however, was found to be non cost ineffective, prompting a need to arrive at a new program design that can be cost effective and meet market transformation objectives at the same time. In order to promote the holistic approach proposed herein, the California IOUs propose to initiate a Statewide IOU/POU coordinating group — perhaps under the auspices of CEE or some other umbrella organization — to discuss and implement HVAC program best practices that advance the goals of the Strategic Plan throughout California.

Western HVAC Performance Alliance

POUs manage many different types of HVAC programs. However, none of them seeks to accomplish the aggressive market transformation goals being proposed by the IOUs. During the 2010-2012 program cycle, the IOUs will seek to increase their interactions with the POUs to better align IOU and POU HVAC programs. This involved the creation of periodic Western HVAC Performance Alliance activities with POUs to increase awareness of the Strategic Plan and how programs could and should be designed to help meet its aggressive targets.

b) Program delivery and coordination

The program will be coordinated with the following activities:

- **Emerging Technologies program**

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Residential Quality Maintenance

The Residential HVAC QM Program is expected to interact with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment. Coordination activities will be realized through the Program ongoing statewide coordination among programs and across IOUs.

Residential Quality Installation Development

N/A (this program does not seek to influence emerging technologies).

Western HVAC Performance Alliance

The program is expected to interact with the Emerging Technologies Program to ensure the proper focus on remote and on-board diagnostic equipment. Coordination of HVAC, Codes and Standards and Emerging Technologies activities will be realized through an inter-utility program management team (consisting of the appropriate program managers from the four IOUs) that meets on a quarterly basis to discuss program integration and implementation issues.

- **Codes and Standards program**

Residential Quality Maintenance

This service-based program is not much affected or regulated by building codes, except in the possible case of a participating contractor installs 40 or more feet of new ducting as part of the Advanced Air Flow Correction measure. Program to help support proper permit compliance, the program requires the reporting of any applicable permit number in such cases or any other case that may require a permit as a result of work performed through the program. Additionally, to further support proper compliance with all permitting and licensing requirements, the program requires that both the customer and the contractor certify that all permitting and licensing requirements were followed before any program incentives would be paid.

Residential Quality Installation Development

Efforts will be coordinated to ensure that a consistent message is delivered regarding code compliance and QI. Codes and Standards will take the lead on compliance items, while the Residential Quality Installation Development will take the lead on QI efforts but will leverage similar delivery channels to increase effectiveness. Additionally, coordination activities will be realized through the Joint IOU Program Management Team.

Western HVAC Performance Alliance

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The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This will ensure that the code-based solutions are consistent with that program's other activities. Section 6 of the Codes and Standards PIP describes the specific actions that the program will employ to address HVAC. HVAC, Codes and Standards, and Emerging Technologies activities will be coordinated through the Joint Program Management Team.

- **WE&T efforts**

Residential Quality Maintenance

Participating contractors are required to attend program-specific QM training in order to participate in the program.

Residential Quality Installation Development

Participating contractors are required to attend program-specific QI training in order to participate in the program.

Western HVAC Performance Alliance

WE&T needs for the HVAC industry are unique to the industry. Therefore, the IOUs have decided to place the responsibility of managing the effort under the Statewide IOU WE&T Program umbrella. However, the HVAC WE&T activity is coordinated with the Statewide activity to ensure that the individual efforts are complementary (e.g., HVAC training information is integrated in the WE&T web portal).

- **Program-specific marketing and outreach efforts**

Residential Quality Maintenance and Residential Quality Installation Development

Utility-branded marketing support for participating contractors is provided to advance statewide QM efforts. Such support may include exclusive promotion on IOU websites, brochures and other leave-behind materials that contractors can use to promote QM and their involvement with the program. As mentioned above, the program will continue to work with industry and participating contractors for additional methods to promote the program and the value of QM, and if warranted by such feedback, the program may explore providing additional general promotional materials such as point-of-purchase displays for equipment dealers. Additional supporting outreach will include QM and QI content on IOU websites and the statewide ME&O program, which will build general awareness and educate customers about energy management and provide a touch point for local marketing efforts related to QM and QI. (Specific IOU budget information for program-specific marketing activity is provided in Table 1).

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Targeted campaigns use segmentation analyses, self-selection activities, and event-based knowledge of customer actions to provide residential customers and small businesses with integrated and program-specific solutions that are relevant to their needs. Additionally, program-specific marketing and outreach activities are necessary to drive participation and attain program goals.

Western HVAC Performance Alliance

Such support may include exclusive promotion on IOU websites, brochures, and other leave-behind materials that contractors can use to promote QI/QM and their involvement with the program. Additional general promotional materials such as point-of-sale displays for equipment dealers will also be developed. (Specific IOU budget information for this marketing activity is provided in Table 1, above.)

- **Non-energy activities of program**

Residential Quality Maintenance

The direct energy benefits of the program result from the quality maintenance of HVAC systems. Other activities will be required to support these energy savings goals, as well as the program's market transformation goals. These activities include significant efforts in program design, systems development, contractor training and consumer marketing. Additionally, some incentive measures within the program, such as the QM-standard Basic Assessment and QM-standard optional Preventive Maintenance Service Agreement, have been specifically designed to support market transformation. Finally, by implementing combustion appliance safety evaluation and testing, the program improves customer health and safety.

Residential Quality Installation Development

The direct energy benefits of the program result from the quality installation of central air conditioning systems. Other activities will be required to support these energy savings goals. These activities include significant efforts in contractor training and consumer marketing.

Western HVAC Performance Alliance

The direct energy benefits of the program result from the quality installation and maintenance of HVAC systems. Other activities will be required to support these energy savings goals. These activities include significant efforts in program design and coordination, technology evaluation and integration, contractor training and consumer marketing.

- **Non-IOU Programs**

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Residential Quality Maintenance

The program interacts with the HVAC industry to continue to develop and introduce increasingly stronger QM standards that ensure systems are operating in their most efficient state.

Residential Quality Installation Development

Collaboration with local programs will synergize the program delivery.

Western HVAC Performance Alliance

The program will remain engaged with CEC, the California Air Resources Board (CARB), DOE, and other government agencies responsible for regulating various aspects of HVAC equipment, HVAC industry-driven initiatives such as NATE and the HVACR & Plumbing Instructors Workshop, and private/public partnerships such as Skills U.S.A.

- **CEC work on EPIC**

Residential Quality Maintenance

The program continues to coordinate with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment program

Residential Quality Installation Development

N/A (this program does not seek to influence emerging technologies.)

Western HVAC Performance Alliance

The program will interact with the Emerging Technologies Program to ensure the proper focus on remote and on-board diagnostic equipment. Such efforts are already underway with the EPIC Program. This activity will primarily be managed under the Technology and System Diagnostics Advocacy Program (see the sub-program PIP for more details).

- **CEC work on codes and standards**

Residential Quality Maintenance

The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This will ensure that the code-based solutions are consistent with that program's other activities. Section 6 of the Codes and Standards PIP describes the specific actions that the program will employ to address HVAC. HVAC, Codes and Standards, and Emerging Technologies activities will be coordinated through the Joint Program Management Team.

Residential Quality Installation Development

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In a similar manner as with the Codes and Standards Program, the Residential QI Program will work in cooperation with CEC training and compliance efforts targeted at local building departments. The Codes and Standards Program will take the lead on this effort.⁶¹

Western HVAC Performance Alliance

The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This will ensure that the code-based solutions are consistent with that program's other activities. Section 6 of the Codes and Standards PIP describes the specific actions that the program will employ to address HVAC. HVAC, Codes and Standards, and Emerging Technologies activities will be coordinated through the Joint Program Management Team.

- **Non-utility market initiatives**

Residential Quality Maintenance

The tenets of QM are being actively pursued by the HVAC industry itself. ACCA has taken the lead in this national effort by developing various ANSI recognized QM standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR, Utilities). Other organizations have also developed processes designed to improve the operating efficiency of HVAC systems (e.g., NCI). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

Residential Quality Installation Development

The tenets of QI are being actively pursued through the HVAC industry. The Air Conditioning Contractors of America (ACCA) has taken the lead in this national effort by developing various ANSI recognized QI standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR®, utilities, etc.) The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

Western HVAC Performance Alliance

The tenets of QI/QM are being actively pursued by leaders in the HVAC industry itself. ACCA has taken the lead in this national effort by developing various ANSI-recognized QI/QM standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE,

⁶¹ For additional information about Codes and Standards HVAC activities, see Section 6 of the Codes and Standards PIP.

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CEE, ENERGY STAR®®, Utilities, etc.) Other organizations have also developed processes designed to improve the operating efficiency of HVAC systems (e.g., SMACNA, NCI). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

a) Best Practices

As described in Section 5.a, the IOUs had been managing RCA and Duct Sealing programs for several years and have seen that the results they delivered were uncertain. This Program has created a new standard for HVAC service-based programs through offering a more comprehensive approach that delivers reliable energy savings. This program was developed with full industry involvement to ensure that it (1) is accepted by the industry, to ensure it meets its market transformation objectives program; (2) effectively trains service technicians to provide QM services; (3) provides the necessary quality control processes to ensure that the appropriate service measures are performed; (4) delivers reliable energy savings; and (5) demonstrates a clear value proposition for contractors and customers.

b) Innovation

The innovation of this program exists through the adoption of a comprehensive maintenance approach based on industry-accepted standards. Traditional utility programs have delivered individual service measures such as RCA and Duct Sealing. The delivery of these measures has generated questions about their energy savings. A more comprehensive maintenance effort through this Residential HVAC QM program delivers well-documented energy savings and sets the standard for HVAC efficiency programs. Furthermore, delivering this program through active partnership with the industry increases the likelihood of its success. Finally, innovation results through a continuous improvement process to evaluate the viability of offering additional incentives for services and other offerings that exceed established program standards (e.g., TABB, NEBB, and NCI).

c) Integrated/coordinated Demand Side Management

As with most HVAC oriented programs, the primary source of integration exists between energy efficiency and demand response activities. At a minimum, all marketing materials developed to support QM will cross promote DR to educate customers on the availability of IOU DR Programs. The required contractor training will be designed to include a discussion on DR programs and participating contractors will be required to deliver DR information as part of their customer sales efforts. The program will continue to explore closer linkages between EE and DR.

d) Integration across resource types

The program may support CARB's efforts to regulate GHGs by providing consumer information on the phase-out of existing refrigerants and the move to zero-ODP refrigerants with the customer's maintenance invoice. Such information would seek to

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influence the customer's adoption of newer equipment by explaining the likelihood of increased maintenance costs as existing refrigerants become less available.

e) **Pilots**

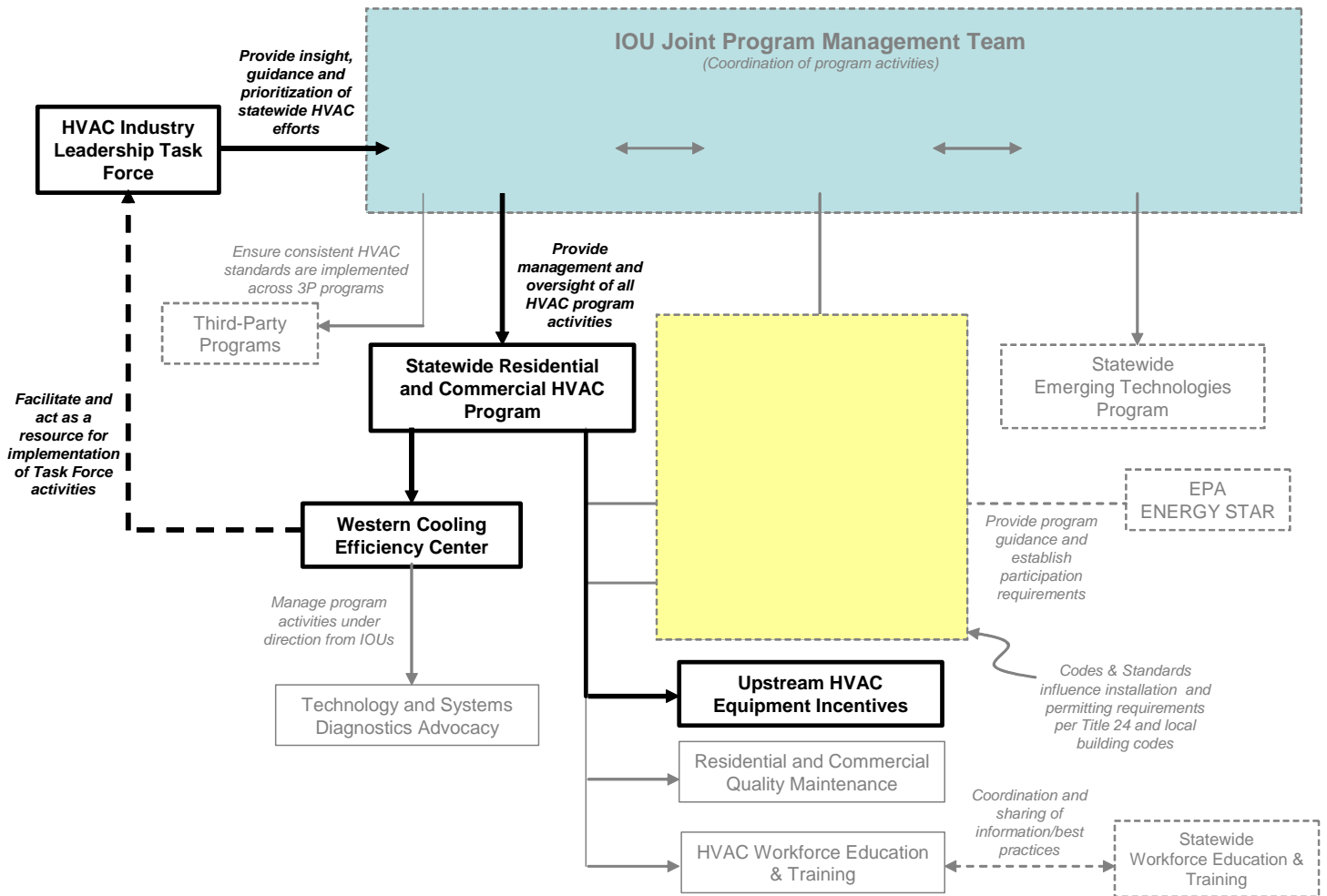
As with any good product/program design, pilots may be needed to test program enhancement concepts prior to full-scale launch of any enhancement. The HVAC QM Program may utilize pilots to test the implementation of program concepts, processes and the integration of ever increasing QM standards.

f) **EM&V**

EM&V for the Residential HVAC program will be managed via the EM&V program. Appropriate EM&V activities and detailed plans will be conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

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7) Diagram of Program



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8) Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs.

Market Transformation Information

a. Summary of the market transformation objectives of the program:

The Residential HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.

Description of the market, including identification of the relevant market actors and the relationships among them:

The Residential HVAC market for maintenance and installation is largely a market designed to offer these services at the lowest price to meet acute needs, rather than one with product differentiation by quality that is designed to meet the long-term needs of customers in terms of thermal comfort, indoor air quality, and thermal comfort.

The primary market actors are contractors, technicians, and property owners/managers. Contractors manage the firms that provide installation and maintenance. They set the direction for their firms in terms of what services to provide, how to provide them, and how to price them. Technicians actually provide those services. Thus the successful provision of the services depends on the technicians' skill levels as well as how they respond to the constraints imposed on them by contractors. Property owners and managers constitute the demand side of the market. They request and pay for the services provided by the contractors' firms. Renters do not tend to participate in this market.

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b. Market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies:

Property owners and managers often lack important information about the cost and value implications of their HVAC decisions, as well about the quality of the work that contractors' firms can perform. That is, there are not clear indicators of quality by which consumers can judge providers, and consumers do not have a well-defined set of goals by which to evaluate the quality of work after the fact. This facilitates a commoditization of HVAC services whereby firms compete based on price and not on quality, which can lead to a "race to the bottom" mentality in certain segments of the market. This lack of information is exacerbated by the highly technical nature of HVAC maintenance and installation that can confound the efforts of contractors and technicians who are attempting to do high quality work, leading to sub-optimal HVAC system performance in terms of thermal comfort, indoor air quality, and energy efficiency.

These barriers provide an important opportunity for energy efficiency programs to intervene in the market in a number of ways to facilitate high-quality work. The first is providing a definition of quality through the promotion of standards for installation and maintenance. Second is facilitating a business relationship between contractors and customers to promote high quality, and not just low price. Third, the program can build the skills of technicians who perform maintenance and installation so they are able to implement those services at a high level of quality.

c. Description of the proposed intervention(s) and its/their intended results, including which barriers the intervention is intended to address:

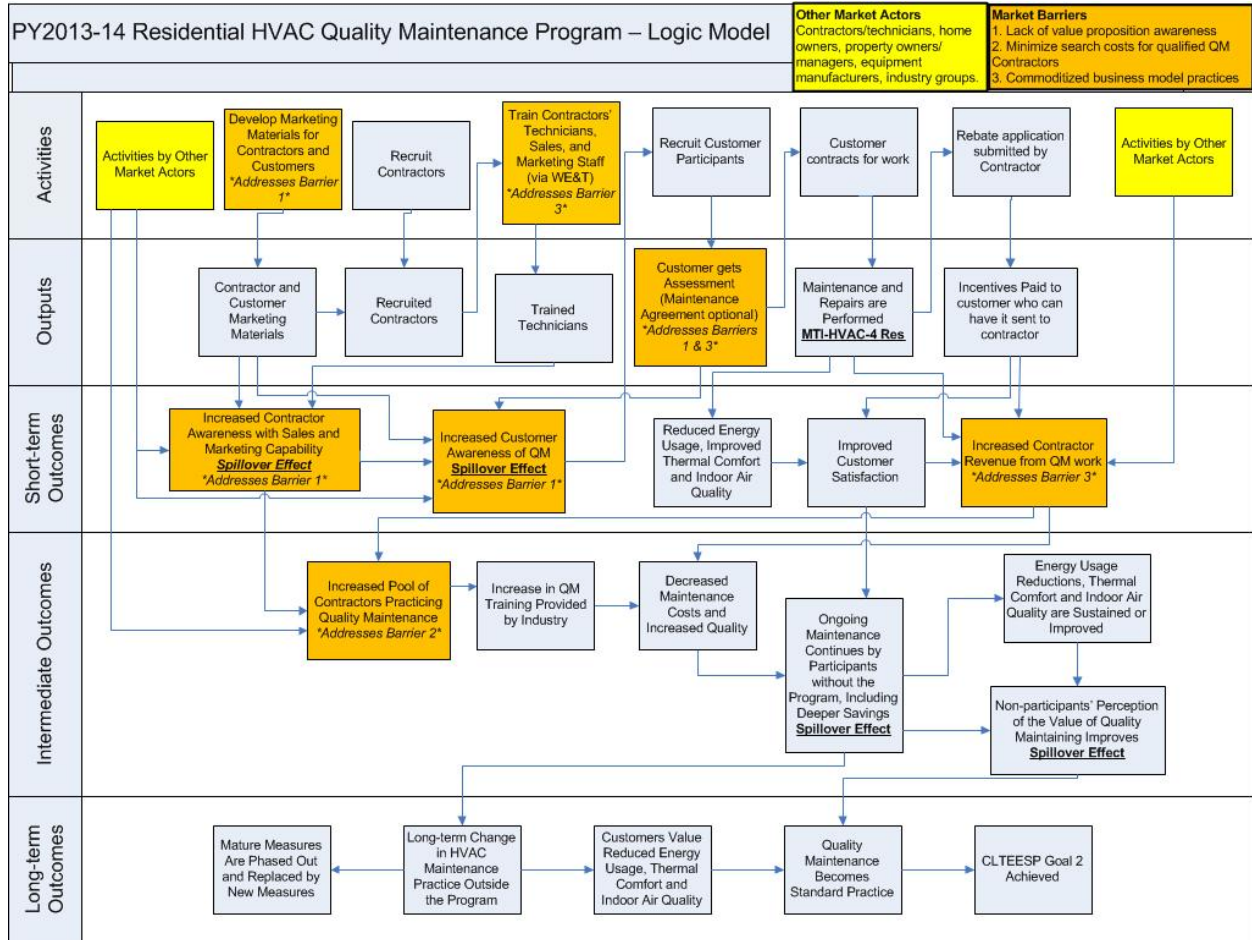
By promoting industry standards for maintenance and installation, the program helps consumers know what the characteristics of a good contractor are. For maintenance, part of this standard is leads the customer and the contractor to define performance guidelines for thermal comfort, indoor air quality, and energy efficiency, helping make clear what the level of quality of work was after the fact. For installation, the standards provide clear performance characteristics through such elements as load calculations.

The programs facilitate the creation of an ongoing business relationship between the contractor and the customer. This provides an inducement to the contractors' firms to provide a high-quality service that will bring long-term value to the customer, and thus long-term value to the contractor, rather than rely on winning bids with a lowest price under the assumption that there would be no more business dealings with a customer and so high quality would bring a low return.

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Finally, the programs build the skills of technicians. This enables continuing improvement in the quality of work over time. It also provides for spillover as those contractors and technicians can provide higher quality service to their customers even outside the program to reduce energy usage.

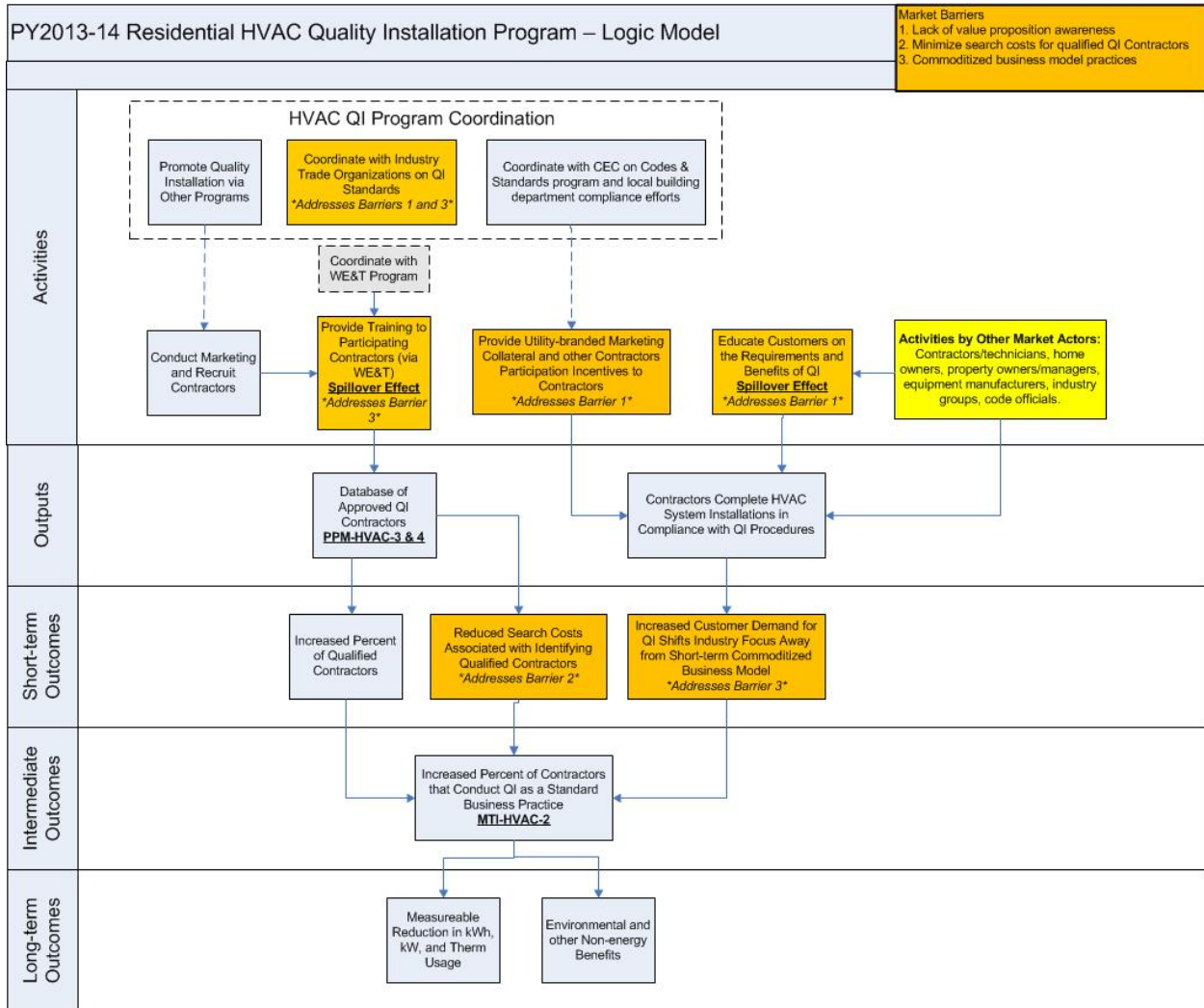
d. Program or market logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results:



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- 1. Program Name:** Statewide Residential New Construction (RNC)
Program ID: SCG 3707
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 – Reference CalSPREE program for budget details.

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - Reference core program for projected savings detail.

4. Program Description

a. Describe program

CAHP is part of the statewide Residential New Construction (RNC) sub-program offering. The RNC sub-program represents one-sixth of the CalSPREE core offering. CAHP encourages single and multi-family builders of all production volumes to construct homes that exceed California's Title 24 energy efficiency standards by a minimum of 15 percent. Through this plan, multi-family and single-family projects are approached identically for program purposes except where explicitly noted. The ENERGY STAR Manufactured Homes program, offered by Sempra and Southern California Edison, addresses new factory-built housing. The structure of the relevant Residential New Construction program elements is as follows:

CalSPREE Program (Core)

1. RNC Sub-Program

2.1 Single-family/Multi-family Sub-Program (CAHP)

2.1.1 ZNE Homes Sub-Program

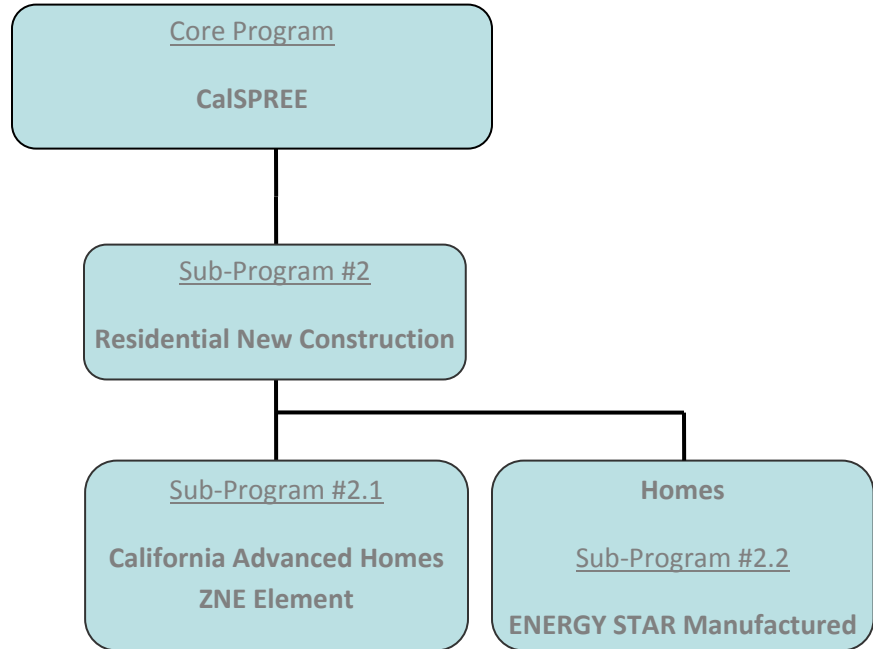
2.2 Manufactured Homes Sub-Program for SDG&E, SoCalGas and Southern California Edison

For the convenience of the reader, two other programs related to New Construction are also called out:

1. Sustainable Communities Program (Name/location differs by IOU) (Third party)
Covering Master-planned communities, mixed-use projects, campuses, and commercial projects pursuing advanced energy efficiency and green targets.
2. Partnership Programs (Core)
 - a. Strategic Planning Sub-Program (Energy Leader Partnership Strategic Support)
Trains cities and counties to procure city projects to meet energy efficiency

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standards, to identify funding sources, to share best practices, and recognize them for their achievements.



The goal of energy-efficient RNC will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the Strategic Plan), and works in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the New Solar Homes Partnership (NSHP).

As explored in greater detail below, CAHP will incorporate a ZNE sub-element to adopt the following strategies toward achieving the Strategic Plan goals. As program technologies and approaches are developed and demonstrated in ZNE, they will be incorporated into the CAHP.

- Raise plug load efficiency (ZNE)
- Promote Whole House solutions, with a particular focus on zero peak homes as an interim step toward zero net homes (CAHP)
- Encourage In-home Monitoring and visual display tools (ZNE)
- Encourage incorporation of Green Building Standards (ZNE)
- Coordinate CAHP with demand response programs (CAHP) specific strategies for achieving net zero homes will be reviewed in more detail below. Moreover, as

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outlined above, where strategies enter the market more rapidly than anticipated, they will be rolled into the core CAHP.

To further help make ZNE a reality in the residential sector, utilities will:

1. Integrate successful ZNE strategies and activities proven through program and/or pilot projects during the 2013-2014 Transition Period. The residential new construction program will absorb and enhance existing residential programmatic elements aimed at delivering ZNE best practices to the marketplace, potentially including but not limited to:
2. Project consultations that pair projects with experts capable of driving unique designs to ZNE;
3. Provide education opportunities to key architectural, engineering, and other design professionals (see WE&T plans); and
4. Explore cost effective ZNE solutions that consider the intersection of building and community energy use

b. List measures

CAHP Program measures, known savings. All IOUs⁶².

- Marketing assistance as feasible and appropriate for builders who achieve ENERGY STAR certification.
- Calculated incentives.

c. List non-incentive customer services

- Technical support to Energy Analysts and Design Teams⁶³
- Economic modeling/measure selection support to builder/construction managers
- Marketing support to builders (sales agent training, marketing materials)
- DSM coordination (PV, DR, AMI, ET) for builders

The program will coordinate with the statewide Codes & Standards team to ensure that the impacts of any code changes are incorporated into program design and implementation and will also tie into the Strategic Plan Codes and Standards strategy and support the ZNE goals.

Coordination activities include:

- Builders often set-aside a certain number of units for various income classifications to meet low and moderate income housing goals. Builders must

⁶² Savings per appliance will be consistent across all IOUs.

⁶³ There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes/workshops for design teams.

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meet state-mandated housing goals in the housing elements of local city and county strategic plans.⁶⁴

- CAHP would treat market-rate units using the standard calculated approach and claim all energy savings.

Zero Net Energy (ZNE)

The ZNE program element recognizes that critical to achieving zero net new construction is the integration of DSM approaches and truly integrated design. This can only be done when the entire suite of DSM offerings is at the table (electric transportation, demand response, energy efficiency, smart meters, and distributed generation). These will be maximally effective when they are part of a truly integrated design. To that end, ZNE will help educate the industry on how to achieve energy-efficient, green homes.

The ZNE program element will consist of projects that have used advanced modeling techniques to project total kBtu usage and demonstrates a plan to offset said usage with onsite generation over the course of 12 months. This portion of the program will provide customized financial incentives that intend to cover a portion of the verified incremental cost for a portion of the homes, at levels that may vary. This incentive will only apply to the energy efficiency measures of the home and will explicitly exclude the cost of renewable energy generation. The Emerging Technology program may also fund the purchase, installation, and monitoring of candidate technologies. The ZNE program element will also provide support in the form of soft-cost design support to help design teams meet their energy and environmental objectives. This portion of the program works closely with home builders seeking assistance in the development of sustainable design and construction, green building practices and emerging technologies.

The ZNE program element, in conjunction with WE&T programs, offers educational opportunities to builders, architects and other Residential construction stakeholders. The program encourages single and multifamily architects and builders to design and construct dwelling units that exceed California's Title 24 standards, reduce greenhouse gas emissions, and provide a healthier and less resource-intensive environment. Such non-standard design elements may include optimization for solar orientation, design for comfort without traditional HVAC, or non-vapor compression cooling systems. It also is a priority goal of this element of the program to execute candidate technologies and integrated approaches to realize zero-peak homes, even if zero-net homes (site Btu's for both therms and kWhs) prove too costly.

Design Assistance Options:

- General Team Education: Give presentations, review rating system options, determine big picture green building goals.
- Energy Efficiency/Green Building Recommendations: Project specific recommendations report highlighting ways to incorporate energy efficiency,

⁶⁴ See, <http://www.hcd.ca.gov/hpd/hrc/plan/he/>, accessed 25 Apr 08.

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healthy materials, and other green building features into the unique parameters of the project. Specific product recommendations will not be provided.

- **Energy Modeling Support:** Provide support and recommendations for Title 24 energy performance modeling to estimate actual building usage and give the project credit for energy efficiency measures that are difficult or uncommon to model.
- **Plan and Specification Review:** Provide comments on the construction documents at various stages to give feedback on clarity of green building specifications.
- **Green Feature Cost Assessment:** Provide cost-benefit analyses or value engineering assistance to evaluate specific green building features under consideration for inclusion in the project.

Rating System Documentation Support: Assess and identify project credit/certification goals, identify and assign rating system tasks to members of the design team, guide the team in system process and timing, assist team in understanding and/or documenting credit achievement. This aid will enhance - but not supplant - participants' efforts to pursue project specifications, designs, calculations, modeling and other necessary services.

The minimum threshold for acceptance in the ZNE program element will be a whole building performance with advanced modeling showing the total kBtu usage of the home as well as the method of generating the offsetting kBtu's.

CAHP Incentive Rationale

The program's most ambitious goal for the 2013-2014 Transition Period is to promote the early adoption of reach as well as future code elements into the builders standard practices.

Getting the market to adopt these levels of efficiency will not be easy. The IOUs expect significant pushback from the building industry due to rising costs. This argument will become even more significant in 2014 when the 2013 Title 24 energy codes take effect. The projected increase in cost to comply with these new codes may be between \$3,000 and \$5,000. The program is considering the following changes to the current incentive structure:

- In 2013 the sliding scale will stay as it is currently. The IOUs plan to eliminate the kickers from the program to help streamline and lower administration costs. After providing the kickers for the past 3 years it is the program's determination the kickers are not influencing the decisions of the builders and as such have proved not to be essential incentives.

Once the 2013 Energy code becomes effective the program will adjust the incentives in a

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way that will still cover a portion of the verified incremental cost for homes achieving high levels of efficiency above and beyond those required by code.

The program believes ENERGY STAR is an important and highly recognizable brand for energy efficiency. Focus group studies have shown that while the brand is known to be good the typical buyer does not understand the whole house can achieve the label as it is typically only associated with appliances. The program will therefore explore a marketing incentive for all homes that achieve the ENERGY STAR for Homes label.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Lighting Market Transformation Statewide Program (Resolution E-4385, Appendix. A).

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
NEW CONSTRUCTION		
California Advanced Homes Program (CAHP)	1. Number and percentage of committed CAHP participant homes (applied and accepted) with modeled, ex-ante savings exceeding 2008 T24 units (Single family (SF) and multifamily (MF)) by 15%-19%, by 20%-29%, 30%-39%, and 40+%.	2a
	2a. Percentage of (current year SF CAHP program paid units)/ (SF building permits within service territories from the previous year)	2a
	2b. Percentage of (current year MF CAHP program paid units)/ (MF building permits within service territories from the previous year)	2a
	3. Number and percentage of CAHP participant new homes verified* by IOUs' HERS which exceed Title 24 (T24) building standards (SF and MF) by 15%-19%, 20%-29%, 30%-39%, 40%+.	2b
* The IOUs use the existing HERS Rater infrastructure to verify HERS measures and other building characteristics as required by CA Title 24		

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SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
	and the CEC. The IOUs do not perform the verification inspections and do not certify HERS raters. Note: HERS inspection protocol for production builders does not require inspection of 100% of homes; there is a sampling protocol. For more information on HERS inspection please see http://www.energy.ca.gov/HERS/index.html	

b) Market Transformation Information

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

Bullet 1) A description of the market, including identification of the relevant market actors and the relationships among them;

The MT elements described here follow guidelines and terminology explained in Rosenberg & Hoefgen’s (2009) *Market Effects and Market Transformation: Their Role in Energy Efficiency Program Design and Evaluation*.

<<paper is available here http://uc-ciee.org/downloads/mrkt_effts_wp.pdf >>

Ideally, information about a market would come from a variety of sources, including existing studies and newly-commissioned studies. Rosenberg & Hoefgen (2009) recommend that California should “Commission initial market characterization research for those products and services for which the structure of the market and the motivations of the market actors are not well understood or documented, at least in terms of their response to the product in question.” Due to a lack of time, the following market information draws heavily upon qualitative analyses made by the program managers based upon information they have obtained through experience in implementing the program. We look forward to an opportunity to develop a better understanding of these markets through future commissioned studies, in conjunction with ED and other market transformation stakeholders.

The RNC market consists of several key players including builders, designers, sub-contractors, HERS raters, local cities, manufacturers, real estate agents, financing agencies, and home buyers. The RNC sub-program is located upstream, targeting builders and subcontractors early in the design stage of the production process. Upstream of the IOU’s RNC influence are local cities’ permitting rules and associated costs. Downstream of the RNC sub-program are real estate agents, financing agencies, and home buyers. The RNC sub-program works directly with builders, designers, subcontractors, HERS raters,

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builder sales staffs, and manufacturers via equipment recommendations at the design stage.

Bullet 2) Identification of the key barriers and opportunities to advancing demand-side management technologies and strategies;

The key barriers and opportunities to be addressed through a market transformation initiative would ideally draw upon a market characterization study. Due to lack of planning time, the following market barriers and opportunities are drawn from qualitative analyses made by the program managers.

Key RNC market barriers include A) entrenched builder and subcontractor habits, B) a lack of buyer knowledge, interest, and demand, and C) an ensuing disconnect between the price buyers are willing to pay and the related increased builder costs of incorporating DSM technologies, energy efficient equipment, and advanced building practices. Opportunities to address these barriers include education and outreach to builders, subcontractors, and buyers to increase demand and alter builder habits; design assistance to improve builder knowledge and maximally cost-effective strategies; and incentives to bridge the gap of builder costs and buyer demand.

Bullet 3) A description of the proposed intervention(s) and its/their intended results, and specify which barriers each intervention is intended to address;

To address Barrier A, the following intervention is proposed:

Builders and sub-contractors will be offered training and design assistance to facilitate the acceptance and incorporation of new technologies and building practices including DSM.

To address Barrier B, the following intervention is proposed:

Builder sales staffs will be provided training and marketing support on the advantages of EE homes that incorporate DSM technologies. Financing mechanisms will be explored to reduce buyer costs and increase demand.

To address Barrier C, the following intervention is proposed:

Incentives will target a reduction in the cost to builders of incorporating EE measures and DSM technologies.

Market transformation interventions can be expected to take 2, 5 or even 10 yrs before effects can be quantified. We propose the following that these would be the results that can be seen in the market at various time intervals:

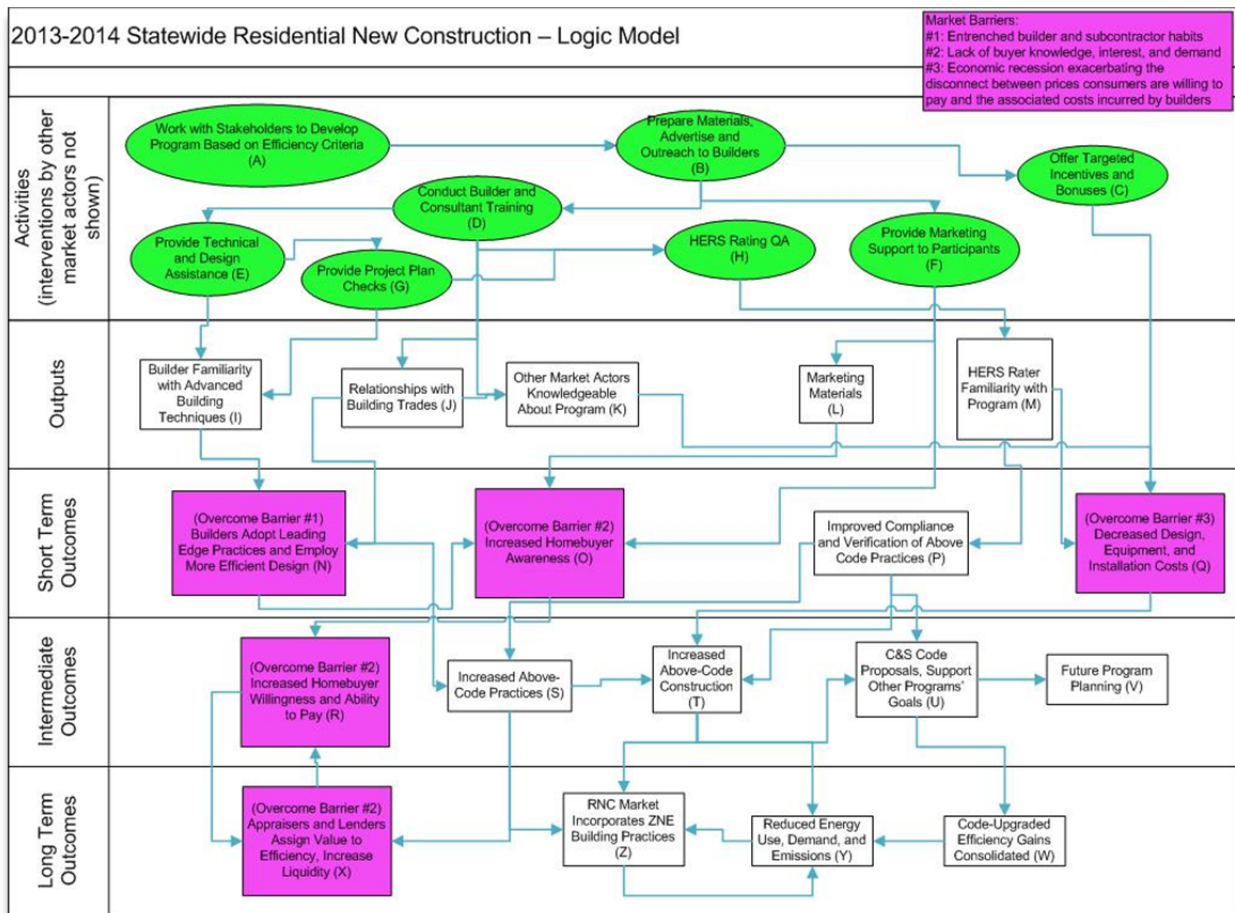
After 2 years of implementation builders and subcontractors should feel significantly more confident in accepting new technologies and advanced building practices. By this time they should be familiar with IOU design assistance procedures and how to maximize the incentives and minimize the increased costs. Sales staffs should be well-versed in the advantages of participant homes.

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After 5 years, builders and subcontractors should be very confident in advanced EE technologies, building practices, and DSM. At this time the market should be nearing ZNE building practices. Financing mechanisms should be in place to improve buyer demand.

After 10 years, the RNC market should be exclusively building ZNE developments. At this point the program focus will be devoted to education and outreach, helping the industry competes with the less efficient existing market. Financing mechanisms will continue to play a role.

Bullet 4) A coherent program, or “market,” logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results; and In this example below, “Portfolio Program Elements” are the market transformation interventions that are specifically directed to the market barriers. “Outcomes” are the outputs of the MT interventions, which are the market effects and reductions in market barriers that can be seen in the short-, mid-, and long-term. Please note that the long term outcomes are “sustainable,” which is what the market should look like after the market intervention has ended.



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Bullet 5) Appropriate evaluation plans and corresponding Market Transformation Indicators and PPMs based on the program logic model. (The IOUs should be prepared to start tracking proposed Market Transformation Indicators immediately in order to establish a baseline, and in cases where the logic model calls for metrics to be differentiated in terms of the sequence and timeframe in which they are expected to be relevant – i.e., leading vs. intermediate vs. lagging indicators of change – each metric should be identified as such).

Due to the need to comply with the Decision’s timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section “18.1. Evaluation Budget” in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation - Market Effects

The market transformation program’s theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program’s scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program “spillover” and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

Formative evaluation: The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program’s direct outputs.

Program Performance Metrics: Please see Section 5, Table 3, above.

Market Transformation Indicators: Market transformation indicator results shall be reported, as available, by Energy Division or the IOUs, depending upon who conducts the necessary market studies. (Res. 4385, 12/2/10)

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasizes that attribution of market effects to programs bears further research. Others (R&H, 2009; Keating & Prah (MT Workshop)

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suggest that declaring the program’s strategic intent through the market transformation initiative’s theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

In lieu of the above results and recommendations, the RNC sub-program will carry forward the PPMs and MTIs that were in place during the 2010-2012 cycle.

c) Program Design to Overcome Barriers

Priority Barrier: Building Industry

Effective January 1, 2014, California’s Title 24 standards will be revised and updated. Overall, Residential baseline energy performance requirements for heating, cooling, and hot water will be increased by approximately 25 to 30 percent, which implies marked increase in production costs for builders at a time when the industry and the economy at large are experiencing significant challenges.

Priority Barrier: Homebuyers

The energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile. In fact, 16% of U.S. greenhouse gas emissions result from the generation of energy used in houses nationwide (U.S. EPA). However, there is little consumer awareness of the impact that homes have on the environment. CAHP is working with IOU marketing efforts, statewide partners, ENERGY STAR campaigns, and builders’ own messaging to increase consumer awareness of this idea. Moreover, there is scant evidence that energy efficiency drives decision-making among homebuyers whose access to capital is more difficult in a constrained capital market.

Overcoming Market Failure: CAHP

In a buyer’s market, builders are looking to differentiate themselves from competition. This presents an opportunity for CAHP to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state’s and IOUs’ goals for the reduction of greenhouse gas emissions and utility source demand.

The RNC market without IOU intervention is a lost opportunity for long-term energy savings. However, with IOU intervention in the form of incentives and design support,

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the new construction market is well placed to demonstrate innovative approaches and cost-effective energy savings technologies.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

California Advanced Homes	Program Target 2013	Program Target 2014	Total
Single Family Units Paid	TBD	TBD	TBD
Multi-family Units Paid	TBD	TBD	TBD

e) Advancing Strategic Plan goals and objectives

Since its inception in 2002, CAHP has had a substantial impact on the homebuilding market. There is a significant opportunity to continue to influence builders, architects and other players in the RNC industry.

The RNC program is designed to enable the achievement of several goals and strategies identified in the Strategic Plan. The Strategic Plan envisions a transformation of the core Residential sector to ultra-high levels of energy efficiency, resulting in ZNE new construction standards by 2020. It spells out several goals and strategies to address energy reduction in RNC.

Goal #1: RNC will deliver ZNE performance for all new single and multi family homes by 2020. By 2011, 50% of New Homes will exceed 2005 Title 24 energy efficiency standards by 35%; 10% will surpass 2005 Title 24 standards by 55% (Strategy 1-1)

Goal #2: Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities

Goal #3: Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy-efficient products.

The goal of energy-efficient RNC will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the Strategic Plan, and works in close coordination with the ZNE sub-element. Together these programs seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP.

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The ZNE program element is designed primarily with the focus of accelerating the achievement of the ZNE goals envisioned by the Strategic Plan. The purpose of the ZNE element is to examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Each being distinctive, the case studies will be positioned to highlight the underutilized potential of sustainability in RNC, in a range of market segments and climate zones. The utilities will seek to integrate R&D ideas from Emerging Technologies, EPIC, LBNL and other agencies to further assist the projects in advancing sustainability and achieving very high levels of energy efficiency.

Financial incentives and marketing support offered for the ZNE projects will be higher than those offered under the standard CAHP model. By providing strong encouragement for builders to move up on the energy efficiency scale with financial and non-financial incentives, the ZNE program element is uniquely positioned to support the Strategic Plan goal of ZNE by 2020.

CAHP will work closely with builders who seek assistance in the development of sustainable design and construction, green building practices and emerging technologies through the ZNE program element. ZNE is the place to demonstrate innovative technologies and to help drive the market for energy efficiency through the adoption and marketing of green standards. IOUs have already initiated preliminary research on policies and programs supporting residential ZNE programs in other states for potential new and innovative program design approaches to increase homeowner demand and marketplace change, consulting with relevant experts in this area. This research reveals a lack of other utility programs serving this market. Rather, ZNE currently exists in a piecemeal fashion throughout the country without a consolidated approach. IOUs will continue research in this area and report more complete findings by April 1, 2013.

6. Program Implementation

a. Statewide IOU coordination

Given the success of the collaborative process that led to the production of this PIP, the statewide RNC team plans to continue meeting on at least a quarterly basis going forward, in order to review progress toward the goals and make corrections needed to help achieve them.

i. Program Name

RNC falling under Title 24 is covered by the California Advanced Homes Program. Factory-built housing will be covered by the ENERGY STAR Manufactured Homes Program, where offered.

ii. Program delivery mechanisms

CAHP and ESMH are delivered via online program materials and dedicated account executives, supported by a dedicated team of program management staff.

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Differences in Program Implementation

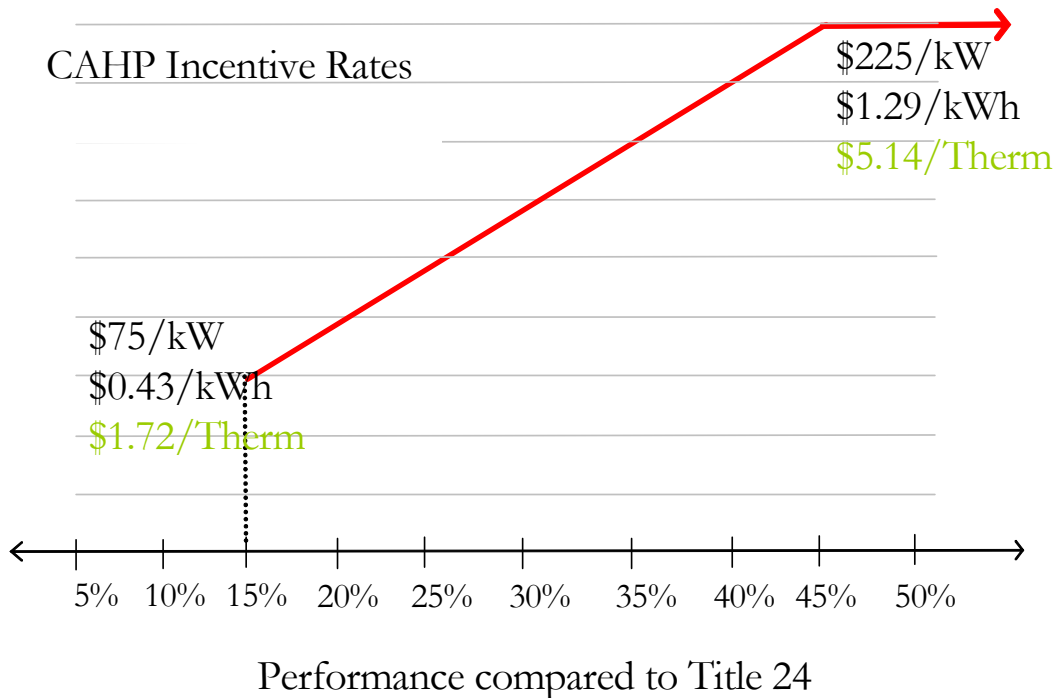
This section highlights the major areas where individual IOUs implementation of the program will differ from that of the others. While the incentive structure and other elements of the program will remain synchronized with the statewide nature of the program, each IOUs will leverage its unique strengths and structural differences to enhance the effectiveness of execution. This section highlights some of those differences.

iii. Incentive levels

Incentive Structure

The pay-for-performance incentive structure for the 2013 - 2014 CAHP will continue to be refined as the state approached implementation of the 2013 Title 24 code changes (see CAHP Incentive Rationale section above for additional detail).

The 2013-2014 calculated approach will be similar to the method used from 2010-2012:



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This approach rewards builders for achieving higher levels of energy efficiency and avoids the “clustering” problem in tiered programs. A tiered approach discourages builders from achieving incremental performance if they are unable to reach the next higher tier. In line with the elements of the strategic plan, the approach rewards builders for undertaking whole house solutions where the entire structure can be considered as an integrated system.

Moreover, executing a net zero home remains a financial and technical challenge, the program will have customized incentives for homes that achieve ZNE.

Confidence that incentives will move the market

The statewide team has a high degree of confidence that the revised program design is sufficient to realize substantial market movement. As discussed above, incentives alone are not enough to move the market. While more dollars are always preferred by any target industry, it has been the experience of the Southern California utilities that while incentives get one to the table with decision makers, it is the design, technical, and marketing support that makes the sale.

It is the belief of the IOUs that the proposed combination of performance-based incentives, increased incentives for targeted ZNE, marketing support, sales agent training, technical support, coordinated delivery through trade allies and ongoing cultivation of builder relationships provide an integrated solution to the priority market barriers builders face in delivering more efficient homes.

The IOUs support adjusting program incentive levels in conjunction with the more stringent Title 24 code taking effect in 2014. More efficient incentives will be critical in helping builders defray additional compliance costs associated with the stronger code. However, the IOUs believe there is a need to explore the deadline for incentive adjustments. A date after March 2013 may be appropriate for a number of reasons, including:

- Changing incentive levels *before* the new code takes effect may provide an added incentive for builders to rush to beat the code. Ideally, the incentive adjustments would be timed to coincide with the implementation of the new code so as to incentivize building under a more stringent Title 24. A fast turnaround would prevent the IOUs from determining the ideal incentive structure. Given uncertainty about the market’s response to the unprecedented updates to Title 24, extra care should be taken in calibrating incentive levels to their optimal value.

The IOUs will comply with the March 1, 2013 deadline for adjusting incentive levels, but propose January 1, 2014 as a preferred date.

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How CAHP supports CEC's NSHP, Tier II

CAHP supports the revised NSHP Tier II (30% < T24 2008) and the goals of the CEC.

1. The IOUs are committed to partnering with the NSHP to streamline the solar application process and to make referrals between NSHP and CAHP. Indeed, the goals of ZNE appear impossible without the significant presence of solar.
2. The IOUs will leverage CEC NSHP material, marketing, and event support for opening events for those projects that commit to the platinum level: 100% penetration at the Tier II EE performance (30%).
3. The design of the graduated, performance-based incentive will tend to drive projects to the higher end of the performance curve, consistent with CEC goals.
4. The threshold efficiency (15%) is consistent with the Tier I minimum, and the top end (45%) was selected to support the CEC's desire to project out three code-cycles (Tier III) into the future.

The IOUs support the goals of the NSHP and the marketing synergies of PV and EE remain one of our best strategies for moving the market. Nevertheless, the IOUs position is that if 30% < T24 is very good, 31% is better, and 32% more so.

iv. Marketing and outreach plans

CAHP offers financial incentives, training opportunities, technical support, and marketing resources to single-family and multi-family Residential builders who construct homes that exceed California's energy efficiency standards for new construction. All types of Residential builders are welcome to participate.⁶⁵ For the multi-family segment of the program, qualifying homes include condominiums, townhomes, apartment buildings, and mixed-use projects.

There will be closer coordination of marketing efforts to synergize wherever possible. While each utility would like to leverage on their strengths and existing relationships within their service territories, certain marketing elements can be launched on a common localized platform. The common website will be maintained to provide builder information that will be commonly disseminated.

To reduce costs and increase participation, the IOUs plan to be actively engaged in the development and implementation of joint marketing, education and training efforts as described in detail in the common section of this PIP.

In 2013-2014, the program will expand its builder/contractor education and training certification courses to increase overall awareness and understanding of the CAHP and service offerings. The IOUs will continue to strengthen delivery channels of information by providing relevant information and support materials, reaching

⁶⁵ As discussed above, manufactured housing is not subject to Title 24 and uses the national HUD baseline.

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target audiences in key decision-making phases. The IOUs' innovative communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the Internet.

Additionally, CAHP will leverage its stellar relationships in partnering with trade organizations and other groups actively promoting the benefits of green, sustainable building practices. Such organizations include:

- California Energy Commission (CEC)
- National Association of Home Builders (NAHB)
- California Building Industry Association (CBIA)
- Green Building Consultants (that is, Build it Green, California Green Builder, Global Green)
- United States Green Building Council (USGBC)
- ULI
- LABC
- California Manufactured Housing Institute
- IES
- AEE
- IHACHI
- PHCC, and
- Others

Through an innovative, coordinated approach, we will maximize outreach opportunities that keep energy efficiency and CAHP's program benefits top-of-mind and maximize program participation.

Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

CAHP marketing efforts will be enhanced by leveraging IOU market studies and builder focus groups identifying consumers' decision triggers and the effect of GHG labeling on purchase decisions. The IOUs will pursue additional sources of research to determine the most cost-effective ways builders can meet program requirements; the results will be incorporated into marketing materials and/or communicated to builders as part of the design assistance recommendations.

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Given consumers' interest in going green and the market's deficiency in driving energy efficiency sales, marketing the green features (one of which is EE) is the best way to increase consumer demand for more efficient homes. To that end, CAHP will help educate the industry on how to achieve energy-efficient, green homes. To increase participation in programs and the general understanding of sustainability, greater emphasis will be placed on education and outreach.

The precipitous decline in the building industry offers a great opportunity to improve education and training. Through their Education & Training programs offered at SoCalGas' Energy Resource Center, SDG&E's Energy Innovation Center, SCE's Energy Education Center, and PG&E's Pacific Energy Center, the statewide new construction team will work to expand course offerings, web cast seminars, and cost-benefit effectiveness training classes, thermal by-pass checklists compliance training, cost comparison of alternative measures, etc. In order to meet or exceed increased energy savings goals in an extremely difficult Residential construction market, the IOUs will utilize a broad range of marketing tactics and communications tools working in concert to expand program awareness and participation.

The IOUs will diligently explore other means of encouraging builder participation in the CAHP program:

- Developing a list of resources and contractors that could be used by builders
- Providing information on comparative costs and energy savings of alternative measures
- Exploring financing arrangements (green mortgages, energy-efficient mortgages, etc.), in consultation with the other IOUs and financial institutions
- Expedited permitting for high efficiency buildings
- Working with Municipalities to develop educational channels for codes and standards.

v. IOU program interactions

The plan addresses above, in the CAHP Incentive Rationale section, the ways CAHP is responding to current code changes and how it anticipates a leading role in code modifications requiring demand performance, in-home displays, on-site generation, square footage reductions, and green elements.

CAHP is particularly interested in promoting integrated thermal hot water system designs to displace therm demand with on-site renewable sources. In addition to cold water savings from embedded energy and the energy to heat water, longer term there may be GHG reductions that accrue either to the builder, the homeowner, or the utility associated with each demand side reduction as a result of AB 32 and

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pending national CO₂ legislation. SoCalGas works closely with builders to appropriately evaluate their options.

CAHP prides itself on its established close relationships and memberships with other groups involved with the building industry. These relationships make it possible to provide comprehensive services to our customers. CAHP will continue to seek out and coordinate synergies with, but not limited to, the following groups:

- California Energy Commission (CEC)
- Flex Your Power (FYP)
- National Association of Home Builders (NAHB)
- California Building Industry Association (CBIA)
- Green Building Consultants (e.g., Build it Green, California Green Builder, Global Green)
- National Association of Homebuilders (BIASC)
- United States Green Building Council (USGBC)
- Urban Land Institute (ULI)
- Los Angeles Business Council (LABC)
- California Manufactured Housing Institute
- Illuminating Engineering Society (IES)
- Association of Energy Engineers (AEE)
- Institute of Heating and Air Conditioning Industries (IHACHI)
- Plumbing-Heating-Cooling Contractors Association (PHCC)

The California Building Industry Association and the CEC continue to seek out partnerships and opportunities with the utilities to help educate builders and other industry participants in order to promote energy efficiency in new construction.

CAHP will continue its commitment to the EPA's ENERGY STAR program and will strive to support, partner and contribute to the success of the ENERGY STAR Homes label and branding. Numerous surveys and studies continue to show the ENERGY STAR label represents greater value to consumers and the environmental stewardship it represents.

Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR New Homes and has won ENERGY STAR Achievement awards for the last five consecutive years. In 2011 SCG was rewarded for "Sustained Excellence in Energy Efficiency Program Delivery."

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency and green measures into new construction projects including Title 24 code training and ENERGY STAR requirements.

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In response to builder requests, CAHP will offer a new training workshop for 2013 - 2014 designed for builders' sales agents. Sales agents have direct contact with the homebuyer and have the greatest impact on selling homes. In order to help promote ENERGY STAR developments, CAHP will teach sales agents about energy efficiency. Topics will include what qualifies as an ENERGY STAR home and what is 'green'.

Other CAHP activities will include attendance at building industry trade conferences, outreach events and any necessary contractor/builder field visits. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals.

Each IOU may pursue partnership efforts with local government entities to display leadership in the carbon arena by expediting plan check, waiving permit fees, or allowing builders to pay impact fees on the back end (instead of up-front) in exchange for higher levels of home performance documented by our CAHP program.

Similar IOU and POU programs

The statewide CAHP team will reach out to leading POU programs, such as those at SMUD to learn from their experience how best to deliver energy-efficient homes. In addition, the IOUs will work closely with the existing home remodeling programs (Home Performance with ENERGY STAR and the Comprehensive Mobile Home Program) to maintain a two-way communication of best practices and lessons learned between the new and existing sectors.

b. Program delivery and coordination

i. Emerging Technologies (ET) program

Coordination with Emerging Technologies will chiefly be handled within the ZNE sub-element of CAHP. The IOUs are looking to partner with our ET and EPIC-funded Testing Facilities to pilot zero-net energy approaches. The proposed incentive approach allows the IOUs the flexibility to include both deemed and calculated energy savings from new technologies as they become market ready.

The utilities will seek to integrate R&D ideas from Emerging Technologies, EPIC, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

ii. Codes and Standards program

Codes and Standards is looking to draft pre-approved "drop-in" legislation that can be used by local municipalities looking to create reach codes. Such activities would all be eligible for utility incentives since IOUs are playing

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such a critical role in drafting the language. See Codes and Standards PIP for more information.

iii. WE&T efforts

The RNC team is seeking ongoing support from the three energy and training centers for classes relevant to the building industry and training the next generation of trade allies, builders, contractors, and the like.

Specific workforce development efforts supporting RNC include training on topics including, but not limited to the following:

- Energy Pro
- Title-24
- Micropas

SoCalGas will explore voluntary incentive-based approaches to encourage contractors and other industry professionals to complete the full bundle of RNC workforce development training. For professionals who complete the pre-requisite courses and pass a high-road skill standards test, such approaches may include (as applicable):

- Allowing marketing or advertising differentiation;
- An incentive bonus; and/or
- Providing preference to these professionals during bid evaluation process.

RNC workforce development training will be coordinated with the statewide IOU WE&T program. In addition to the trainings described above, SW IOU WE&T programs will continue to offer building-block courses that educate professionals on the concepts that form the foundation of Residential New Construction programs. Those concepts include:

- Green building techniques;
- Codes and standards;
- Lighting and HVAC technologies;
- Energy cost management; and
- Food service equipment.

Contractor recruitment efforts will be conducted primarily by SW WE&T program implementers through:

- The network of contractors already participating in Residential EE programs;

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- Direct outreach through industry organizations with locally active memberships (e.g. IHACI, USGBC, IFMA, AIA, BOMA, etc.);
- Workforce development departments (to target unemployed general contractors); and
- Community Based Organizations with a proven track-record of effective outreach to the hard-to-reach workforce.

iv. Program-specific marketing and outreach efforts

In 2013-2014, the program will expand its builder/contractor education and training materials to increase awareness of the CAHP and better communicate the advantages of participation. The IOUs will continue to strengthen delivery channels through improved information and support materials. The IOUs' communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internet.

v. Non-energy activities of program

SoCalGas will continue to develop collaborative working relationships with the LADWP and other municipal utilities to offer comprehensive incentive packages to participating builders in territories served by SoCalGas and the municipalities. Where applicable, the ZNE program element will seek to identify new types of water savings technologies opportunities.

vi. Non-IOU programs

There may also be opportunities to partner with local AQMDs and County Integrated Waste Management Boards to encourage material recycling in ZNE and green programs.

vii. CEC work on codes and standards

The IOUs will continue to support code development work with the CEC and to test candidate technologies in the new construction programs.

viii. Non-utility market initiatives

The homebuilding industry is facing some of the worst times in its history⁶⁶. In fact, new Residential single-family housing permits declined by 37.1% relative from 2006 and multi-family permits have declined by 21.2 percent⁶⁷. As a result, builders are building fewer homes and releasing them more slowly to the market. The significant costs associated with carrying inventory coupled with declining prices of houses has created additional resistance in a building industry already

⁶⁶Alan N. Nevin, CBIA Chief Economist and Principal, Market Pointe Realty Advisors, [California Builder Magazine](#), January/February 2008

⁶⁷ California Industry Research Board (CIRB) Report, January 24, 2008

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averse to additional construction costs. In addition, the industry is consolidating operations and eliminating staff to reduce overhead costs and avoid bankruptcy. Homebuilding in California may be just beginning to show signs of revival, although growth in activity is likely to remain considerably slow.

The industry faces the burden of stringent California Title 24 building code standards. Each code is approximately 15% more stringent than the last, increasing costs and requiring additional efforts on the part of the builder. In California, homes built to current Title 24 standards are 35% more energy-efficient⁶⁸ than homes built to the federal government's standards. In addition, reducing greenhouse gas emissions will become mandatory, due to the adoption of AB 32 (Global Warming Solutions Act). Builders confirm that growing consumer awareness of "green" concerns will lead to greater demand for these advanced homes and builders will adapt to meet these demands at the least possible cost.

As alluded to above, buyers are increasingly asking for green and energy efficiency and may pay more (up to \$11,000) for such features.⁶⁹ For the first time, a majority of respondents in the National Association of Home Builders' survey are asking for efficiency first, likely in response to rising energy prices economy-wide. A majority of the same respondents also requested higher ceilings, more square footage, and were willing to trade a larger home for a longer commute, reflecting a "soft" commitment to green.

Energy Savings Assistance (ESA) Program

CAHP is working with the ESA program to coordinate energy efficient new construction with low income housing development.

- For housing units designated by builders for low-income occupants, SoCalGas' ESA program will pay the full incremental cost of installing energy-efficient equipment, such as high SEER (Seasonal Energy Efficiency Rating) AC systems, and refrigerators. ESA will claim the savings from the measures funded by that program.
- CAHP will pay the standard calculated incentives for all other measures in low-income units (e.g. improved duct work and windows). CAHP will claim the energy savings resulting from EE measures other than high SEER A/C and refrigerators.
- CAHP would treat market-rate units using the standard calculated approach and claim all energy savings.

This collaboration will:

⁶⁸ Ray Becker, Chairman, CBIA, [Southern California Builder Magazine](#) Vol. 25. CAHP's internal research has shown typical 2005 T24 performance is 20% above IECC 2006

⁶⁹ Jan Dimeo, [Builder](http://www.builderonline.com/business/surveys-reveal-home-buyer-wishes-for-energy-efficiency-and-beyond.aspx). <http://www.builderonline.com/business/surveys-reveal-home-buyer-wishes-for-energy-efficiency-and-beyond.aspx>. Accessed 14 Mar 08

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- Encourage the development of more below market rate low income units by developers,
- Increase participate in the RNC sub-program based on the combined higher incentives, and
- Benefit low income occupants over the life of the installed equipment.

The partnerships program will assist in gathering information to ensure that the units actually are occupied by low income qualified customers. Local governments typically track this information in order to show compliance with state mandates.

CAHP will be implemented by direct contact with the market actors: builders, architects, civil and mechanical engineers, energy analysts, HERS providers, HERS raters and other participants. Through design assistance and coordination with the builders and their consultants and contractors, projects will be evaluated for optimal approaches to increase energy savings and demonstrate green building concepts.

The program will target the Residential design and construction teams, architects, energy analysts, HERS raters, trade contractors, and builders. The target segment is low-rise and high-rise RNC with participation being open to all RNC including custom homes, single-family production housing, condominiums, town homes and rental apartments.

Builders may qualify to participate under one of the two sub-program categories: CAHP or ZNE. Through financial incentives, design assistance, education and training, the IOUs will aggressively support high performance single family and multifamily building designs that exceed Title 24 standards in an overall performance design of 15% or greater. Energy savings and incentives will be based upon a sliding scale from 15% to 45% reduction in energy usage from Title 24 budget. Program focus will be on increasing the participation to a 30% threshold.

c. Best Practices

The RNC team has gathered information and gained experience in successful low energy and ZNE projects to evaluate best practices. Thus far the research shows that while ZNE practices exist in piecemeal fashion throughout the state and nation, there are no other utility incentive programs specifically targeting ZNE. RNC will continue to conduct further research and will disseminate its finding by April of 2013 in accordance with the program guidance. This information will be used to develop pilot projects that will demonstrate low energy homes and include home performance monitoring.

Processes

- Improve marketing materials and improve participant recognition: Marketing materials and other collaterals will continue to be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

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- RNC has undertaken substantial marketing material revisions in the 2010-12 cycle, and will continue to improve the materials to enhance customer communication.

Program Services: Training

- Taking advantage of the slowdown in the industry, the utilities intend to ramp up the training for builders and other industry participants. Training is an area where significant synergies can be extracted and the IOUs will participate in developing and implementing common training modules and web based training tools. Training will focus particularly on cost / benefit evaluation of energy efficiency improvements and thermal bypass checklist compliance.

Program Services: Information, Communication and resources

- A web-based incentive calculation tool will be evaluated by the IOUs. This tool is intended to assist builders in comparing costs and energy savings of alternative measures and arriving at the most optimal approach for the builder.
- Currently, the technical staff provides preliminary evaluation, engineering review and recommendations for builders to move up on the efficiency scale. It is expected that builders will utilize the services of qualified Energy Analysts and designers in arriving at the final set of measures that should be included. The program will continue to work closely with these companies to promote continued improvement and a commitment to integrated design.
- The IOUs will explore the implementation of an enhanced set of communication tools that will serve to educate builders and enhance participation. As explained earlier, our communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns; all materials and communications will be made available in electronic file formats.

d. Innovation

SoCalGas' RNC program has gone through significant evolution over the years, constantly adopting innovative approaches and eliminating non-working elements. The current incentive design is based on a whole building performance. It appropriately rewards higher levels of building performance and is likely to motivate home builders to move towards higher efficiency buildings. This approach offers the builder adequate flexibility to choose the optimal combination of design features. It also enables the utilities to work together and support new construction projects with fuel neutrality.

By focusing on efficiencies beyond 35% better than Title 24, and encouraging ZNE projects, the IOUs hope to generate sufficient enthusiasm in the market place for very high efficiency homes. Wherever possible, the California utilities will continue to extract

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synergies in marketing and program design by developing a truly statewide program with common features and coordinated efforts.

As a gas-only utility, SoCalGas has been consistently seeking innovative approaches in program implementation to enhance the cost effectiveness of CAHP. During the 2010-12 cycle, SoCalGas executed energy sharing agreements with SCE and PG&E to effectively address the program needs of builders in joint service territories. These agreements have enabled the utilities to offer the program benefits with a single point of contact for the builder, while reimbursing each other (incentives offered on the type of energy not provided by that utility) after completion of the projects.

e. Integrated / coordinated Demand Side Management

The ZNE element offers a great opportunity for savvy builders to demonstrate their commitment towards a truly integrated approach to DSM options. With design assistance, custom home builders are uniquely positioned to leverage the various tools available at their disposal. The program management teams will educate and strongly advocate these builders to serve as model designers and be recognized and rewarded in the builder community. ZNE homes offer an excellent opportunity for builders to install not just energy saving measures, but also renewable energy, in-home display, solar roofs, innovative water saving technologies and other state-of-the art appliances to demonstrate how sustainable design can be achieved.

f. Integration across resource types

As discussed above, the program is looking to partner with relevant stakeholders to identify water, air quality, and waste-diversion opportunities.

g. Pilots

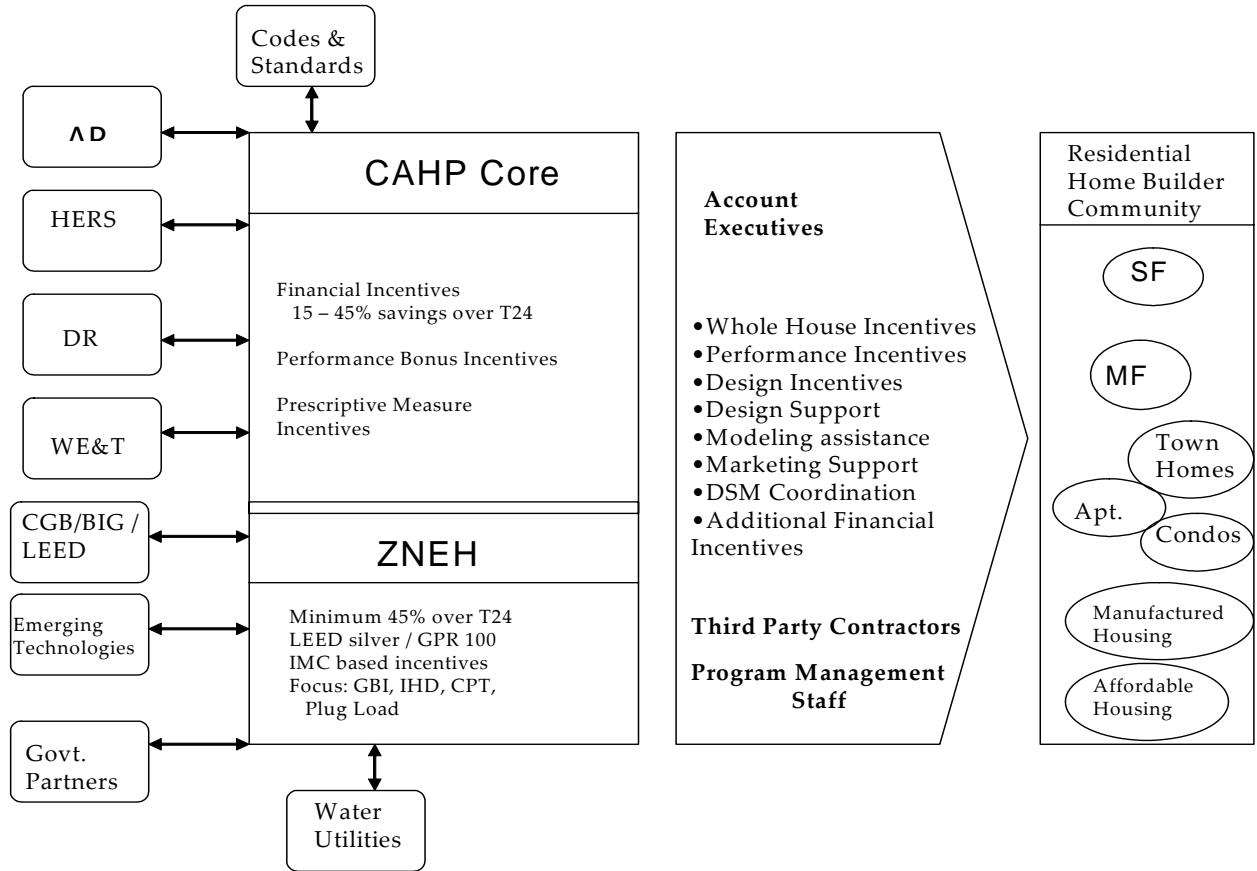
During the course of the program cycle the IOUs may encounter the need to run pilot programs before an idea is introduced to the core program offerings. At that time the utility will submit the plans for such pilots.

h. EM&V

The utilities are proposing to develop and submit a comprehensive EM&V plan for 2013-2014 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

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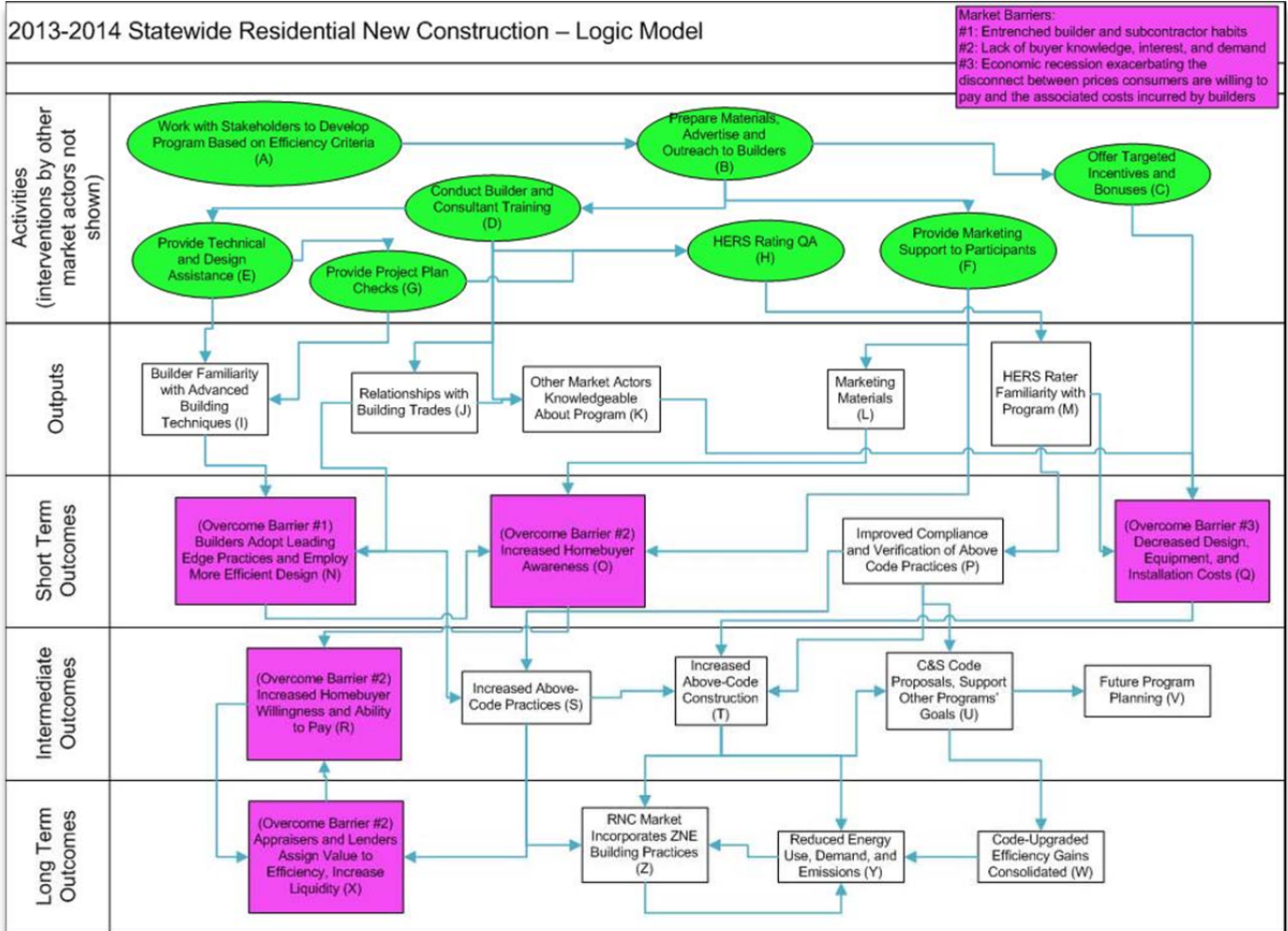
Diagram of Program



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Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the CAHP and ZNE.



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ENERGY STAR® Manufactured Homes Program (ESMH)

The ENERGY STAR® Manufactured Homes Program is part of the statewide RNC program offering. The RNC program is itself one sixth of the CalSPREE core offering. ESMH addresses new factory-built housing, offered by SDG&E, SoCalGas and SCE. The structure of the relevant New Construction program elements is as follows:

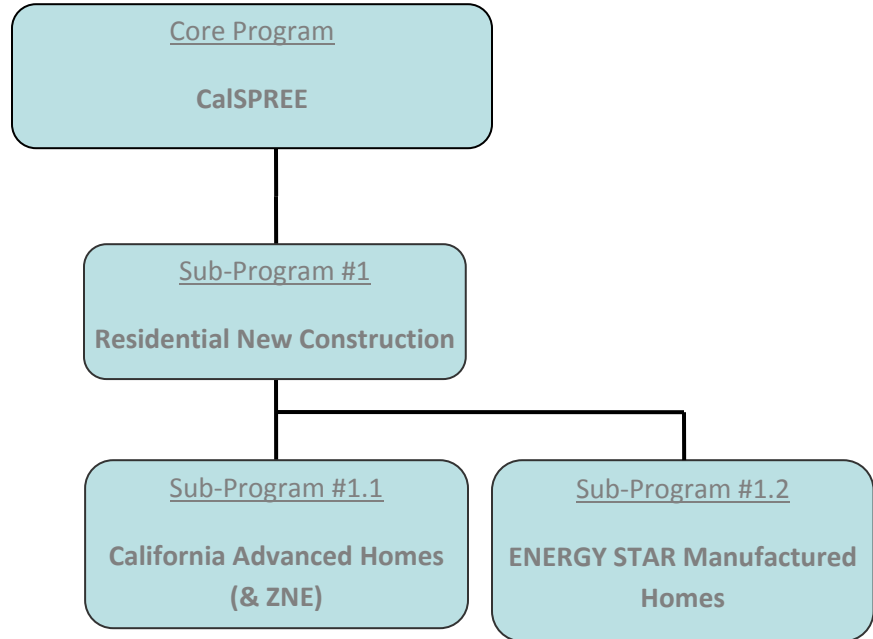
CalSPREE Program (Core)

1. Residential New Construction Sub-Program
 - 2.3 Single family/Multifamily Sub-Program (CAHP)
 - 2.3.1 ZNE Sub-Program
 - 2.4 Manufactured Homes Sub-Program for SoCalGas, SDG&E and SCE

For the convenience of the reader, two other programs relevant to New Construction are also called out:

1. Sustainable Communities Program (Name / location differs by IOU)
Covering Master-planned communities, mixed-use projects, campuses, and commercial projects pursuing advanced energy efficiency and green targets.
2. Partnership Programs (Core)
Strategic Planning Sub-Program (Energy Leader Partnership Strategic Support) -
Trains cities and counties to procure city projects to meet energy efficiency standards, to identify funding sources, to share best practices, and recognizes them for their achievements.

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The goal of energy-efficient RNC will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP and ESMH support the ambitious goals of the Strategic Plan, and work in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP.

As explored in greater detail below, CAHP and ESMH will work closely together with the ZNE sub-element to adopt the following strategies toward achieving the Strategic Plan goals. As program technologies and approaches are developed and demonstrated in ZNE, they will be incorporated into the CAHP. The lead program is listed in parentheses after each strategy.

- Raise plug load efficiency (ZNE)
- Promote whole house solutions, with a particular focus on zero peak homes as an interim step toward zero net homes (CAHP / ESMH)
- Encourage in-home monitoring and visual display tools (ZNE)
- Encourage incorporation of Green Building Standards (ZNE)
- Coordinate CAHP with demand response programs (CAHP)

Specific strategies for achieving net zero homes will be reviewed in more detail below. Moreover, as outlined above, where strategies enter the market more rapidly than anticipated, they will be rolled into the core CAHP.

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a) **List measures**

- \$500 per gas heated home
- \$500 per electric heated home

b) **List non-incentive customer services**

- Technical support to Energy Analysts and Design Teams⁷⁰
- Economic modeling/measure selection support to builder/construction managers
- Marketing support to builders (sales agent training, marketing materials)
- DSM coordination (PV, DR, AMI, ET) for builders to maximize demand-side reductions.

ENERGY STAR Manufactured Homes

In addition to the performance approach cited above, RNC will retain a deemed prescriptive approach for the manufactured home market segment. Homes will have the flexibility to include the entire ENERGY STAR package for manufactured housing or to incorporate elements within those standards, such as improved windows.

The ENERGY STAR Manufactured Homes sub-program is designed to promote the construction of new manufactured homes in SoCalGas' service territory that comply with ENERGY STAR energy efficiency standards. The program targets manufacturers, retailers, and homebuyers of new manufactured homes. The current baseline for manufactured homes is the HUD standard specification. The program encourages manufacturers to install "right-size" HVAC, install high-efficiency HVAC equipment, and evaluate homes on a whole-building basis covering windows, insulation levels, and quality installation inspections. The program works in coordination with the ZNE program element.

The program is a logical fit in the RNC portfolio of programs and will serve another market segment within CAHP, alongside single family and multi-family dwellings. Likewise, the ZNE element will also look to leverage consumer interest in green building in promoting zero peak homes and market transformation.

The objectives of the program are:

- To capture cost effective energy savings and demand reduction opportunities
- To move the industry toward coordinated demand side management (c-DSM), including self-generation and SCE's AMI (SmartConnect™)
- To move the industry toward zero-net energy as identified in the BBEES and advanced in the Strategic Plan
- To move the market segment from HUD compliant to ENERGY STAR and provide savings for customers purchasing energy-efficient, manufactured homes

⁷⁰ There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes for design teams.

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The program encourages manufacturers to:

- Install “right-size” HVAC equipment
- Install high-efficiency HVAC equipment
- Evaluate homes on a whole-building basis covering windows, insulation levels, and quality installation inspections

The program will also include an education and outreach component as a means to promote awareness of energy-efficient practices in the construction of ENERGY STAR manufactured homes. All segments related to the sale and construction of a manufactured home, including retailers, customers and manufacturers will be engaged. The marketing plan will also target new retailers to inform them of the program benefits and encourage their participation in the program.

Market-actors include manufacturers, retailers and homebuyers. As the primary focus is on retailers, the program is considered a midstream program. Incentives are offered to help induce retailers to promote ENERGY STAR qualified manufactured homes.

Program Criterion	Incentive
Prescriptive elements, e.g. windows, add'l insulation	TBD, deemed rather than calculated per CZ
ENERGY STAR Manufactured Home – Gas Heat	\$500/Home (total of prescriptive elements)
ENERGY STAR Manufactured Home – Electric Heat	\$500/Home (total of prescriptive elements)
Zero-peak Home	\$75 for each peak kW reduction due to on-site photovoltaic system

Financial incentives will take the form of fixed rebates (deemed) or may be calculated on a project by project basis.

RNC will pursue zero-peak homes as a reasonable milestone on the way to achieving the Strategic Plan’s ZNE homes. The potential addition of a zero- peak photovoltaic kicker is part of the effort toward achieving zero-peak homes.

As part of the effort to address plug loads, ESMH is exploring such technologies as master plug shut-off switches (smart outlets that shut off when they detect only parasitic loads). Additionally, and as part of the integrated demand side management (DSM) approach recommended by the Strategic Plan, ESMH will reward builders for installing demand response offerings such as PCTs and A/C Cycling controllers. ESMH will deliver demand response measures paid for by the demand response programs, to reward builders for these items based on a deemed amount rather than a performance-based incentive.

CAHP will work with their AMI metering infrastructure teams to test and develop in-home displays to both drive plug load usage down and give customers both financial and social

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reasons to conserve energy⁷¹. In addition to financial savings, the rationale is that customers will gain social status and personal satisfaction by being the most conserving, much as Prius current owners compete to outperform each other and the EPA's expected miles per gallon.

Marketing efforts will target manufactured home retailers as well as customers.

Desired program outcomes are:

- To achieve short and long term energy savings and demand reduction in the most cost effective manner possible.
- To increase the penetration of ENERGY STAR manufactured homes within California, and to make ENERGY STAR the customer's preferred choice.
- To transform the marketplace by promoting ENERGY STAR qualified manufactured homes the new standard choice instead of homes that merely meet the existing HUD standards.
- To establish a strong working relationship with manufactured home retailers.

A finished project is defined as the completion and assembly of a manufactured home. The process of purchasing and installing an ENERGY STAR qualified home can be lengthy, so projects need to be monitored closely throughout the program cycle.

The program will include a quality assurance plan with a field inspection component to verify that the manufactured home(s) meets ENERGY STAR and program's requirements. The program will also have a mechanism to verify that the assembly of the home is in accordance with these standards. This will include ducting work and installation of end-use equipment (for example, HVAC). Many ENERGY STAR components are assembled on-site and the compliance must be verified once assembled.

Customer information will be captured once a project is complete to allow the utility to integrate delivery of other program offerings to these customers as well as tracking any possible double-dipping. Information on parties receiving incentives will be tracked and reported.

⁷¹ To the extent possible, CAHP intends to leverage AMI funding to incent IHDs in new construction projects. However, AMI has its own schedule and its own priorities for research projects. If DR/AMI is not ready for AMI-integrated IHDs, the ZNE program through its demonstration projects, working in concert with ET, seeks to demonstrate simpler IHD technologies perhaps without the full capabilities of an AMI-integrated device. As these technologies mature into the marketplace, the statewide IOUs will consider adopt them as additional measures into the core CAHP.

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5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Lighting Market Transformation Statewide Program (Resolution E-4385, Appendix A):

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
<i>Residential ENERGY STAR Manufactured Housing</i>	1. Number of manufactured housing units sold in IOU service territories (via retailers and/or manufacturers) participating in program	2a
	2. Number and percentage of participating projects utilizing: (a) whole house incentive for gas heat; (b) whole house incentive for electric heat	2a

b) Market Transformation Information

Resolution E-4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.

c) Program Design to Overcome Barriers (Priority Barrier: Homebuyers)

The energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile. In fact, 16% of U.S. greenhouse gas emissions result from the generation of energy used in houses nationwide (U.S. EPA). However, there is little consumer awareness of the impact their homes have on the environment. CAHP is working with IOU marketing efforts, statewide partners (e.g. Flex Your Power), ENERGY STAR campaigns, and builder's own messaging to increase consumer awareness of this idea. Moreover, there is scant evidence that energy efficiency drives

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decision- making among homebuyers, whose access to capital is more difficult in a constrained capital market.

Manufactured Housing: a potential opportunity

The current decline in the housing industry, the high cost of Residential housing, and increasing customer awareness of energy efficiency all make this a good time to address this underserved market segment. The manufactured housing industry is somewhat counter-cyclical to the site-built home market. As buyers are priced out of site-built homes, manufactured housing has become an affordable alternative.

Historically, manufactured housing has been considered a lost opportunity. Manufacturers recognize that ENERGY STAR manufactured homes address both the high cost of purchasing a traditional new home and the high cost of energy bills. However, without IOU intervention in the market, retailers are not pushing ENERGY STAR homes and there is not enough demand for manufacturers to justify building them.

Overcoming Market Failure: CAHP

In a buyer's market, builders are looking to differentiate themselves from competition. This presents a opportunity for ESMH to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to help meet the state's and IOUs' goals for the reduction of greenhouse gas emissions and utility source demand.

The RNC market without IOU intervention is a lost opportunity for long-term energy savings. However, with IOU intervention in the form of incentives and design support, the new construction market is well placed to demonstrate innovative approaches and cost-effective energy savings technologies.

Overcoming Market Failure: Manufactured Housing

The program provides an incentive to manufactured home retailers when they sell a manufactured home that meets or exceeds the current ENERGY STAR standards. These standards extend to the ducting and installation guidelines for heating/cooling equipment, be tracked and reported.

ENERGY STAR qualified manufactured homes will generate energy savings and demand reduction. In addition to leveraging retailers of manufactured homes, the program will leverage the Partnerships Program to reach out to local governments where the homes will be built.

Manufactured homes have a higher potential for market transformation than the site-built industry due to factory standardization, and the fact that recent research indicates that eight manufacturers control approximately 98%⁷² of the manufactured housing market.

Current Program Baseline: Manufactured Housing:

⁷² "Synopsis of manufacturer market share and status," Manufactured Research Association, communication, October 2007.

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Prior to IOUs’ intervention in the market, there was no ENERGY STAR qualified manufactured homes sold in our service territory. The construction of manufactured homes that meet ENERGY STAR program standards, as opposed to the less stringent HUD standards, will result in demand reduction, energy savings, and the reduction of greenhouse gas emissions.

The energy savings will result from a combination of improved envelope efficiency (thermal and air tightness), use of high efficiency equipment, and the proper sizing (downsizing) of the cooling equipment. This program is statewide among the IOUs, to provide continuity and better service to the builder at reduced costs.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

ENERGY STAR® Manufactured Homes	Program Target 2013	Program Target 2014
Units Paid	TBD	TBD

e) Advancing Strategic Plan goals and objectives

Since its inception in 2002, CAHP has had a substantial impact on the homebuilding market. There is a significant opportunity to continue to influence builders, architects and other players in the Residential New Construction industry.

The RNC sub-program is designed to enable the achievement of several goals and strategies identified in the Strategic Plan. The Strategic Plan envisions a transformation of the core Residential sector to ultra-high levels of energy efficiency, resulting in ZNE new construction standards by 2020. It spells out several goals and strategies to address energy reduction in Residential New Construction.

Goal #1: New Construction will deliver “ZNE” performance for all new single and multi family homes by 2020.

- By 2012, 50% of New Homes will exceed 2008 Title 24 energy efficiency standards by 20%; 10% will surpass 2008 Title 24 standards by 40% (Strategy 1-1)⁷³

Goal #2: Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities

Goal #3: Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy-efficient products.

⁷³ As modified in D.09-09-047

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The goal of energy-efficient Residential New Construction will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the Strategic Plan, and works in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP. In fully aligning itself with the Strategic Plan, the CAHP targets an interim goal of 50% of RNC to Tier II (2005) by 2011, 10 per cent of RNC to 55% by 2011, and a final goal of 100% of Residential New Construction to be net zero by 2020. In fully aligning itself with the Strategic Plan, as modified by Decision 09-09-047, the CAHP targets an interim goal of 50 percent of RNC to be 20% better than the 2008 Title 24 Standards by 2012, and 10% of RNC to be 40% better than the 2008 Title 24 Standards by 2012, and a final goal of 100 percent of residential new construction to be net zero by 2020.

6) Program Implementation IOU-specific elements

a) Statewide IOU coordination

Given the success of the collaborative process that led to the production of this PIP, the statewide RNC team plans to meet on at least a quarterly basis going forward in order to review progress toward the goals and make corrections need to achieve them.

i. Program name

The single-family and multi-family programs will be implemented under the common name of CAHP. The zero peak pilots will be referred to as ZNE Homes, although the details differ somewhat by utility. Factory-built housing will be referred to as ENERGY STAR Manufactured Homes.

ii. Program delivery mechanisms

SoCalGas delivers the program primarily through in-house account executives with some outside technical support for specific analyses. SCE leverages third-party implementers and in-house account executives. For the 2013-2014 program period, SoCalGas and SCE will continue implementation of ESMH, as their service territories overlap significantly. This will ensure cost effective implementation as well as a consistent program delivery to the applicable customer base.

iii. Incentive levels

The IOUs have agreed upon a common incentive methodology that will be implemented throughout the service territories. The incentive levels are as indicated earlier.

iv. Marketing and outreach plans

ESMH will ensure closer coordination of marketing efforts to synergize wherever possible. While each utility would like to leverage on their strengths and existing

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relationships within their service territories, certain marketing elements can be launched on a common platform. A common website will be created to provide builder information that will be commonly disseminated. Training and education is an area where pooling of resources is possible to reduce cost and increase participation.

The participating IOUs plan to be actively engaged in the development and implementation of joint marketing, education and training efforts as described in detail in the common section of this PIP.

In 2013-2014, the program will expand its builder/contractor education and training certification courses to increase overall awareness and understanding of CAHP and service offerings. We will continue to strengthen our delivery channels of information by providing relevant information and support materials, reaching target audiences in key decision-making phases. The IOUs' innovative communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, e-mail blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the Internet.

Additionally, CAHP will leverage its excellent relationships in partnering with trade organizations and other groups actively promoting the benefits of green, sustainable building practices. Such organizations include: CEC, FYP, AIA, USGBC, ULI, California Manufactured Housing Institute, Build It Green, IES, AEE, IHACHI, PHCC and others. Through an innovative, coordinated approach, we will maximize outreach opportunities that keep energy efficiency and program benefits top-of-mind and maximize program participation.

Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

v. IOU program interactions

The plan addresses above, in the Incentive Rationale section, the ways CAHP is encouraging demand performance, in-home displays, on-site generation, square footage reductions and green elements.

CAHP is particularly interested in promoting integrated thermal hot water system designs to displace therm demand with on-site renewable sources. In addition to cold water savings from embedded energy and the energy to heat water, longer term there may be GHG reductions that accrue either to the builder, the homeowner, or the utility associated with each demand side reduction as a result of AB 32 and pending national CO₂ legislation.

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CAHP prides itself on its established close relationships and memberships with other groups involved with the building industry. These relationships make it possible to provide comprehensive services to our customers. Thus, CAHP will continue to seek out and coordinate synergies with, but not limited to, the following groups:

- NSHP
- EPA
- California IOUs
- Green Building Consultants (i.e. Build it Green, California Green Builder, Global Green)
- Rater Organizations (e.g. ResNet, CalCerts, CHEERS)

CAHP will continue its commitment to the EPA's ENERGY STAR program and will strive to support, partner and contribute to the success of the ENERGY STAR homes label and branding. Numerous surveys and studies continue to show the ENERGY STAR label represents greater value to consumers and the environmental stewardship it represents.

Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR New Homes and has won ENERGY STAR achievement awards for the last seven consecutive years. In 2011 SCE was rewarded for "Sustained Excellence in Energy Efficiency Program Delivery".

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency and green measures into new construction projects including Title 24 code training and ENERGY STAR requirements. In response to builder requests, CAHP will offer a new training workshop during 2013 - 2014 designed for builders' sales agents. Sales agents have direct contact with the homebuyer and have the greatest impact on selling homes. In order to help promote ENERGY STAR developments, CAHP will teach sales agents about energy efficiency. Topics will include what qualifies as an ENERGY STAR home and what is 'green'. Other activities will include attendance at building industry trade conferences/ outreach events and any necessary contractor/builder field visits. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals. IOUs may pursue partnership efforts with local government entities who are looking to display leadership in the carbon arena by expediting plan check, waiving permit fees, or allowing builders to pay impact fees on the back end (instead of up-front) in exchange for higher levels of home performance documented by our program.

vi. Similar IOU and POU programs

The statewide team will reach out to leading POU programs, such as those at SMUD to learn from their experience how best to deliver energy-efficient homes.

In addition, the IOUs will work closely with the existing home remodeling programs (Home Performance with ENERGY STAR and the Comprehensive Mobile Home

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Program) to maintain a two-way communication of best practices and lessons learned between the new and existing sectors.

b) Program delivery and coordination

i. Emerging Technologies (ET) program

Emerging technologies will chiefly be handled within the ZNE program. The IOUs are looking to partner with our ET and EPIC-funded Testing Facilities to pilot zero-net energy approaches, particularly in the manufactured home/prefabricated segment. However, the proposed incentive approach allows the IOUs the flexibility to include both deemed and calculated energy savings from new technologies as they become market ready.

The utilities will seek to integrate R&D ideas from Emerging Technologies, EPIC, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

ii. Codes and Standards program

As mentioned above, manufactured housing is not subject to Title 24, although there are national efforts to improve the HUD code.

iii. WE&T efforts

The RNC team is seeking ongoing support from the three energy and training centers for classes relevant to the building industry and training the next generation of trade allies, builders, contractors, and the like.

iv. Program-specific marketing and outreach efforts

In 2013-2014, the program will expand its manufacturer and retailer outreach to increase overall awareness and understanding of ESMH. We will continue to strengthen our information and support materials, focusing on the value to the retailer of making the sale to the homebuyer. The IOUs' communication tools will include: account representative meetings/presentations, targeted customer mailings, trade organization affiliations, and builder award recognition. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internet.

v. Non-IOU Programs

There may also be opportunities to partner with local AQMDs and County Integrated Waste Management Boards to encourage material recycling in ZNE and green programs.

vi. CEC work on C&S

The IOUs will continue to support Codes and Standards development work with the CEC and to test candidate technologies in the new construction programs.

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c) Best Practices

The Residential New Construction team will gather information and past experience in successful low energy and ZNE existing projects to evaluate best practices. This information will be used to develop pilot projects that will demonstrate low energy homes and include home performance monitoring.

d) Integrated/coordinated Demand Side Management

The statewide RNC team is committed to a full integration of all resource types. A first step has been taken by way of a recent joint agreement between SoCalGas and SCE, which allows the two utilities to buy back therms and kWh. Water saving technologies and CO₂ reduction are strongly emphasized and tracked in ZNE projects. As these technologies get accepted and recognized, they will become integrated into the base CAHP projects.

e) Integration across resource types (energy, water, air quality, etc)

As discussed above, RNC is looking to partner with relevant stakeholders to identify water, air quality, and waste-diversion opportunities.

f) Pilots

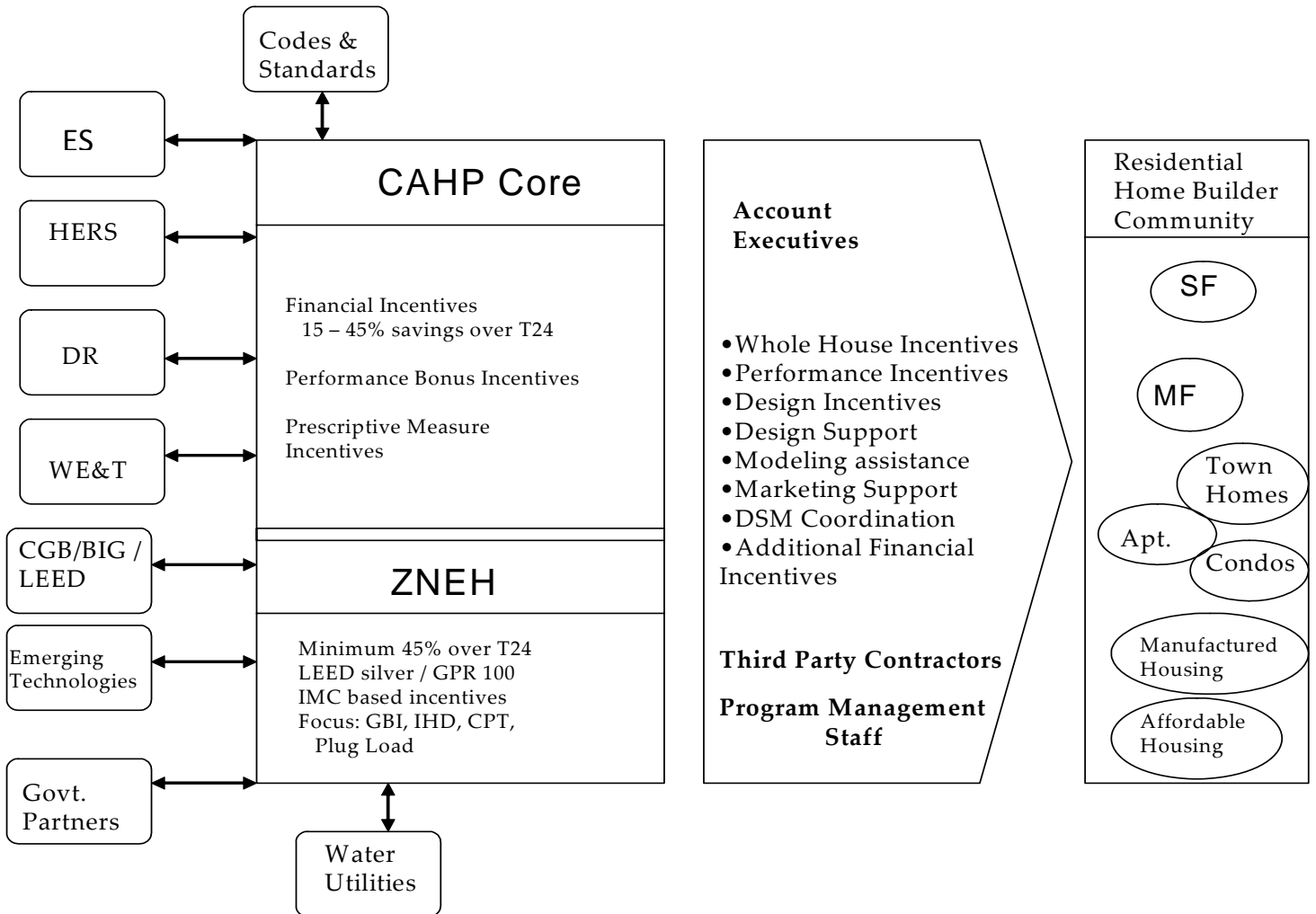
As discussed above, The IOUs may in the future need to create a pilot program to test the viability of an offering.

g) EM&V

The utilities are proposing to develop and submit a comprehensive EM&V plan for 2013-2014 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

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7. Diagram of Program

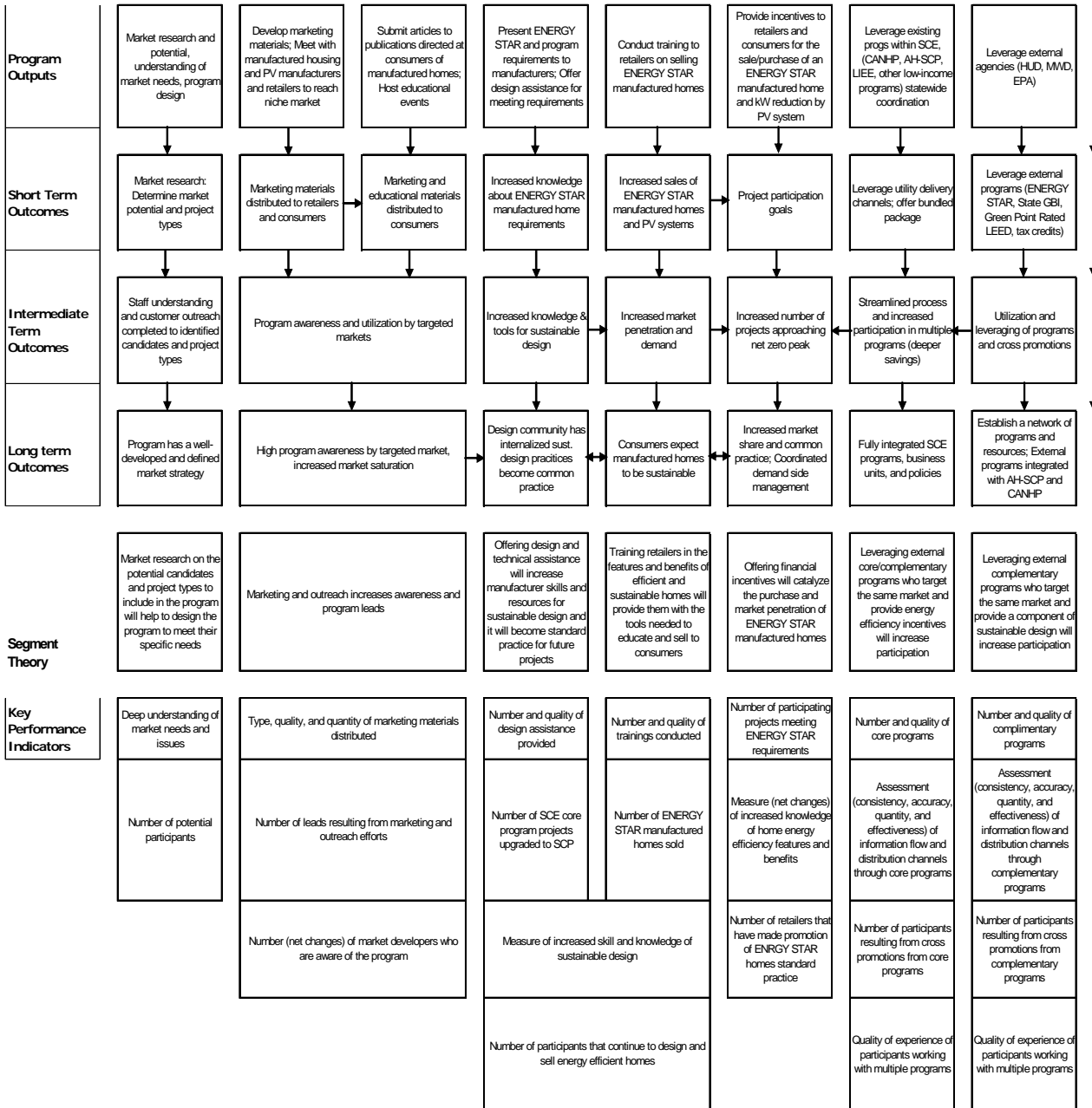


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8. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Energy Star Manufactured Homes Program.

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Program Outputs	Market research and potential, understanding of market needs, program design	Develop marketing materials; Meet with manufactured housing and PV/manufactures and retailers to reach niche market	Submit articles to publications directed at consumers of manufactured homes; Host educational events	Present ENERGY STAR and program requirements to manufacturers; Offer design assistance for meeting requirements	Conduct training to retailers on selling ENERGY STAR manufactured homes	Provide incentives to retailers and consumers for the sale/purchase of an ENERGY STAR manufactured home and/or reduction by PV system	Leverage existing programs within SCE, CAN-P, AH-SCP, LEE; other low income programs) statewide coordination	Leverage external agencies (HUD, MWD, EPA)
Short Term Outcomes	Market research; Determine market potential and project types	Marketing materials distributed to retailers and consumers	Marketing and educational materials distributed to consumers	Increased knowledge about ENERGY STAR manufactured home requirements	Increased sales of ENERGY STAR manufactured homes and PV systems	Project participation goals	Leverage utility delivery channels; offer bundled package	Leverage external programs (ENERGY STAR, State GEI, GreenPoint Rated LEED tax credits)
Intermediate Term Outcomes	Self understanding and customer outreach completed to identified candidates and project types	Program awareness and utilization by targeted markets	Increased knowledge & tools for sustainable design	Increased market penetration and demand	Increased number of projects approaching net zero peak	Streamlined process and increased participation in multiple programs (deeper savings)	Utilization and leveraging of programs and cross promotions	
Longterm Outcomes	Program has well-developed and defined market strategy	High program awareness by targeted market, increased market saturation	Design community has internalized sust. design practices become common practice	Consumers expect manufactured homes to be sustainable	Increased market share and common practice; Coordinated demand side management	Fully integrated SCE programs, business units, and policies	Establish a network of programs and resources; External programs integrated with AH-SCP and CAN-P	
Segment Theory	Market research on the potential candidates and project types to include in the program will help to design the program to meet their specific needs	Marketing and outreach increases awareness and program leads	Offering design and technical assistance will increase manufacturer skills and resources for sustainable design and it will become standard practice for future projects	Training retailers in the features and benefits of efficient and sustainable homes will provide them with the tools needed to educate and sell to consumers	Offering financial incentives will catalyze the purchase and market penetration of ENERGY STAR manufactured homes	Leveraging external core/complementary programs who target the same market and provide energy efficiency incentives will increase participation	Leveraging external complementary programs who target the same market and provide a component of sustainable design will increase participation	
Key Performance Indicators	<p>Deep understanding of market needs and issues</p> <p>Number of potential participants</p>	<p>Type, quality, and quantity of marketing materials distributed</p> <p>Number of leads resulting from marketing and outreach efforts</p> <p>Number (net changes) of market developers who are aware of the program</p>	<p>Number and quality of design assistance provided</p> <p>Number of SCE core program projects upgraded to SCP</p> <p>Measured increase in skill and knowledge of sustainable design</p> <p>Number of participants that continue to design and sell energy efficient homes</p>	<p>Number and quality of trainings conducted</p> <p>Number of ENERGY STAR manufactured homes sold</p>	<p>Number of participating projects meeting ENERGY STAR requirements</p> <p>Measure (net changes) of increased knowledge of home energy efficiency/features and benefits</p> <p>Number of retailers that have adopted promotion of ENERGY STAR homes standard practice</p>	<p>Number and quality of core programs</p> <p>Assessment (consistency, accuracy, quantity, and effectiveness) of information flow and distribution channels through core programs</p> <p>Number of participants resulting from cross promotions from core programs</p> <p>Quality of experience of participants working with multiple programs</p>	<p>Number and quality of complimentary programs</p> <p>Assessment (consistency, accuracy, quantity, and effectiveness) of information flow and distribution channels through complementary programs</p> <p>Number of participants resulting from cross promotions from complementary programs</p> <p>Quality of experience of participants working with multiple programs</p>	

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Attachment 1

Energy Division Program Adjustment Requests

Implemented by IOUs

Program Name: Statewide New Construction Program

Program Number: 3707

Sub-program Name: Residential New Construction (“California Advanced Homes”)

Source of Request (ED Staff Name)	PIP Section	Modified Content	Justification	Budget Impact (Yes/No: Explain)	Savings Impact (Yes/No: Explain)
Cathy Fogel (Not certain, but she is lead for RNC)	6. Program Implementation, a) Statewide IOU Coordination; iii: Incentive levels	Delete Kicker for Solar Thermal equipment per ED direction	<p>Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall <u>coordinate</u> their CAHP performance bonus for solar hot water with the Energy</p> <p>Division’s proposed CSI Thermal Energy program, authorized by AB 1470;</p> <p>(D. 09-09-047, OP 24c, page 376)</p> <p>“Coordinate” and eliminate are not synonymous.</p>	<p>No additional dollars have been added or subtracted; However, dropping the kicker makes more dollars available for other marketing/ kickers</p>	No

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- 1. Program Name:** CalSPREE¹ Program
Program ID: SCG3701 SW-CALS-Energy Advisor
 SCG3702 SW-CALS-Plug Load and Appliances
 SCG3704 SW-CALS-MFEER
 SCG3705 SW-CALS-EUC WHUP
 SCG3706 SW-CALS-Residential HVAC
 SCG3707 SW-CALS-RNC
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW CALSPREE					
3701	SW-CALS-Energy Advisor	\$167,588	\$160,179	\$1,383,230	\$0	\$1,710,997
3702	SW-CALS-Plug Load and Appliances	\$523,573	\$1,666,475	\$5,801,862	\$9,139,986	\$12,713,367
3704	SW-CALS-MFEER	\$127,778	\$299,591	\$304,548	\$1,679,633	\$2,411,550
3705	SW-CALS-EUC WHUP	\$720,979	\$1,281,711	\$5,084,689	\$3,609,600	\$10,696,979
3706	SW-CALS-Residential HVAC	\$9,846	\$0	\$46,590	\$250,000	\$306,436
3707	SW-CALS-RNC	\$368,533	\$224,200	\$2,137,739	\$2,982,914	\$5,713,387
	TOTAL:	\$1,918,298	\$3,632,156	\$14,758,659	\$17,662,134	\$33,552,717

3. Projected Program Gross Impacts Table

The IOU's funding request for the proposed 2013-2014 CalSPREE Program as detailed in Table 1 above. The IOUs believe this amount is reasonable, results in a cost-effective portfolio that meets the Commission's energy savings targets for 2013-2014, and supports market transformation and the Strategic Plan.

Table 2

Program #	Main/Sub Program Name	2012-2013 Gross kW Savings	2012-2013 Gross kWh Savings	2012-2013 Gross Therm Savings
	SW CALSPREE			
3701	SW-CALS-Energy Advisor	0	0	0
3702	SW-CALS-Plug Load and Appliances	300	595,034	1,515,807
3703	SW-CALS-Plug Load and Appliances - POS	4,725	11,330,000	1,729,201
3704	SW-CALS-MFEER	7	11,593	1,157,850
3705	SW-CALS-EUC WHUP	0	0	684,288
3706	SW-CALS-Residential HVAC	0	0	0
3707	SW-CALS-RNC	2,287	1,619,704	383,064
	TOTAL:	7,318	13,556,332	5,470,210

4. Program Description

¹ D.09-09-047, p. 7, refers to the statewide residential energy efficiency subprograms as the California Statewide Subprograms for Residential Energy Efficiency ("CalSPREE")

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The 2013-2014 Residential Sector program, part of the overall Energy Upgrade California (EUC) program, is designated as the California Statewide Program for Residential Energy Efficiency (CalSPREE).

CalSPREE will offer and promote both specific and comprehensive energy solutions for residential customers. By encouraging adoption of economically viable energy efficiency technologies, practices, and services, CalSPREE will employ strategies and tactics to overcome market barriers while delivering services that support the CPUC's Long Term Energy Efficiency Strategic Plan.

The ultimate focus of CalSPREE is to:

- Facilitate, sustain, and transform the long-term delivery and adoption of energy-efficient products and services for single and multi-family dwellings;
- Cultivate, promote and sustain lasting energy-efficient behaviors by residential customers through a collaborative statewide education and outreach mechanism; and
- Meet customers' energy efficiency adoption preferences through a range of offerings including single-measure incentives and more comprehensive approaches.

To date, the California IOUs have employed a number of different residential energy efficiency subprograms that are in various stages of maturity and availability across the state. For 2013-2014 and beyond, the IOUs will integrate all of these subprograms to coordinate efforts and increase comprehensiveness of measure delivery.

CalSPREE will conduct a combination of integrated DSM and program specific marketing and outreach to drive ongoing customer participation and behavior change. Both integrated and program-specific marketing activities will work in coordination with the SW ME&O and will serve to complement those efforts.

Integrated marketing and outreach will gather, create, and deliver information to customers in a way that (1) bundles programs, products, and information and (2) customizes delivery for individual or groups of targeted customers based on market intelligence, segmentation analyses, self-selection activities, and event-based knowledge of customer's actions. To drive ongoing customer engagement, marketing and outreach will target customers with the right message, through the right channel, at the right time. Integrated marketing will cross-sell relevant DSM programs and services that emphasize the benefits of participation in multiple programs.

Additionally, program specific marketing and outreach will be conducted in order to increase participation and reach specific program goals. Program specific marketing and outreach will target customers with a high potential to participate in a specific programs or service.

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For example, through the Plug Load and Appliances program, customers identified as having a pool may receive a targeted direct mailer prior to summer encouraging them to take advantage of the pool pump and motor rebate. By motivating customers to take an initial action, it will enable the utilities to engage customers in an ongoing conversation about the next steps they can take towards becoming better energy managers. Additionally, program specific marketing and outreach enables the utilities to conduct activities necessary to support the measure, such as developing Point of Sale rebate stickers that are placed on select appliances to drive program participation. These efforts drive enrollments that enable the utilities to meet specific program goals.

A mix of communication channels and languages will be used to reach a diverse audience. Communication channels may include: web, call center, bill messaging, email, social media, direct mail, retail partnerships, community- and faith-based partnerships, outreach, events, local government partnerships, general and ethnic media.

CalSPREE is comprised of the Energy Advisor, Plug Load and Appliances (PLA), Multi-Family Energy Efficiency Rebates (MFEER), Whole Home Upgrade (WHU), Residential Heating, Ventilation, and Air Conditioning (HVAC), and Residential New Construction (RNC) subprograms. These subprograms are described in more detail below.

Short description of each sub-program

The 2013-2014 CalSPREE includes the following six subprograms:

- a) Energy Advisor (EA).** The Energy Advisor subprogram will utilize interactive tools designed to engage customers and encourage participation in innovative initiatives. These initiatives are designed to help customers understand and empower them to manage their energy use, and will guide them, where appropriate, towards advancing whole-house energy solutions. Although the IOUs share similar Energy Advisor subprogram theory, design, and goals, they may implement subprogram logistics differently because of their different service territories.

- b) Plug Load and Appliances (PLA).** The Plug Load and Appliances subprogram merges the previous Home Energy Efficiency Rebate (HEER), Business Consumer Electronics (BCE) and Appliance Recycling subprograms. This subprogram will develop and build upon existing retailer relationships and will include recycling strategies and whole house solutions, plug load efficiency, performance standards, and opportunities for integration with local government, water agencies, Publically Owned Utilities (POUs), and the Demand Side Management (DSM) subprogram.

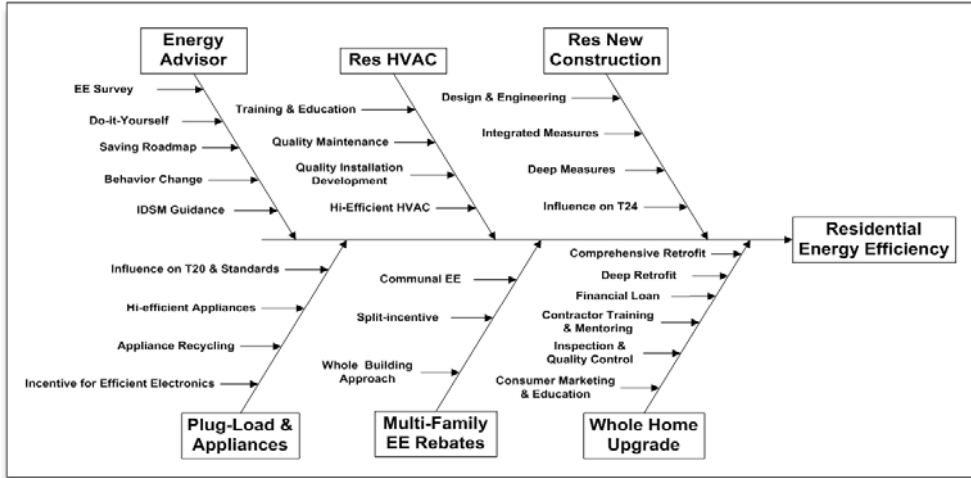
- c) Multi-Family Energy Efficiency Rebates (MFEER).** The MFEER subprogram is a continuing subprogram. This subprogram will promote energy efficiency by providing equipment rebates to owners and tenants of multifamily properties, including residential apartment buildings, condominium complexes, and mobile home parks. It will be coordinated with the Energy Savings Assistance (ESA) and the WHUP Programs.

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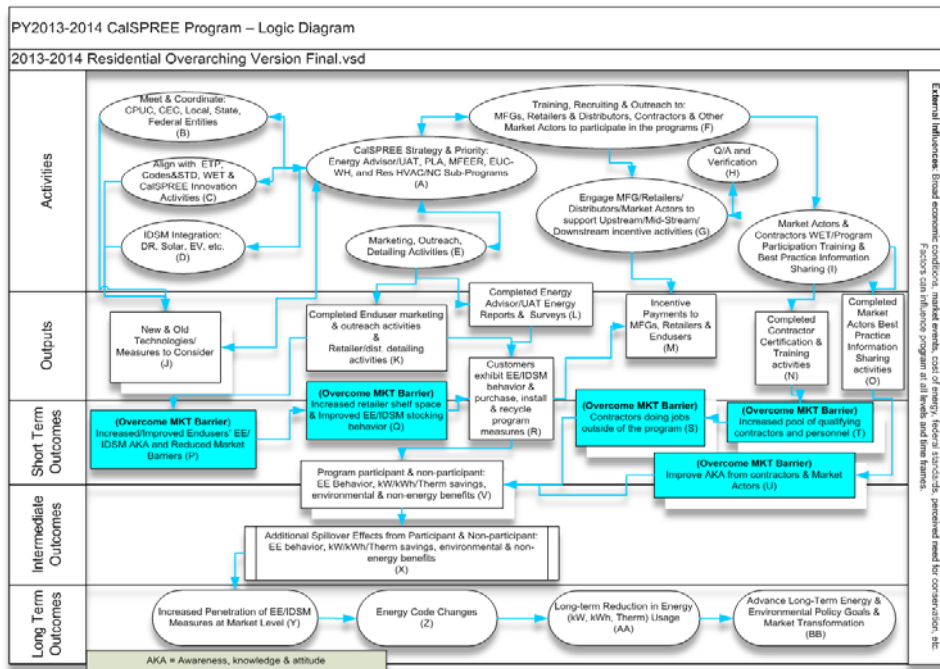
- d) Whole Home Upgrade Program (WHUP). The Whole Home Upgrade (WHUP) subprogram is a continuing program which began as Energy Upgrade California in the 2010-2012 residential energy efficiency portfolio of the four California Investor Owned Utilities (IOUs) – Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas). For 2013-2014, the WHUP will consolidate the previously separate Prescriptive Whole House Retrofit (PWHRP) and Local Whole House Retrofit (WHRP) and the introduction of a Multi-family component. The WHUP sub-program is designed to build customer and contractor awareness of the house-as-a-system approach to residential retrofits and the many benefits of improving the comfort, safety, and energy savings potential of the house. The WHUP approach promotes both Basic and Advanced Paths to retrofiting; these complementary paths will be presented to customers as one comprehensive offering.**
- e) Residential Heating, Ventilation, and Air Conditioning (HVAC). The Residential HVAC subprogram is a continuing program with the primary objective of driving high quality levels in California's HVAC market for technology, equipment, installation, and maintenance. An additional objective is to increase customer awareness of the value of HVAC installation and maintenance practices toward driving energy efficiency and peak load reduction. The Residential HVAC subprogram will incorporate revised measures and incentives, policies and procedures, quality assurance, marketing materials, website, and contractor training in performing HVAC installation services for residential customers.**
- f) Residential New Construction (RNC). The RNC subprogram is a continuing statewide program that consists of the California Advanced Homes Program (CAHP) and, in Southern California, the Energy Star Manufactured Homes (ESMH) Program. The Program is designed to help guide builders to produce the most efficient homes in the most cost-effective manner, and will examine methodologies for supporting the Strategic Plan target of zero net energy (ZNE) by 2020.**

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CalSPREE Program Diagrams



5. Program Logic Model



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1. **Program Name:** Energy Advisor Program
Program ID: 3701
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 - reference the CalSPREESPREE for budget details

2. **Projected Program Gross Impacts Table**

Table 2 - reference the CalSPREESPREE for projected savings details

4. **Program Description**

a) **Describe program**

This program is a continuation of the existing statewide Energy Advisor Program (formerly known as the Home Energy Efficiency Survey (HEES) program) within the residential energy efficiency portfolio. Although SDG&E, SCE, PG&E and SoCalGasSDG&E share similar program theory, design and goals, each IOU may implement its program logistics differently.

In 2013-2014, the Energy Advisor program will continue to help customers understand and empower them to manage their energy use, and will guide them, where appropriate, towards advancing whole-house energy solutions. The subprogram utilizes behavioral outreach initiatives and interactive tools designed to engage customers and to encourage participation in innovative initiatives to reduce their energy consumption through behavioral solutions, program recommendations and, as warranted, IDSM opportunities.

b) The program provides customers with information to help them become familiar with ways to control and reduce energy and water usage in their homes by offering customers up to three options (mail-in survey, on-line survey, and phone survey) in multiple languages (English, Spanish, Vietnamese, Chinese, and Korean) including an action plan for implementation. The program also provides survey results to enable participants to understand how their energy use varies throughout the year and how their household compares with similar households. This multi-language approach enhances the program's ability to reach Southern California's diverse culture and provides efficiency recommendations based on a whole-house system approach.

c)

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d)b) List Offerings ~~measures~~

~~Offerings~~ Measures or offerings vary by IOU, as outlined below:

Offerings	SCE	SoCalGas	PG&E	SDG&E
Online Survey	X	X	X	X
Mail-in Survey	X	X	N/A	X
Telephone Survey	X	N/A	X	N/A
Multifamily Survey	X	X	N/A	X
In-home Survey	X	N/A	TBD	N/A
Home Energy Reports	TBD	TBD	X	X
Online Buyer's Guide	X	X	X	X
Energy Kits	N/A	X	N/A	X

~~**Note: Consistent with Commission direction in D.09-09-047, P. 120 the IOUs were directed to eliminate the provision of on-site residential "audits" within the HEES (survey) program. Therefore in-home surveys and all references to in-home surveys have been removed from the HEES Program PIP.**~~

e)c) List Non-incentive Customer Services

The ~~Energy Advisor~~ HEES Program offers customers with interactive engagement and detailed ~~outputs~~ reports on their actual energy usage, including:

- Rate and usage analysis, and
- Household usage data and comparison.

In addition, the program provides information and literature on energy efficiency and IDSM Programs:

- ~~Water conservation;~~
- ~~Energy efficiency and IDSM Programs:~~
 - Residential Energy Efficiency
 - ~~Summer Saver Plan (SDP)~~
- California Solar Initiative (CSI)

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- Peak Demand Initiatives (DR)
- ~~1. Low Income Energy Efficiency (LIEE).~~

The information provided ~~through~~ the Energy Advisor program ~~comprehensive HEES report sent to customers~~ will be coordinated/developed on a statewide level. This information provided ~~The report options~~ will include historical usage data for customers. The program report ~~options may also~~ provide a platform to measure sustainable reductions in energy usage for the customer and the IOU's. In addition, data collected from the survey questionnaire will be utilized to provide targeted marketing and strategic planning opportunities for all Residential energy efficiency and demand response programs. The Energy Advisor program report will be the primary mechanism to drive customers to save energy by educating the customer on their household usage impacts to the environment, while comparing household usage with similar households. Statewide coordination efforts may also afford the program report to provide information promoting the whole-house approach with information leading customers to whole-house products and services, including financing options, energy efficiency product and service providers, rebate program applications and customer service touch points.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Energy Advisor/HEES Program (Resolution E-4385, Appendix A, p 34).

<i>SW PROGRAM/</i>	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type

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<i>Sub-Program</i>		
<i>Home Energy Efficiency Survey (HEES)</i>	1. Percentage of HEES participants that enroll in (a) whole house and (b) other resource programs	2b

<u>SW PROGRAM/ Sub Program</u>	<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
<u>Energy Advisor (EA)</u>	<u>Percentage of Energy Advisor participants that enroll in (a) whole house and (b) other resource programs</u>	<u>2b</u>

b) Market Transformation Indicators (MTI)

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

c) Program Design to Overcome Barriers

Promoting energy and water efficiency to the residential customer provides opportunities to foster market transformation. The main barriers include:

- Lack of current energy performance;
- Lack of energy efficiency information;
- Lack of awareness of specific measures and practices ~~and~~
- ~~Inability to read or understand information when it is provided only in English.~~

To overcome these barriers, the Energy Advisor~~HEES~~ Program will provide accurate and comprehensive information about energy and water saving strategies, customized recommendations and suggestions for energy and water conservation and installation of energy-saving measures, and detailed analysis of energy billing, energy usage, and energy costs, based on actual household consumption. This information encourages permanent changes in customers’ attitudes and actions toward energy conservation by helping them understand their usage, as well as providing information on a wide variety of possible measures, practices, and actions. The program will also continue to provide information in multiple languages to overcome language barriers for non-English-speaking customers.

Marketing is a key component in the success of the Energy Advisor~~HEES~~ Program, first to generate awareness of the program, and second - and more important - to encourage

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completion of a survey. Marketing plans will be discussed statewide to ensure consistency and sharing of best practices~~A statewide marketing campaign will be used to reduce overall implementation costs and to ensure uniformity throughout the state of California. In a further effort to reduce costs, the HEES Program will also partner with local municipalities and water agencies. Partnering with other entities will lower costs with cost sharing initiatives and will increase program awareness and effectiveness.~~

Statewide delivery mechanisms continue to include online tools~~the Online and Mail-In Surveys~~. The individual utilities may also provide other survey and engagement offerings~~telephone surveys~~, if they feel these types of survey are warranted. Online tools~~and Mail-in surveys~~ will be coordinated with a statewide emphasis to share best practices. Each IOU survey will have a delivery method capable of serving customers~~be provided~~ in multiple languages to bridge language barriers among California's diverse population. For all types of surveys, whether offered statewide or not, substantially the same questions and recommendations will be provided to ensure consistency statewide. The HEES report will provide participants with usage and comparison data among similar households.

It is necessary to persuade Californians to commit to energy conservation. For many, this will be a gradual process facilitated by readily available, well placed educational materials that help the customer understand their energy usage and encourage the customer to make the greater commitment to participate in behavior and equipment based IDSM improvements. In accordance HEES. Without the commitment to change, either behaviorally or with material changes, there is no viable incentive to complete the driving behavior change elements of energy improvement, each utility will seek to reach at least 5% of their customers through a variety of behavior change inclusive offerings.

SoCalGas Behavioral:

Behavioral savings are funded through SoCalGas Advanced Meter project, Decision 10-04-027, which found conservation estimates as reasonable and required SoCalGas to ensure that the estimated conservation savings are attained. SoCalGas will establish a system to track and attribute the conservation impacts of its AMI rollout. Every six months, SoCalGas shall file a report of measured savings. If the project is falling short of SoCalGas' projections the company will submit revisions to its outreach plan to increase awareness, participation, and durability of conservation actions among customers.

Upon completion of the Advanced Meter project, SoCalGas will incorporate successful behavioral programs and techniques into the energy efficiency portfolio.

~~survey~~—While the interactive survey and/or reports~~HEES report~~ and action plans~~plan~~ should result in changes in customer utilization, it ~~cannot~~can not be considered a conclusion of the process. Rather, once customers have been engaged through the Energy Advisor program, utilities may~~by HEES, companies will~~ motivate them to achieve even greater conservation savings through additional education on-line, by e-

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mail, by mail, by telephone, ~~through CBOs, and~~ through any other appropriate mechanism.

d) Quantitative Program Targets

The proposed targets may be modified due to funding restrictions, especially for the ~~2013-2014 transition period (2009 bridge funding transition years). year.~~

<u>IOU</u>	<u>Program Target by 2012</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>SDG&E</u>	<u>3,000</u>	<u>5,000</u>	<u>5,000</u>
<u>SCE</u>	<u>21,875</u>	<u>26,000</u>	<u>26,000</u>
<u>SoCalGas</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
<u>PG&E</u>	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>

Table 5d

	<u>Program Target By 2010</u>	<u>Program Target By 2011</u>	<u>Program Target By 2012</u>
<u>SDG&E</u>			
<u>On-Line Survey</u>	<u>2,000</u>	<u>2,500</u>	<u>3,000</u>
<u>Mail In Survey</u>	<u>750</u>	<u>800</u>	<u>850</u>
<u>Telephone Survey</u>	<u><100*</u>	<u><100*</u>	<u><100*</u>
<u>*- exact historic records not available</u>			

e) Advancing Strategic Plan goals and objectives

The ~~Energy Advisor~~ HEES program will advance the strategic plan goals and objectives of the Strategic Plan as outlined:

- Goal 2.2: Residential Sector including Low-Income - Tracking Transform home improvement markets to apply whole-house energy solutions to existing homes - The ~~Energy Advisor~~ HEES Program will plan to deliver a new ~~survey~~ HEES Report which will strive to implement decision triggers and call to action to support advancement of whole-house energy solutions. The ~~surveys and/or reports~~ will also pursue initiatives to ~~reduce~~ reverse the growth of plug load energy

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consumption through behavioral and technical solutions. ~~HEES will provide educational services to participants on plug-load measures such as “smart plug strips”, as appropriate.~~

- Goal 8.3: DSM Coordination and Integration - Deliver integrated DSM options that include efficiency, demand response, energy management and self generation measures, through coordinated marketing and regulatory integration - The Energy Advisor~~HEES~~ Program will seek opportunities to partner~~partnerships~~ with municipalities, governmental and local~~local~~ water agencies, ~~municipals~~ and other key stakeholders if applicable to develop and implement a comprehensive plan to promote water and energy conservation.- Further integration strategies may~~will~~ also include IDSM, Energy Savings Assistance (ESA) program ESAP and other DSM (CSI, SDP, Peak Demand, etc), LIEE and energy efficiency programs.
- Goal 9.2 - Workforce, Education and Training - Ensure that minority, low-income and disadvantaged communities fully participate in training and education programs at all levels of the DSM and energy efficiency industry - A comprehensive training curriculum will be implemented to formalize the knowledge base of the survey workforce. This strategy falls in line with a goal of the WE&T Strategic Plan intended to ensure that minority, low-income and disadvantaged individuals fully participate in training and education programs at all levels of demand-side management and energy efficiency.

~~6.~~

~~7.6.~~ **Program Implementation**

a) **Statewide IOU coordination**

~~Program name: Home Energy Advisor~~Efficiency Survey Program

i. **Program delivery mechanisms**

The Energy Advisor~~HEES~~ Program is delivered to customers through multiple offerings. See section 4) b) above for program offerings in three ways. Customers can complete the survey On-Line, by utility, mail, and by telephone (offered by PG&E, SDG&E and SCE only.

ii. **Incentive levels**

This program does not offer monetary incentives.

iii. **Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms**

Marketing efforts will be coordinated statewide to develop a portfolio of communication methods. The utilities can use these methods, including but not necessarily limited to, blast e-mails, flyers, on-line marketing, direct mail, trigger~~On-Line~~ marketing, and or lifestyle packages~~direct mail~~, as suits the target audience, the message, and the resources.

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iv. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Energy Advisor~~HEES~~ program does not interact, as such, with other programs or organizations. However, the program will maintain the flexibility to coordinate program services to support initiatives generated by agencies.

v. Similar IOU and POU programs

The Energy Advisor~~HEES~~ program provides a consistent and recognizable presence throughout the state and offers a menu of similar services and processes implemented statewide by PG&E, SDG&E, SCE and SoCalGas. The program will work with municipalities, when applicable such as LADWP, to offer this service and/or partner in the information provided. - Efforts will be made to provide consistent reporting of programs~~survey~~ results across the state where applicable.

The program also will be implemented in close association with other residential energy efficiency programs. The Energy Advisor program~~HEES~~ will be the starting point for residential customers to tap into the IOU's residential energy efficiency services. Through marketing, education and outreach, each program will encourage end-users to adopt multiple measures to gain the benefits associated with an integrated whole-house approach to energy efficiency.

The Energy Advisor program~~HEES~~ will leverage its survey information to provide information and referrals to other energy efficiency programs, such as HEER, ARP and others. ~~During the 2010-2012 program cycle, HEES will be working on a pilot program to test a multi-family energy survey service.~~ Aggregated data from on-line~~online~~ surveys and other program efforts will be examined to provide direct marketing opportunities ~~with water conservation efforts, demand response programs, and low income programs,~~ as applicable.

The Energy Advisor~~HEES~~ program collaborates with the Low Income Energy Savings Assistance~~Efficiency (LIEE) Program (ESAP) program~~ by making the service available to them and by providing customers with residential program information. Energy Advisor~~HEES~~ will coordinate with local and other outreach efforts, as appropriate.

b) Program delivery and coordination

i. Emerging Technologies (ET) Program

The Energy Advisor program~~HEES~~ will collaborate statewide with emerging technologies initiatives and incorporate other measures into the customer energy report, as warranted, to support the Strategic Plan.

ii. Codes & Standards program

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Continuous improvements and enhancements will be coordinated statewide to ensure the Energy Advisor~~HEES~~ Program maintains consistency with updates to codes and standards. Additionally, whenever analysis of the Energy Advisor program ~~HEES~~-related data suggests an area that may be of interest to codes and standards, the program will proactively provide appropriate direction.

~~iii.—~~

~~iv.~~**iii. WE&T efforts**

The Energy Advisor program will collaborate with WE&T efforts where appropriate to share information and best practices.

~~v.— A comprehensive training curriculum will be implemented to formalize the knowledge base of the survey workforce. This strategy falls in line with a goal of the WE&T Strategic Plan intended to ensure that minority, low income and disadvantaged individuals fully participate in training and education programs at all levels of demand side management and energy efficiency.~~

~~vi.—~~

~~vii.—~~

~~viii.~~**iv. Program-specific marketing and outreach efforts**

In addition to the statewide marketing efforts outlined above in Section 6.a.iv, the program may be utilized as an outreach mechanism in conjunction with CBOs, faith-based organizations~~organization~~, local community events, fairs, etc.

~~ix.~~**v. Non-energy activities of program**

The Energy Advisor~~HEES~~ program is a successful effort to reach consumers through self, and in some cases direct, contact in ways that consumers prefer. The Energy Advisor~~HEES~~ Program will serve~~outreach to~~ customers in multiple languages and through different delivery channels, to perform a variety of energy surveys. ~~The delivery outreach and marketing efforts may include: direct mail, e-mail, online banner ads, and news media.~~ Utilities will improve the Energy Advisor program~~HEES~~ prominence through creative initiatives such as: analyzing websites to insure high visibility of the Energy Advisor offerings~~HEES~~; utilizing telephone representatives to explain and suggest Energy Advisor offerings~~HEES~~ to callers; describing Energy Advisor offerings~~HEES~~ in conservation literature; promoting Energy Advisor offerings~~HEES~~ in conjunction with community outreach efforts, etc., when applicable~~and so on~~.

~~x.~~**vi. Non-IOU programs**

The program will promote non-utility programs (e.g. financing options, tax credits, and recycling) to further encourage customers to adopt energy efficiency measures when applicable.

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xi.vii. CEC work on EPICPIER

The Energy Advisor programHEES will work with the statewide Emerging Technology Program, CEC and EPICPIER to take advantage of all new emerging technologies activities. The information may be shared in the customer energy report.

xii.viii. CEC work on C&S

The Energy Advisor programHEES will work with the statewide codes and standards to take advantage of ~~all~~ new emerging technologies activities. The information may be shared in the customer energy report.

xiii.ix. Non-utility market initiatives

The Energy Advisor programHEES will coordinate with non-utility energy resources (i.e. DOE's ENERGY STAR®, CEE, etc., if applicable)® to provide customers with information on energy efficient lighting, appliances, and equipment.

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c) Best Practices

Statewide best practices are outlined below:

- ~~While all California utilities have offered residential energy survey programs for some years, 2006-2008 was the first time surveys were offered statewide as a coordinated program with the same kinds of survey services everywhere. In addition, there was an initial emphasis on hard-to-reach customers which will be continue throughout the 2010-2012 program cycle by targeting and outreaching to in-language communities. Statewide best practices are outlined below:~~
- ~~HEES Report and~~ Customer Usage History: Because the program HEES Report includes comprehensive usage and billing information, ~~the Energy Advisor HEES Program~~ will continue to promote the survey program as a way to educate customers on their potential energy savings opportunities;
- ~~Ethnic communications: The program will continue to be offered to customers in several languages based upon IOU demographics to minimize the opportunities lost due to language barriers; and~~
- Targeted marketing: On a statewide level, the Energy Advisor HEES program will continue to focus its HEES marketing campaigns toward residential and multifamily households with higher usage. As mentioned, the program may also be utilized as an outreach mechanism in a variety of community organizations, conjunction with CBOs, faith-based organization, local community events, green initiatives, etc. This approach reduces overall marketing costs by maximizing the response rates generated from marketing efforts.

d) Innovation

~~The Energy Advisor program will integrate the on-line survey. Improvements will be made to the customized HEES Report recommendations and will include demographic data (income, household size, education, etc). This will enhance the reports, ensure consistency, and reflect EE strategic planning. Further, HEES will improve the customer experience by incorporating practical and credible information and relevant recommendations validated by Energy Engineering sources, such as providing the percentage of consumption reduction realized by implementing recommendations, providing a Carbon Foot Print Calculator, or providing similarly pertinent information.~~

SCE

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- ~~1. The SCE HEES program will integrate the On-Line aspects of the program with the upcoming On-line Buyers' Guide Program. As overall concepts are developed, integration specifics will be determined as to ensure seamless integration to the customer.~~

SCE/SCG

- ~~1. The HEES program will integrate the On-Line HEES with "My Account" on-line customers to streamline the customer experience, making it more efficient and convenient.~~
- ~~2. The HEES Program will initiate new enhancements to the program for 2010-2012 to provide a quarterly follow up report to enable participants to understand how their energy use varies throughout the year and how their household compares with similar households, in multiple languages. This multi-language approach will enhance the program's ability to reach California's culturally diverse consumers and provide on-going efficiency recommendations based on a whole house system approach; and~~
- ~~3. Software updates will take into account updates to climate zones, weather regions, demographics, and improved household comparison analysis. This information will also allow for the integration of gas- and water-related measures and information. Updates to all energy savings assumptions will be reviewed and adjusted to reflect changes in usage patterns and energy savings values. Values used will be validated by the DEER Database, SCE Work Papers, or SCE's Engineering and Design Resources Team.~~

SDG&E

- ~~4. The IOUs SDG&E HEES program will partner with K-12 stakeholders to ensure that energy education is provided from kindergarten through high school;~~

~~SDG&E will integrate the on-line survey On-Line HEES with customer historic data to streamline the customer experience, making it more efficient and convenient; and~~

The current survey will be replaced by standardized Universal Audit Tools (UAT) developed by each IOU and coordinated at a statewide level to share best practices. The tools will incorporate electricity/gas, energy efficiency, water conservation, demand response and self-generation analysis and will provide tailored set of recommendations

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for each type of survey, as appropriate. The UAT incorporates applicable rate and bill analysis functionality, similar home comparison as well as IOUs' adopted and recommended emerging technologies, as appropriate.

The utilities projected schedules for implementation of their Residential Universal Audit Tools are as follows:

Residential Universal Audit Tool Deployment Schedule	
<u>PG&E</u>	<u>March 2012</u>
<u>SCE</u>	<u>March 2012</u>
<u>SoCalGas</u>	<u>October 2012</u>
<u>SDG&E</u>	<u>May 2012</u>

The utilities will continue to meet to share best practices for future UAT developments and enhancements where appropriate.

- ~~5. SDG&E will manage all collateral and related outreach through the Residential Customer Education Information Program.~~

PG&E

- ~~6. PG&E's Universal Energy Audit Tool (currently in development) will centralize both residential and non-residential energy survey recommendations and calculations and customer survey information in a central database. This will provide uniformity of information and presentation, allow integration of energy conservation, energy efficiency, DR and SG, establishment of benchmarks, and use models, and improve data management and reporting.~~

e) Integrated/coordinated Demand Side Management

The analysis portions of the residential survey ~~audit~~ programs will be expanded to include demand response and distributed generation. This would be accomplished by adding on to the current survey ~~audit~~ formats. Customers will be provided ~~Current audits gather the information needed to calculate energy and demand savings and provide recommendations of the cost effectiveness of installing energy efficiency measures. Simplified algorithms will be designed to gather the necessary information to perform similar analyses for demand response and distributed generation opportunities applications. Customers will be provided immediate recommendations on the cost effectiveness of demand response and distributed generation applications for their residence in addition to Energy Efficiency and Behavior change opportunities. -~~ Customers will also be referred to information ~~receive applications~~ for these programs, when appropriate. ~~Residential tracking systems will be modified to record and track the~~

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~~additional data.~~ Reports will be ~~shared with~~developed and forwarded demand response and distributed generation programs for additional action ~~if~~as needed.

f) Integration Across Resource Types (energy, water, air quality, etc)

The ~~Energy Advisor~~HEES Program will continue to ~~include recommendations across resource types~~pursue alliances with local municipalities and water agencies, as ~~applicable~~feasible.

g) Pilots/Initiatives:

Statewide Pilot – ~~ESA~~ program Initiative: Statewide, the ~~Energy Advisor~~HEES ~~program~~ will begin to encourage eligible customers to participate in the ~~ESA~~ programs and other programs that will help them lower their energy consumption.

Statewide Initiative – Online Buyers Guide: The Online Buyer’s Guide (released in 2012) web capability will assist consumers and program participants in making the best energy efficiency purchase decisions. The statewide IOUs will continue to collaborate and share best practices on the online buyers guide in 2013-2014.

PG&E/SDG&E Initiative – Home Energy Reports: PG&E and SDG&E will continue to evaluate (SCE and SCG may explore) the benefits of a behavior-based energy efficiency outreach utilizing a neighbor comparison approach as authorized by the CPUC in Decision D.09-09-047 (p. 304) for the 2013-2014 transition period. Known as the “home energy reports” initiative, it involves mailing selected residential customers customized reports at scheduled intervals that compare the energy use of a specific report recipient household to a similar set of households. The home energy report concept is aligned with the IOU’s energy efficiency education and outreach goals under the Energy Advisor (EA) program. The program is designed to increase customer awareness and understanding of their energy usage, and to provide beneficial information on how customers can reduce their energy usage. The demonstrated benefits associated with this behavioral paradigm may serve as an appropriate resource to influence customers to reduce their energy consumption and to increase participation in existing and future energy efficiency programs.

SCE/SoCalGas/SDG&E Pilot - Multi-Family Program: SCE, SoCalGas, and SDG&E intend to offer the ~~Energy Advisor~~HEES Program to the multifamily sector as a pilot program in ~~2010-2012-~~2014. This will involve ~~combined common area and individual renter occupied unit~~ surveys ~~targeted at the facility owners~~. The resulting ~~recommendations~~report for the ~~owner~~tenant will focus closely and specifically on ~~overall property efficiency, lifestyle modifications and other tenant issues, including gathering information on tenant controlled systems and appliances, such as HVAC units, dishwashers, refrigerators, etc.~~ This information will then be exported for analysis with the information gathered in the common area survey and included with the results of the subsequent owner report.

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SCE/SoCalGas Pilot: SCE and SoCalGas will provide a quarterly, post-survey feedback mechanism (opt-in) for customers. The pilot initiative will provide customers with a comprehensive energy usage report and will contain historical usage data to reinforce positive trends towards sustainable energy conservation. The mechanism should also increase customer actions in response to the survey, so that [the Energy Advisor program](#)HEES continues to monitor its effectiveness in creating energy savings by behavioral change, as well as rebate program participation.

SCE/SoCalGas Pilot – [Smart Meter/Web analytics – SCE and SoCalGas will track the customer’s My Account energy savings benefits from behavior based energy efficiency content through the Energy Advisor program.](#)

h) EM&V

The program is meant to encourage action - to inform participants of opportunities to save money and provide resources to execute the recommendations. It will be important to know if the design of the [survey](#)HEES report is successfully imparting useful knowledge, referring participants to helpful resources, and if this coordinated effort is motivating participants to adopt more energy- and water-efficient behaviors.

The utilities plan to work together and with the Energy Division to develop a complete plan for ~~2013-2014~~2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval, together with the PIPs.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided here.

The Statewide [Energy Advisor](#)HEES program has been continued from past program cycles but has a few new program elements. The [Energy Advisor](#)HEES program has planned a preliminary process evaluation near the end of the first program year to address specifically how well the new program elements are operating, and to obtain recommendations on how to improve program operations. After the beginning of the last program year, a full process evaluation will address researchable issues based on the program theory and logic model. These issues will include the following as appropriate:

- How well [the Energy Advisor program](#)HEES participants learned about advancing whole-house energy solutions;
- How well [the Energy Advisor program](#)HEES participants learned behavioral solutions to plug-load energy consumption;
- ~~How effective was the multi-language outreach;~~

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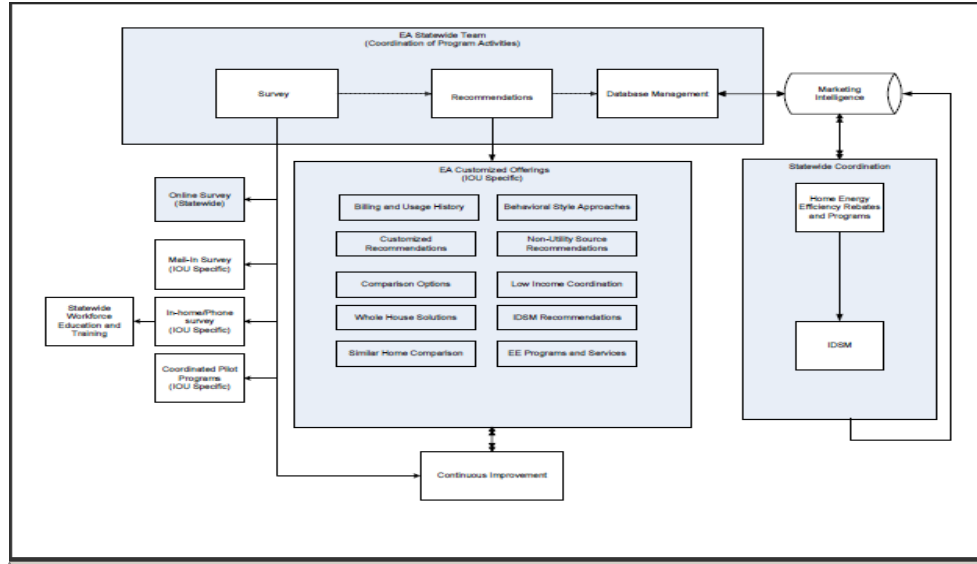
- Whether integration of water-related measures and information was useful to the customer;
- ~~Whether the pilot programs with the LIEE programs were effective;~~ and
- Whether the individual IOU pilot programs were successful.

To address these issues, the following major evaluation tasks will be completed:

- *Logic model and program theory.* The logic model and program theory will establish a starting point for all evaluation activities. The structure of the logic model, which links program activities and expected outcomes, will be a useful instrument for identifying specific program assumptions that can be tested using a survey or other primary data collection activities;
- *In-depth interviews.* In-depth interviews will be conducted with program managers and other key staff members. Program staff members will clarify program goals and gauge program progress, provide valuable insight into daily operations, and propose research topics to be addressed during the evaluation;
- *Participant survey.* The primary data collection instrument will be a customer post-participation survey, fielded over the phone and via mail. The survey will explore the participant's experience with the program's services and address the research issues identified by the logic model. When appropriate, results will be examined by ~~offering survey mode (Mail In, On Line, and Telephone)~~ to investigate how the various ~~offeringsmodes~~ compare with regard to the most effective marketing strategies, recommendation implementation rates, and measures of satisfaction; and
- *Program-specific data collection and review.* Another key evaluation activity will involve a comprehensive review of all program documents. In particular, this evaluation will ~~assess the effectiveness of the program's marketing materials and will~~ identify which specific recommendations have been implemented.

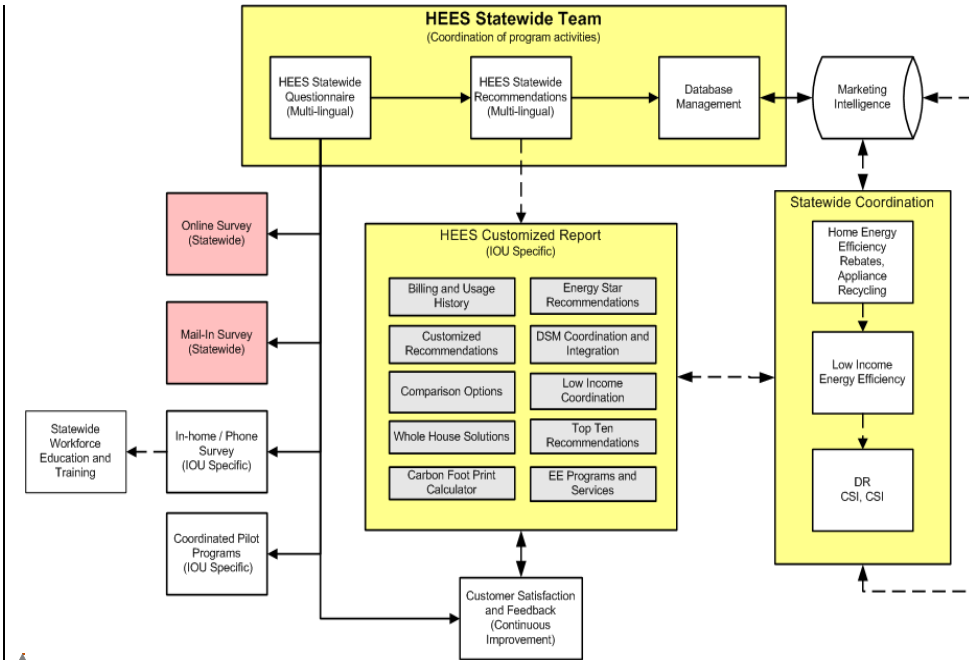
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Diagram of Program



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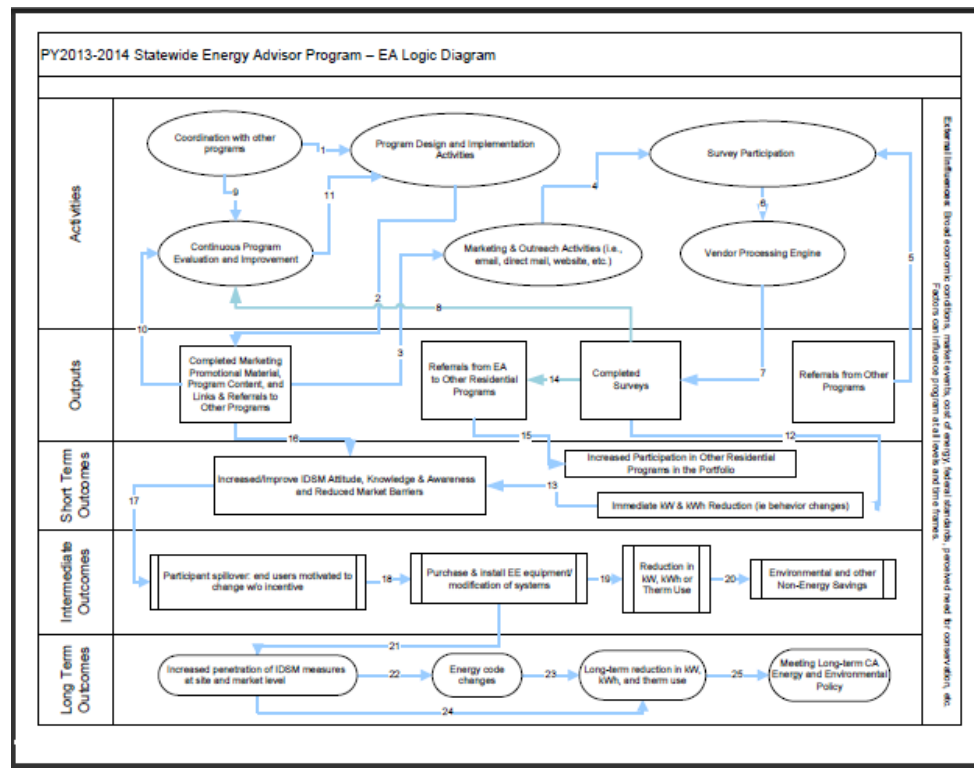


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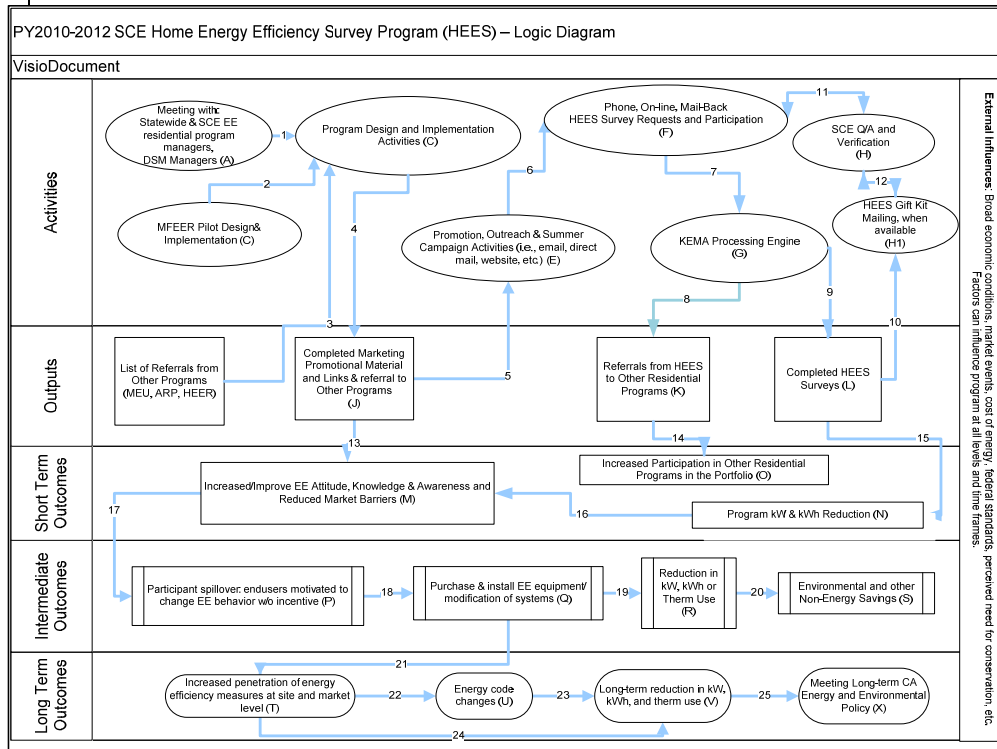
7. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for Home Energy Advisor (EA) Efficiency Survey program (HEES).



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1) **Program Name:** Statewide Plug Load and Appliances
Program ID: SCG3702
Program Type: Statewide Core Program

2) **Program Description:** Refer to CalSPREE for description details

3) **Total Projected Program Budget and Savings**

a) **Table 1:** Refer to CalSPREE for budget details

b) **Table 2:** Refer to CalSPREE for projected gross impacts details

4) **Description of subprogram:**

In response to market trends, energy consumption data, customer needs and behaviors, and per the Final Decision’s guidance, the California IOUs jointly file this Statewide Plug-Load Appliance (PLA) Program Implementation Plan (PIP). With the aim of serving customers where they shop and reducing the complexity in IOUs’ portfolios while increasing customer participation, this PIP combines the 2010-12 Home Energy Efficiency Rebates (HEER), Business and Consumer Electronics (BCE) and Appliance

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Recycling (ARP) Program under a single program umbrella. This sub-program builds the foundation for a sustainable resource acquisition and market transformation that engages critical market actors: manufacturers, retailers, contractors, service providers and others. Additionally, the PLA sub-program will work with the Whole Home Upgrade Program (WHUP), Energy Saving Assistance (ESA) ~~Program (ESAP)~~ and other programs to maximize its reach and effectiveness. This will be accomplished through coordinated cross-program initiatives to deliver a comprehensive package of cost-effective and energy efficiency measures to all customers. This PIP addresses appliances, plug loads, and appliance recycling for the residential and business sectors.

Home appliances, consumer electronics, and other miscellaneous plug loads, hereafter called "Plug-Load & Appliance" or "PLA", consume about 66% of current California home electricity usage, with plug loads (televisions, personal computers and office equipment) accounting for about 20% of home electricity usage alone². These PLA products comprise one of the largest and fastest growing end-uses of the residential sectors, significantly contributing to the growth in greenhouse gas emission. Clearly, the PLA markets cannot be left alone. The Big Bold Energy Efficiency Strategy (BBEES) efforts to achieve Zero Net Energy (ZNE) in new residential construction and the State's Integrated Demand Side Management's (IDSM) goal of 40% energy purchase reduction from 2008 levels by 2020 will only be possible if the markets are influenced to increase the availability, awareness and adoption high efficient PLA products through strategic energy efficient program interventions.

PLA Sub-Program

Program Implementation Plan

1) **Sub-Program Name:** Statewide Plug-Load ~~& and~~ Appliance (SW PLA)

Sub-Program ID number: 3702

2) **Type of Sub-Program:** Core Third Party Partnership

3) **Market sector or segment that this sub-program is designed to serve³:**

- a. Residential
 - i. Including Low Income? Yes No;
 - ii. Including Moderate Income? Yes No.

² Final Decision for the 2013-14 Transition Period at page 202

³ Check all that apply

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- iii. Including or specifically Multifamily buildings Yes ___ No.
- iv. Including or specifically Rental units? Yes ___ No.
- b. Commercial (List applicable NAIC codes: _____)
- c. ___ Industrial (List applicable NAIC codes: _____)
- d. ___ Agricultural (List applicable NAIC codes: _____)

4) Is this sub-program primarily a:

- a. Non-resource program ___ Yes ___ No
- b. Resource acquisition program ___ Yes ___ No
- c. Market Transformation Program Yes ___ No

5) Indicate the primary intervention strategies:

- a. Upstream Yes ___ No
- b. Midstream Yes ___ No
- c. Downstream Yes ___ No
- d. Direct Install ___ Yes No
- e. Non Resource Yes ___ No

6) Projected Sub-program Total Resource Cost (TRC) and Program Administrator Cost (PAC) TRC ___ PAC ___

7) Projected Sub-Program Budget

Table-3: Projected Sub-Program Budget, by Calendar Year⁴
[Table-3 to be provided as an Excel Attachment to this PIP]

8) Sub-Program Description, Objectives and Theory

- a) **Sub-Program Description and Theory:** Clearly describe the goals of the sub-program and the sub-program theory. As part of this, describe the market barriers, specific areas of concern and/or gaps that the sub-program is designed to address. Then describe the way the sub-program will seek to address each barrier, area of concern or gap⁵.

1) Sub-program Goals

- (i) The PLA sub-program aims to transform the market to achieve sustainable adoption of energy efficient PLA products where ongoing intervention would

⁴ Individual utility specific information to be provided in this table

⁵ Through marketing, delivery mechanisms, information, incentives, etc. If barriers vary by market sub-sector, provide this information. As part of this, succinctly describe the role of any market actors upstream from the customer such as installers, vendors, architects, etc.; indicate if and why the program approach constitutes “best practice,” is “innovative” or reflects “lessons learned” in market strategies, program design and/or implementation techniques.

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no longer be required. For the short to mid-term time frame where energy efficiency PLA products are still not the market's default choices, the program uses incentive mechanisms, Marketing Education & Outreach (ME&O), Worker Education & Training (WE&T), and strategic industry collaboration to increase availability, awareness, and adoption of energy efficient products. For the longer-term time frame, the PLA sub-program leverages Integrated Demand Side Management (IDSM) programs to influence the development of codes and standards in order to ensure the minimum required energy efficiency levels, promote "Energy Efficiency" as the preferred choice in life-style and new product purchases. The program's long-term strategy seeks to create ongoing demands for "Energy Efficiency" products and thus motivate the industry to produce and sell high efficient PLA products as the market standard offering.

2) Sub-program Theory

(i) Key Program Drivers

Some of the key market drivers that exert significant impacts to the PLA sub-program in the 2013-14 Transition Period:

1. PLA products comprise one of the largest and fastest growing end-uses, dwarfing electrical loads from traditional categories such as lighting and HVAC⁶ – See Figure-1.
2. Customers tend to rank PLA's energy efficiency as low priority and some perceive that energy efficiency design compromises product performance and convenience.
3. National market trends are the dominant drivers influencing manufacturers and retailers' offering of PLA products. Regional utility programs face challenges in attracting manufacturer and retailer participation due to the national scope of products⁷.
4. Online has a growing importance in the customer's product purchasing process. The customer toggles back and forth between the traditional brick-and-mortar retailers and e-commerce sites for product research, price shopping, purchases, and post-sales support.

⁶ PIER's report "Tapping Into Plug-Load Savings Report", July 20, 2009, page 1

⁷ PG&E and SCE's Report "Program & Technology Review of Two Residential Product Programs: Home Energy Efficiency Rebate (HEER) / Business & Consumer Electronics (BCE)", Study # SCE0306, April 30, 2012, pages 12, 206.

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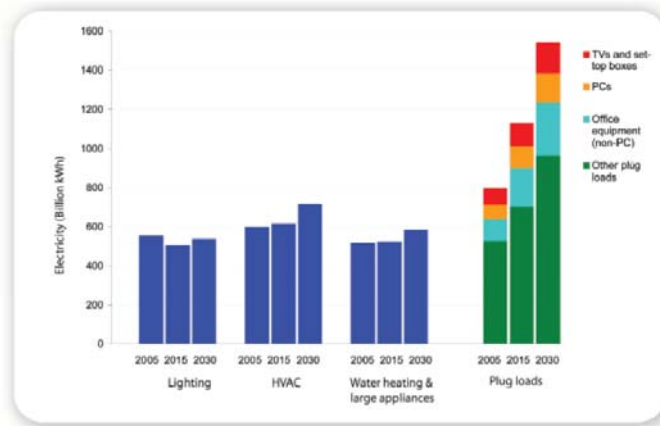
5. The incremental energy savings from miscellaneous electronics are too small to motivate customer's behavior changes, and too costly for IOUs' current product-base program framework⁸.
6. The rapid product life cycle for consumer electronics of 6-12 months poses significant challenges in establishing saving baselines and work-paper development for individual measures⁹.
7. Growing trends of networking home electronics cause energy saving for products to be highly dependent on consumer behavior or usage settings. This isolation of energy savings and consumption on a product-by-product basis becomes challenging.
8. Codes and standards exert powerful pulls on the PLA markets toward higher energy efficiency baselines.

⁸ PG&E and SCE's Report "Program & Technology Review of Two Residential Product Programs: Home Energy Efficiency Rebate (HEER) / Business & Consumer Electronics (BCE)", Study # SCE0306, April 30, 2012, page 230.

⁹ PG&E and SCE's Report "Program & Technology Review of Two Residential Product Programs: Home Energy Efficiency Rebate (HEER) / Business & Consumer Electronics (BCE)", Study # SCE0306, April 30, 2012, page 205.

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Figure-1: US Commercial & Residential Electricity Growth¹⁰



Energy Information Administration's 2008 Annual Energy Outlook forecasts plug loads to grow 94% from 2005 to 2030, dwarfing the contribution and growth of traditional categories, such as lighting and HVAC.

Key regulatory drivers that impact the 2013-2014 Transition Period are requirements found in the Final Decision¹¹. These requirements and IOUs' responses are summarized in Table-D and Table-E of this PIP.

PLA Sub-program Framework

The PLA sub-program is designed to support BBEES in advancing market transformation (MT) toward Title 20 codes and standards changes for realizing ZNE's vision and IDSMS goals of reducing the energy purchase by 40% from 2008 levels for the residential sector by 2020. This will be achieved by working with manufacturers, sales channel partners, contractors, service providers, and other market actors in pushing the market toward the 2020 vision through accelerating market adoption of successive waves of advanced PLA technologies. In parallel, the utilities will work concurrently with Code & Standard bodies, ENERGY STAR®, local and federal government agencies, and other market actors to influence the development of codes and standards to support the 2020 goals.

This PIP concurs with the Final Decision that the PLA sub-program should institute a framework that provides a pathway of support for market transformation. Viewing the Final Decision's guidance for the Statewide Lighting Program as a fresh approach to program implementation for greater market transformation and deeper energy savings, the PLA sub-program

¹⁰ PIER's report "Tapping Into Plug-Load Savings Report", July 20, 2009, page 1

¹¹ Final Decision for the 2013-14 Transition Period, pages 206-207, 357-358 and 411-412

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adopts the Final Decision’s approach for the Statewide Lighting Program as the template for the PLA sub-program design in the 2013-14 Transition Period. The following paragraphs discuss the incorporation of the Final Decision’s program framework with the industry’s Product Life Cycle concept to develop maximum synergies between the manufacturers, sales channel partners and the PLA sub-program.

Figure-2 shows the combined "Bass Diffusion Theory"¹², "Technology Adoption Life-Cycle model"¹³ and "Concept of Marketing Mixes"¹⁴ as a conceptual model, the Product Life Cycle (PLC) for commercializing new technologies and products. This model provides a high-level macro view of how the industry maximizes the sales of new technology through deploying appropriate marketing mix 4Ps (pricing, promotion, placement and product features) based on user’s needs/wants as the new technology progresses through various market adoption stages (introductory, growth, majority, and sun-setting stages). The PLC model proposes that a certain type of customer tends to cluster within a certain PLC phase, and tends to purchase certain type of products from a certain type of retailers. The industry recognizes this market characteristic and responds by formulating appropriate marketing mixes (product features, pricing, placement and promotion) to maximize sales to different customer groups. Figure-2 provides insights on how the PLC conceptual model might be adapted to guide the IOUs’ collaborations with manufacturers and sales channel efforts to deliver energy efficiency products to the markets.

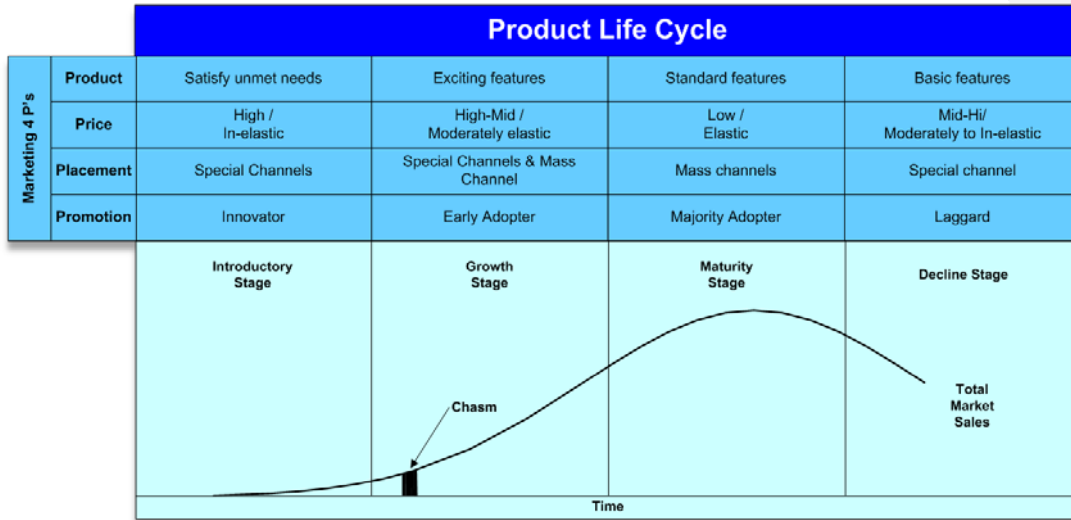
¹² Bass, Frank. "A New Product Growth Model for Consumer Durables", 1969, *Management Science* 15(5): pages 215-227

¹³ Bohlen, Joe M.; Beal, George M. (May 1957), "The Diffusion Process", Special Report No. 18 (Agriculture Extension Service, Iowa State College) 1:56-77

¹⁴ Borden Neil H. "The Concept of the Marketing Mix". 1964, *Science in Marketing* (Harvard Business School), pages 8-9.

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Figure-2: Industry’s Product Life Cycle Concept

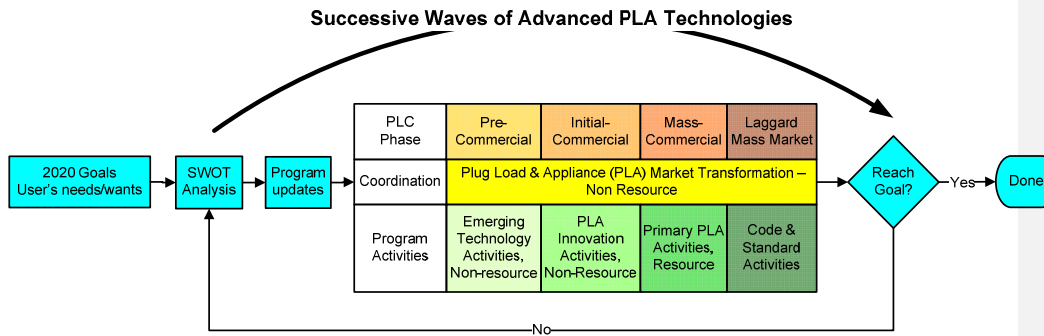


The IOUs could leverage the industry’s commercialization efforts to maximize the adoption of high energy efficient technologies by combining appropriate intervention mechanisms (incentive channels, ME&O, WE&T and Codes & Standards) to influence the industry’s marketing mix 4Ps. The diagram in Figure-3 shows the adaptation of the PLC conceptual model into the program framework for supporting the IOUs’ efforts in transforming California’s PLA markets.

The PLA sub-program framework envisions activities dedicated to support the PLA measures at various commercialization stages, including market transformation activities to provide the overall market transformation strategy and coordination of measures flowing through the PLA sub-program.

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Figure-3: PLA sub-program Framework



In embracing the Final Decision’s guidance for the Statewide Lighting Program¹⁵, the PLA sub-program supports technology assessments of pre-commercialized PLA measures through Emerging Technology activities. The proposed PLA Innovation activities support advanced PLA technologies aimed at early adopters. The PLA Innovation activities should be heavily weighted and influenced by the user’s needs/wants and should focus on helping the innovative PLA technologies bridge the “chasm” between the early adopters and the early majority markets. From the early stages of product development, promising measures that exit the Emerging Technologies activities should transition to the PLA Innovation activities for further market development in accordance to the overall IDSM strategy and goals. The PLA Innovation activities would support demonstration and pilot projects of measures in the very early stages of commercialization, not pre-commercialization. Moreover, the scale of the demonstration and pilot projects in the PLA Innovation activities should be of a greater scale than those in the Emerging Technologies activities. This will help determine which measures should be eventually supported on a larger scale within the Primary PLA activities. Finally, the IOUs propose the Primary PLA activities in the Statewide PLA sub-program for the purpose of supporting PLA measures that have reached a greater level of commercialization. These activities should receive a majority of the PLA incentive funds and would facilitate rapid market adoption through cost-effective incentive delivery channels. The goal is to complete the pathway for market transformation, as measures transfer from the Emerging Technology activities to the PLA Innovation activities to the Primary PLA activities and then eventually exit from the program.

The PLA sub-program framework proposes Market Transformation activities within the Statewide PLA sub-program for developing and testing market

¹⁵ Final Decision for the 2013-14 Transition Period at pages 227-243

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transformation strategies. The objectives of the Market Transformation activities are to develop market transformation strategies and to oversee the progression of PLA measures from the Emerging Technology activities to PLA Innovation activities to Primary PLA activities and to the eventual transition to Codes & Standards. Additionally, the Market Transformation activities are to focus on ensuring PLA has adequate representation in the Emerging Technology activities to ensure technologies are being evaluated for potential inclusion in the PLA Innovation activities.

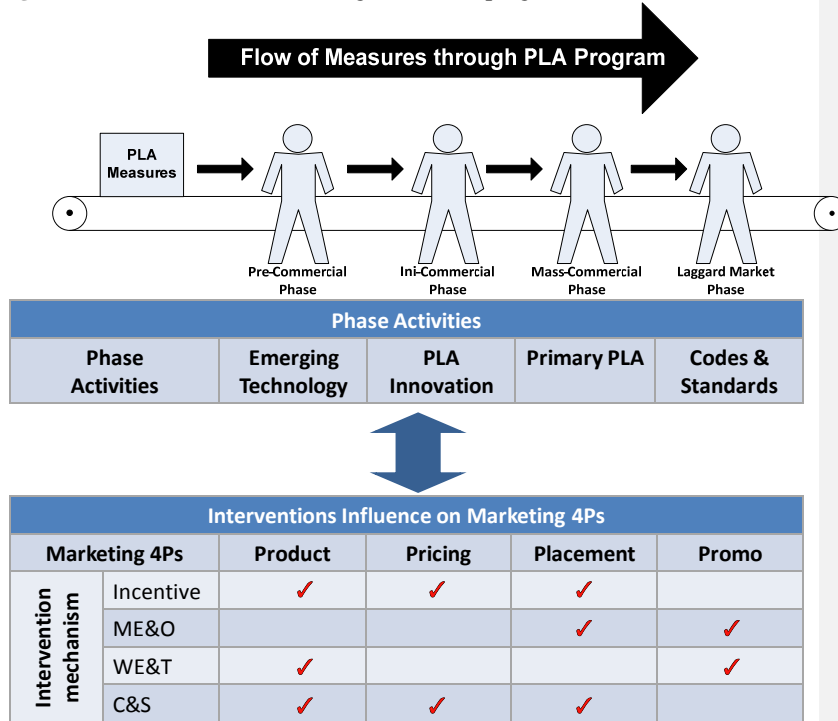
Process for Managing Flow of Measures through Program

Decision 09-09-047 updated the definition of market transformation to include *“promoting one set of efficient technologies, processes or building design approaches until they are adopted into codes and standards (or otherwise substantially adopted by the market), while also moving forward to bring the next generation of even more efficient technologies, processes or design solutions to the market.”*¹⁶ This definition depicts the flow of new measures through the energy efficiency programs as IOUs collaborate with the industry to launch successive waves of advanced and high efficiency technology into the markets. The PLA sub-program framework in Figure-3 supports the Commission’s position by continually assessing the overall environmental analysis and adjusting the intervention strategy to push new technologies through the program. Figure-4 conceptualizes how the flow of new PLA measures through the program would be influenced by program activities and intervention mechanisms.

¹⁶ Decision 09-09-047 at pages 88-89

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Figure-4: Flow of Measures through PLA sub-program



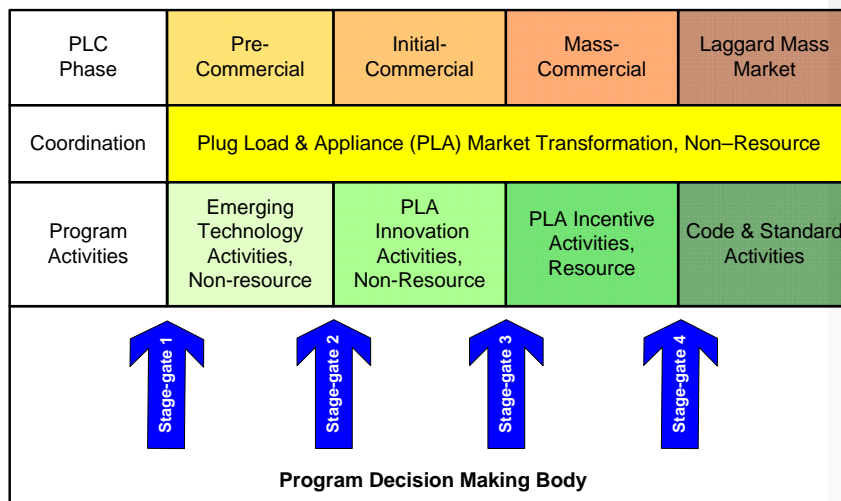
The PLA’s process for evaluating the measure’s commercialization stage and, formulating the right combination of intervention elements to exert the desired market influence, could be enhanced through a formal decision process for managing the flow of measures through the PLA sub-program. This enhancement could be satisfied by a stage-gate process as shown in Figure-5. In this diagram, the stage-gate design takes into account the unique requirements of each commercialization phase and provides criteria for the PLA measure entry into or exit from a subprogram. The explicit evaluation checkpoints would allow measures to move onto the next subprogram, reject measures from the portfolio at any point along the market transformation life cycle or return the measure back through the loop for further development based on to be established stage-gate criteria. Key criteria to be considered as part of this stage-gate process are as follows:

1. Saving potentials (technical, economic, market)
2. Cost effectiveness
3. User’s needs/wants

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4. Market opportunities / risks
5. Technology's maturity stages
6. Industry's supports
7. Compliance to industry's standards
8. Cradle-to-grave's total environmental impacts
9. Code's saving baseline
10. Saving verifications

Figure-5: Stage-Gate Process for Managing Measure Flows



a) Market Actors

Refer to Section 12(ii), Table-18 for details on relevant market actors and the relationship among them.

b) Market Barriers & Proposed Interventions

Refer to Section 12(iv), Table-19 for details on Market Barriers & Proposed Interventions.

A. Sub-Program Energy and Demand Objectives - If this sub-program has energy and demand objective, please complete Table 2.

- i. **Table-4.** Projected Net Energy & Demand Impacts by Calendar Year¹⁷
- ii. [Table-4 to be provided as an Excel Attachment to this PIP]

¹⁷ Individual utility specific information to be provided in this table

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B. Program Non-Energy Objectives:

- i. **Table-3:** PLA sub-program Performance Matrix (PPM)
- ii. *[Table-3 to be provided as an Excel Attachment to this PIP]*

C. Cost Effectiveness/Market Need: What methods will be or have been used to determine whether this program is cost-effective?¹⁸ If this is a non-resource program, describe the literature, market assessments or other sources that indicate a need for this program.

- i. The PLA Sub-program has energy and demand objectives, thus the Cost Effective methods contained in the Standard Practice Manual will be used.

D. Measure Savings/ Work Papers:

- a. Indicate data source for savings estimates for program measures (DEER, custom measures, etc) & work paper status for program measures.
 - i. **Table-4a:** Measure Savings / Work Paper
 - ii. *[Table-4a to be provided as an Excel Attachment to this PIP]*
 - iii. **Table-4b:** IOUs' Exploratory Measures Considered for 2013-14
 - iv. *-[Table-4b to be provided as an Excel Attachment to this PIP]*

9) Program Implementation Details

- a) **Timelines:** List the key program milestones and dates.
Table 5: Sub-Program Milestones and Timeline
[Table-5 to be provided as an Excel Attachment to this PIP]
- b) **Geographic Scope:** List the geographic regions (e.g., CEC weather zones) where the program will operate.
Table 6: Geographic Regions Where the Program Will Operate
[Table-6 to be provided as an Excel Attachment to this PIP]
- c) **Program Administration**
Table 7: Program Administration of Program Components
[Table-7 to be provided as an Excel Attachment to this PIP]
- d) **Program Eligibility Requirements:**
 - i. **Customers:** List any customer eligibility requirements (e.g., annual energy use, peak kW demand):
Table 8: Customer Eligibility Requirements (Joint Utility Table)
[Table-8 to be provided as an Excel Attachment to this PIP]

¹⁸ If the program has energy and demand objectives, simply state that the methods contained in the Standard Practice Manual will be used. If the program does not have energy and demand objective, propose an approach to assess cost-effectiveness.

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ii. Contractors/Participants: List any contractor (and/or developer, manufacturer, retailer or other “participant”) eligibility requirements (e.g. specific IOU required trainings; specific contractor accreditations; and/or, specific technician certifications required).

Table 9: Contractor/Participant Eligibility Requirements (Joint IOU Table)

[Table-9 to be provided as an Excel Attachment to this PIP]

e) **Program Partners:**

i. Manufacturer/Retailer/Distributor partners: For upstream or midstream incentive and/or buy down programs indicate¹⁹:

Table 10: Manufacturer/Retailer/Distributor Partners

[Table-10 to be provided as an Excel Attachment to this PIP]

ii. Other key program partners: Indicate any research or other key program partners.

- California Energy Commission
- EPA ENERGY STAR®
- Consortium for Energy Efficiency (CEE)
- American Council for an Energy-Efficient Economy (ACEEE)
- National Electrical Manufacturers Association (NEMA)
- Natural Resources Defense Council (NRDC)
- Energy Solution
- Ecova
- Navitas Partners

f) **Measures and incentive levels:** E3 calculators will provide the list of measures and incentive levels to be provided via the program. In this section the utilities should provide a summary table of measures and incentive levels.

i. Use a single excel spreadsheet to indicate the eligible measures for the program across all IOUs. Indicate the expected incentive level by measure or measure grouping for each IOU, making clear where these vary.

ii. For each incented or rebated measure, indicate the market actor to whom this will be provided.

Table 11: Summary Table of Measures, Incentive Levels and Verification Rates

[Table-11 to be provided as an Excel Attachment to this PIP]

¹⁹ Provide in a consistent format for all IOUs. Indicate program partners across all IOU territories in one table or spreadsheet. Append to end of PIP.

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- g) **Additional Services:** List additional services that the sub-program will provide, to which market actors. For each service provided, indicate any expected charges to market actors of the services, and/or the level at which any such services will be incented or funded.

Table 12: Additional Services

[Table-12 to be provided as an Excel Attachment to this PIP]

- i. Sub-Program Specific Marketing and Outreach:
Refer to Section 10(v) for details on Marketing Education & Outreach.
- ii. Sub-Program Specific Training:
Refer to Section 10(v) for details on Worker Education & Training.
- iii. Sub-Program Software and/or Additional Tools:
- a. List all eligible software or similar tools required for sub-program participation.
None
- b. Indicate if pre and/or post implementation audits will be required for the sub-program.
Pre-implementation audit required ___ Yes No
Post-implementation audit required ___ Yes No
- c. As applicable, indicate levels at which such audits shall be rebated or funded, and to whom such rebates/funding will be provided (i.e. to customer or contractor).

Table 13: *Post-implementation Audits*

N/A

- h) **Sub-Program Quality Assurance Provisions:**

Table 14: Quality Assurance Provisions

[Table-14 to be provided as an Excel Attachment to this PIP]

- i) **Sub-program Delivery Method and Measure Installation /Marketing or Training:** Briefly describe any additional sub-program delivery and measure installation and/or marketing & outreach, training and/or other services provided, if not yet described above.

(i) Upstream Incentive Delivery Channel

The PLA program uses “different incentive designs” to influence market actor behaviors. The upstream incentive is paid directly to the manufacturers for the purpose of influencing the manufacturer’s product offering in the distribution chain. The upstream incentive can potentially influence the retailer’s product assortments and impact the customer’s purchasing behaviors. This delivery

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channel can be a cost effective means for supporting measures that have high sales volumes, produced by relatively few manufacturers that sell through a large number of independent retailer chains.

(ii) Midstream Incentive Delivery Channel

The midstream incentive is paid to the retailers, e-retailers, distributors, contractors or service providers and is typically used to influence the sales channels' decision on which products to stock and sell. The midstream incentive offers IOUs the advantage of applying the incentives across all brand offerings for a particular product category that a retailer carries without the additional effort of managing multiple manufacturer relationships. This enhances the customer's shopping experiences and allows retailers to offer wider product choices.

Continuing to cultivate strategic alliances to maximize the synergies with retailer partners is an effective strategy for increasing the program cost-effectiveness and efficiency. California IOUs will continue to develop strategic partnerships with the industry to be more effective in promoting energy efficient products and services, showcasing our energy expertise, branding our successes, and maintaining high levels of customer satisfaction. These strategic alliances include the contractors for roofs, pumps, and evaporative coolers in previous program cycles, as well as HVAC contractors from other residential programs.

The continued use of retailers as a go-to-market channel provides an excellent conduit for developing a "one-stop approach" for customers, as noted in the long-term Strategic Plan. By increasing the program participation with national chain mass market and regional vertical retailers, the program will provide the following benefits:

- Expanding network that increase customer convenience;
- Enhancing retail management support for energy efficiency;
- Establishing more opportunities for co-marketing and branding with retailers;
- Expanding cooperation between utilities, retailers and manufacturers to promote and stock high efficiency PLA products; and
- Providing market information for energy efficiency products.

As noted previously, the national trend by nation chain mass market retailers toward promoting "energy efficient" products within their stores provides IOUs the opportunity to reach end-users through a preferred method of communication— directly from the retailer. Beyond leveraging the ENERGY STAR brand, PLA will use its retail management support to develop bundled promotions, host events, train staff, and conduct promotional campaigns with retailers to directly influence consumers' choice for energy efficiency products.

(iii) Downstream Incentive Delivery Channel

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The downstream incentive is paid directly to the end-customer and is typically used to directly influence the customer's purchasing decision. While the downstream incentive model has the advantage of capturing more customer information, the more lengthy incentive administrative process of rebates applications is disadvantageous. Additionally, the administrative efforts supporting downstream rebate applications are typically not cost effective for small rebate amounts.

A major implementation strategy for the program is to expand the downstream incentive delivery channel to include the point-of-sale (POS) "instant rebate". This implementation would allow retailers to instantly provide the customer the IOU rebate at the register, streamlining the rebate application payment process and integrating appliance incentives with appliance ~~recycling~~ purchasing opportunities. This POS strategy seeks to include more retailers that sell high efficient refrigerators, whole house fans, pool pumps, home appliances and other gas appliances as applicable with each IOU. Retailers are key market actors in moving the energy-efficient PLA markets, thus the PLA sub-program design will be optimized to maximize the retailers' participation. The final implementation will be depending on the retailers' IT structure and capabilities in certain areas.

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Table-A: Incentive Delivery Channel Summary

Incentive Delivery Channel	Primary Market Actors Affected	Criteria used to determine the best delivery channel for any PLA measure
Upstream	Manufacturer	<ol style="list-style-type: none"> 1. High volume product 2. More retailers selling product than number of manufacturers producing product 3. Lower value product 4. Low-mid incentive level 5. Lower sales effort required 6. Low promotion requirement 7. Long product life cycle
Midstream	Sales Channel Partners (retailers, contractors, etc.)	<ol style="list-style-type: none"> 1. Mid - High volume product 2. More manufacturers producing product than number of retailers selling product 3. High value products 4. Mid-high incentive levels 5. High sales efforts 6. High promotion requirement 7. Short product life cycle
Downstream	End-customer	<ol style="list-style-type: none"> 1. Low volume product 2. Targeted customer group 3. Strong relationship with customer 4. High value product 5. High incentive level

(iv) Retailer based Appliance Recycling

The PLA sub-program will work with Retailers to support responsible environmental stewardship by providing more comprehensive cradle-to-grave product life cycle management. The program supports the US EPA Responsible Appliance Disposal (RAD) program, which promotes the highest quality recycling, reducing greenhouse gas emissions and landfill waste. The IOUs appliance recycling activities support eliminating the current market practice of reselling old appliances removed from customer homes during the delivery of new ones. The IOUs recognize that customer-facing retail staff has effective point-of-influence to educate customers on the total environmental impacts

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resulting from adoption of higher efficiency products and permanent removal of older and less efficient PLA products from the grid.

~~In 2011, SCE and PG&E conducted a trial study on Retailer-based Appliance Recycling in which the retailer picked up old but still working refrigerators and freezers upon the delivery of new appliances. The Appliance Recycling vendors then collected these old appliances in bulk from the retailer's warehouse. This trial study showed that the retailer-based appliance recycling had generated a significant increases in the number of older but still working appliances recycled by the program. Based on the latest work papers which use the results from SCE's 2011 Retailer-based Appliance Recycling Trial Study, the results show that energy savings are estimated to be 9% higher than the latest DEER values. The Retailer-based Appliance Recycling channel is expected to significantly reduce the IOUs implementation costs as a result of the "bulk" pickups by the recycling services contractors from the retailer distribution centers.~~

~~Based on the success of SCE's and PG&E's 2011 Retailer-based Appliance Recycling trial, the IOUs are proposing to launch and expand this appliance recycling channel to more retailers in the 2013-14 transition period and explore ways to increase coordination of the appliance recycling with the retailer's appliance disposal activities. When possible, comprehensive education materials on cradle-to-grave product life cycle management will be posted on the retailer's website and at the point of purchase. Through targeted marketing, education and outreach, the IOUs seek to increase market awareness and enhance compliance to the codes and standards for appliances and electronics recycling.~~

The benefits of reduced implementation costs and increased program simplicity that POS instant rebates provide, as discussed above, make it impractical for the IOU's to implement a Cash-4-Appliance rebate program design for refrigerators as suggested in the Final Decision's guidance for the appliance recycling activities. The IOUS will instead focus on implementing existing refrigerator rebates in combination with the new appliance recycling retailer strategy that has been piloted by SCE. This new strategy effectively promotes the purchase of a new efficient refrigerator and combines it with the convenience of allowing customers to recycle their own refrigerators in the new Refrigerator Deliver-N-Haul away process. This approach does not require customer to surrender their refrigerator as part of the rebate process but still allows IOU's to reduce implementation cost for both programs while providing options that improve the customer experience. By working with retailers to integrate appliance recycling to be an integral parts of the product ownership, from new product purchase to retiring old devices from the grid, would provide a simplified and cost-effective long-term solution for cradle-to-grave product life cycle management. And the retailer based appliance recycling solution, which the IOUs plan to expand in 2013-14, would be an ideal solution for realizing this vision. [This does not apply to SoCalGas.](#)

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(v) Statewide Appliance Recycling Channel

The appliance recycling markets could be segmented into three primary customer groups; Group one would be the customers that retired their old appliances when the new ones are delivered; group two would be the customers that retired their secondary appliances (such as the secondary refrigerator or freezer); group three would be those customers and retailers that sell/buy the old working appliances to/from the second-hand appliance markets.

We believe the above retailer-based appliance recycling channel would be an effective intervention for group one. The current Statewide Appliance Recycling channel, which will be discussed in more detail in this section, could be an effective intervention for group two. The intervention for group three would require a long-term strategy through codes and standards, as well as collaborations with EPA RAD and other market actors to deplete old working appliance stocks that do not meet the 2020's energy efficiency requirements. The intervention for group three would need support from new codes and standards that eliminate the market practices of re-selling old appliances back to the second-hand appliance markets.

The estimated schedule to deplete the old working appliance stocks from the grid would primarily depend on the implementation date of the code and standards that will mandate the 2020's energy efficiency levels and the average product life for that particular PLA product group. Thus, the Final Decision's request to transition the current appliance recycling program to market players by a specific date²⁰ cannot be answered with certainty at this point. The IOUs will continue to engage the Commission and appropriate market actors on this.

Currently, the Statewide Appliance Recycling picks up older but working appliances from single residential dwellings, multi-family complexes and businesses, and permanently disposes them in accordance to EPA's Responsible Appliance Disposal (RAD) guidance. The Statewide Appliance Recycling channel is designed to incentivize customers to permanently remove and recycle inefficient refrigerators and freezers from the electrical grid by:

- (1) Offering customers an incentive along with free pick-up as a convenient option to recycle their inefficient appliance.
- (2) Requiring Recycling Service partners to be in compliance with EPA RAD practice so all appliances could be decomposed and recycled in the most environmentally friendly manner possible.

²⁰ Final Decision for the 2013-14 Transition Period at page 207

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- (3) Allowing commercial and multifamily owners/property managers to coordinate bulk pick-ups that simplify the participation process and allows IOU's to reduce program implementation costs.

During the 2013-2014 Transition Period, the PLA sub-program will focus on secondary refrigerators and stand-alone freezers. This initiative aims to stem the tide of the growing number of second refrigerators and freezers in California home. Additionally, the PLA sub-program looks into saving opportunities for both claimable and non-core, non-claimable to avoid lost opportunities for refrigerator and freezer recycling. Lastly, the program is evaluating additional cost-effectiveness and more comprehensive recycling solutions through inclusion of additional recycling of other types of household plug-loads, [gas appliances](#), small business appliances and electronics devices. The team will leverage EPA RAD compliance Recycling Service Provider to provide environmentally safe and responsible recycling solutions.

(vi) Marketing Education & Outreach (ME&O)

IOUs will continue to develop targeted and highly relevant energy efficiency and IDSM marketing messages to encourage behavioral change/action. PLA intends to develop strategic collaboration with industry to motivate consumers to take action in embracing energy efficiency.

To facilitate retail relationships, IOUs will explore co-marketing opportunities with manufacturers and sales channel partners to implement website enhancements that facilitate ease of access to energy efficiency information; enabling customers to readily find information about energy efficient products and services, identify participating retailers in their neighborhoods, and complete on-line sign-ups to receive notification about special efficiency offerings, rebates, or incentives.

The IOUs focus on delivering products, services, and information through the most efficient delivery channel for every customer segment we serve. For PLA, the IOUs will continue to focus on the customer experience at retail, ensuring visibility of rebates and offers and streamlining the transaction and processing of rebates.

There is also opportunity for enhanced engagement with customers with respect to appliances and appliance recycling. With many appliances, customers wait until the appliance fails before considering replacement. Through impactful in-store marketing and clear communication of offers, the IOUs intend to increase customer awareness of rebates and incentives and focus customers on the benefits of upgrades as well as replacement of outdated technologies. In-store marketing will be augmented by promotion of PLA through other channels, such as online tools that create customer awareness of rebate offers and availability prior to the customer stepping into the store. With more online transactions happening each

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day, it is important that customers be educated about the potential energy savings and rebates for products they are considering should they choose to purchase through an online retailer.

The IOUs will look for opportunities to provide alternative strategies for marketing the programs in constrained areas. One example would be a neighborhood-based marketing campaign that targets older, master-planned communities in order to promote energy efficiency. Through this effort, local contractors will independently market and install cost-effective measures such as duct testing and sealing and other measures to help reduce energy loss in the home and increase overall efficiency. By working with the industry partners to cover energy efficiency measures in high volume, the effort will help to lower measures costs that are adopted by a large number of program participants. In addition to delivering energy savings, this approach will support the advancement of local community and city goals related to energy efficiency, as well as benefiting many neighborhoods and socio-economic groups.

Customers are often not aware of the true savings potential associated with energy efficient measures nor are they familiar with the many energy efficient products available that are not associated with appliances. Some IOUs may offer an "energy saving starter kit" to customers in order to introduce them to energy efficiency tips that can produce significant savings. This kit will provide information about simple but comprehensive methods to reduce water, gas, and electricity use. By supplying the tools necessary to begin saving gas and water and thereby educating these customers on energy efficiency, the PLA sub-program should see an increase in participation and could include other customer segments that may have been excluded due to high product cost. This will help the PLA to grow as a comprehensive, inclusive residential program and thus maximize potential savings. As applicable, PLA participants will also be educated about additional opportunities for energy efficiency beyond the measures they are adopting.

The IOUs have developed the integrated energy audit tool for residential and small business customers that will assist customers with their energy management decisions. These information platforms are easily accessible to customer to provide immediate feedback, enable a more accurate assessment of program impacts, and empowered the customer to quickly and easily make energy efficiency decisions. In addition, the deployment of AMI provides additional opportunities to educate customers about their energy usage. The IOUs will explore opportunities to maximize energy efficiency and demand side management opportunities as the technology is developed and deployed to residential customers.

After the program is approved, each IOU will develop a market implementation plan that targets owners and renters of single family residences as well as

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apartments, townhouses, condominiums, and mobile homes and operates in parallel to the operation of the Multifamily Energy Efficiency Rebate (MFEER). This ME&O strategy aims to include coordinated statewide elements as well as elements specially targeted to the customers in each utility's service area. The program seeks to leverage relationships with local government partnerships, water agencies, air quality districts, trade allies, manufacturers, retailers, and distributors to deliver information, measures, and incentives.

Program campaign elements include:

- Statewide rebate promotions;
- Online/mail-in application processing;
- Integration of rebate offers and related content with online tools
- In-store POS instant rebate option where applicable through retailer POS capabilities;
- Whole house approach offering products that address all types of energy use;
- Home energy surveys;
- Energy efficiency customer education and outreach; and
- Other residential EE programs such as upstream lighting.

(vii) Worker Education & Training (WE&T)

PLA sub-program will work with Energy Centers to design and develop training curriculums appropriate for retailers and contractors to develop skills and knowledge on energy efficiency products, codes and standards and IOU EE programs. Additionally, PLA will work with WE&T to identify training opportunities for: (1) the retail store, (2) the retailer corporate/headquarters decision makers, and (3) Original Equipment Manufacturers (OEMs).

- For retail stores - Opportunities to provide training to store-level personnel at participating retailers. These training activities will be supported by regular surveys to determine the effectiveness of the training.
- For retailer headquarters decision makers - Opportunities to provide training to buyers and merchandisers at the headquarters of participating retailers to educate them about the availability, desirability, and benefits of PLA qualifying electronics.
- For OEMs - Opportunities to provide training to with OEM manufacturers to educate their product managers and marketing groups about the importance of designing ENERGY STAR qualified and beyond features into their products.

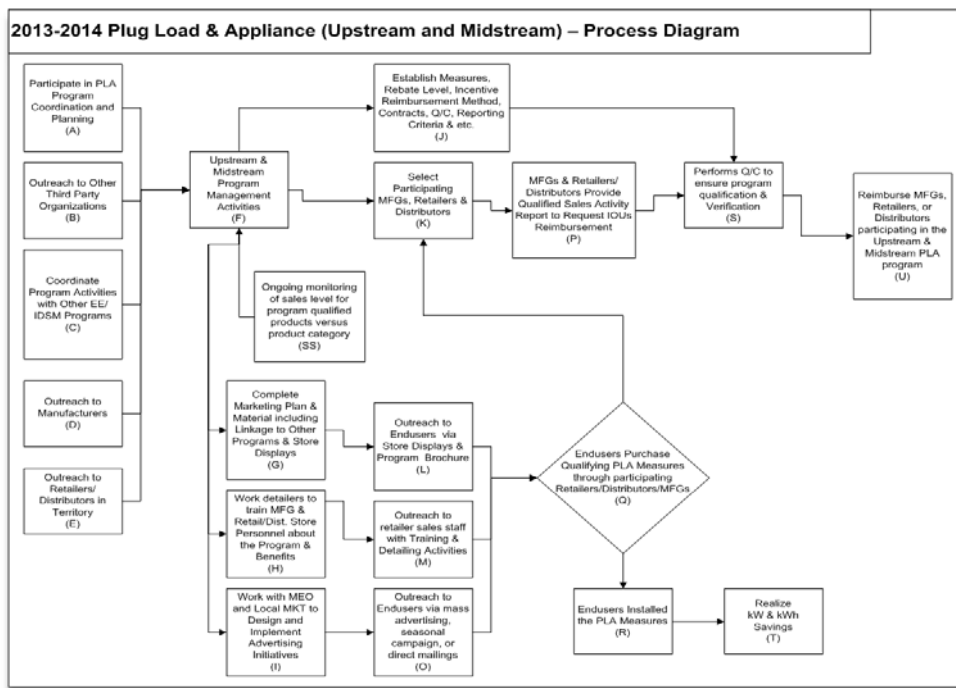
Finally, the IOUs seek to develop marketing programs to educate consumers and increase awareness about the benefits of PLA qualifying products. Various efforts to educate sales associates of user and environmental benefits of high efficient PLA products will be explore during the program cycle. PLA's WE&T initiatives may include activities such as site visits by program representatives, program

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participation agreements, and / or literature, as appropriate.

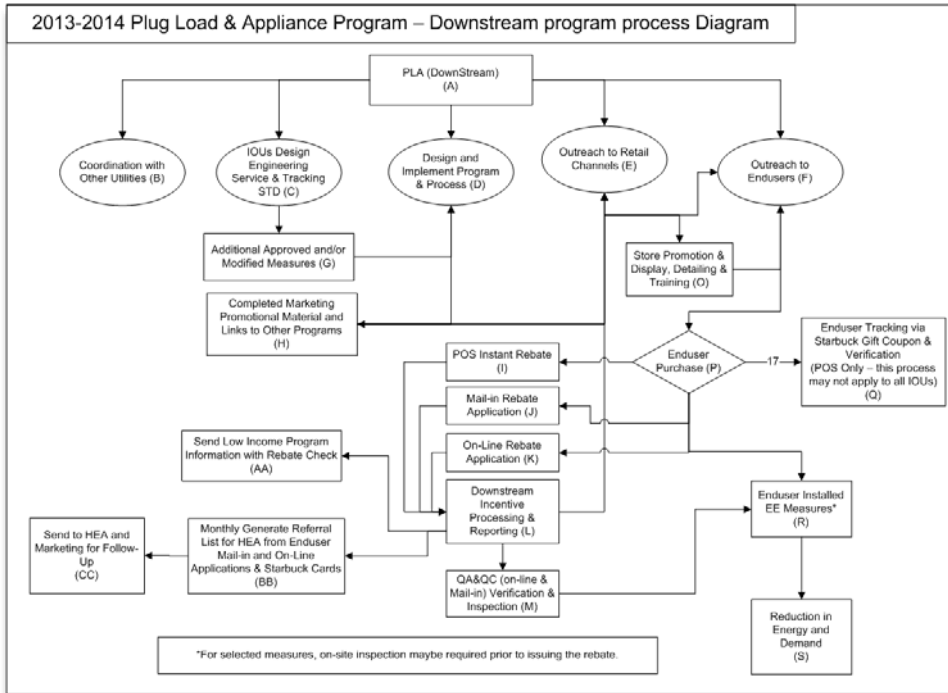
- j) **Sub-program Process Flow Chart:** Provide a sub-program process flow chart that describes the administrative and procedural components of the sub-program. For example, the flow chart might describe a customer's submittal of an application, the screening of the application, the approval/disapproval of an application, verification of purchase or installation, the processing and payment of incentives, and any quality control activities.

Figure-5: PLA Upstream & Midstream Incentive Process Diagram



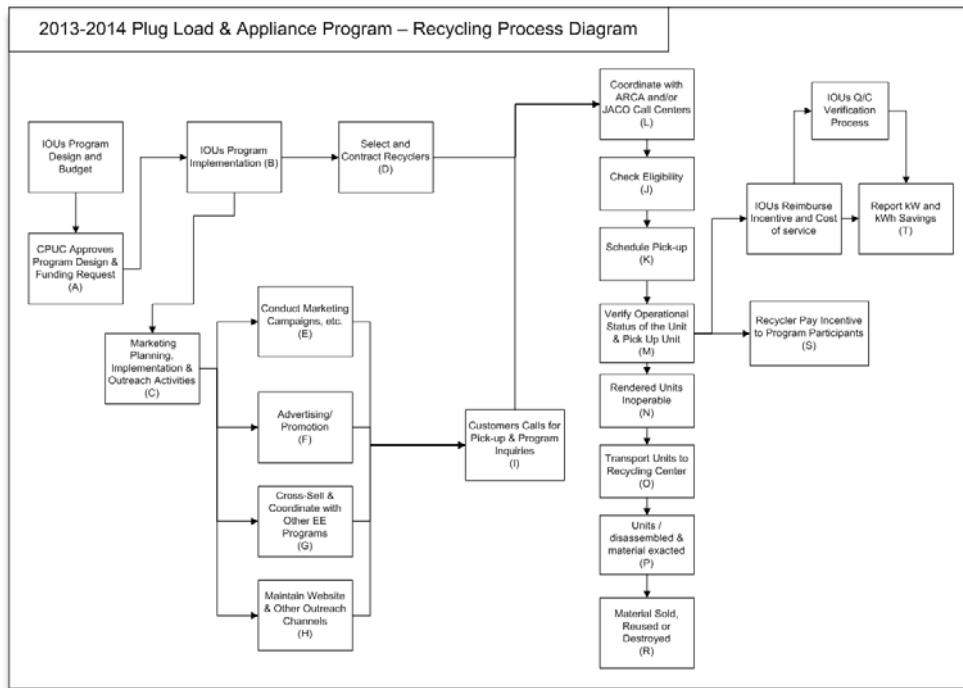
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Figure-6: PLA Downstream Incentive Process Diagram



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Figure-7: Statewide Appliance Recycling Process Flow Chart



- k) **Cross-cutting Sub-program and Non-IOU Partner Coordination:** Indicate other IOU EE, DR or DG sub-programs with which this sub-program will regularly coordinate. Indicate also key non-IOU coordination partners. Indicate expected coordination mechanisms²¹ and frequency²²:

With respect to low-income customers, each IOU seeks to integrate its Energy Saving Assistance Program (ESAP)- ESA program into PLA by providing customers with information and marketing material on the ESAPESA program, California Alternate Rates for Energy (CARE), and Family Electric Rate Assistance (FERA) discount programs. The strategy to integrate ESAP, CARE and FERA activities into the PLA sub-program aims to ensure eligible low-income residential customers are aware of the availability of low-cost energy-efficient services through ESAP, CARE or FERA. Additionally, IOUs seek to ensure that low-income customers are aware of rebates available for appliances

²¹ “Mechanisms” refers to communication methods (i.e. quarterly meetings; internal list serves; monthly calls, etc.) and/or any cross-program review methods (i.e., feedback on program plans; sign off on policies, etc.) or harmonization techniques (i.e. consistent certification requirements across programs, program participant required cross trainings, etc.).

²² This does not mean there would be mutual understanding of the on the mechanism or a known frequency of coordination; rather, just provide enough information to give a general sense of the coordinate efforts.

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through the PLA sub-program, which are not offered through any of the above mentioned programs.

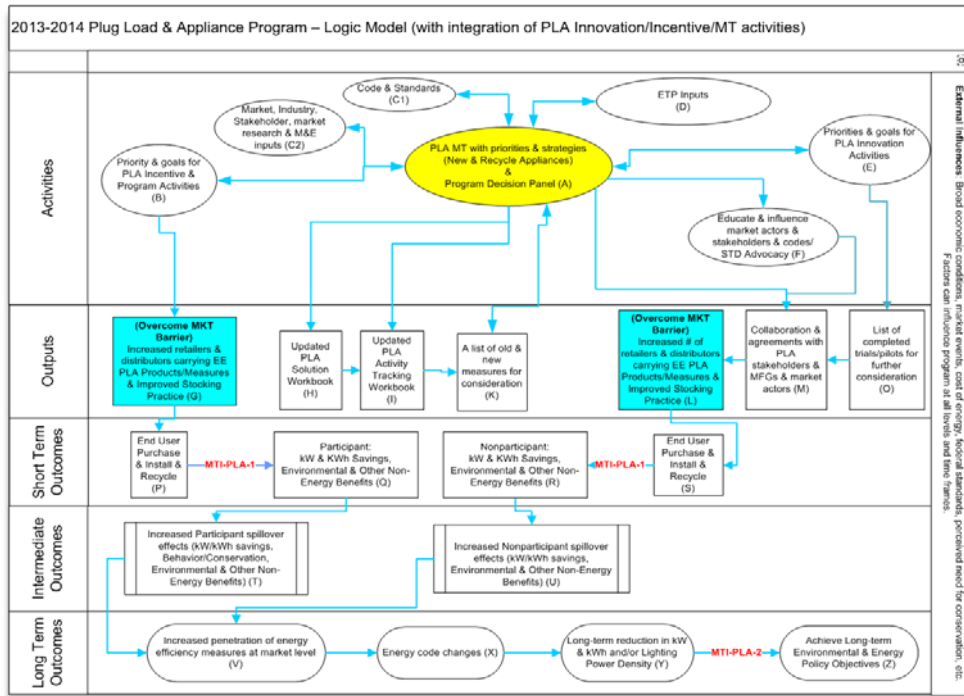
Regarding products that address all types of energy use, each IOU seeks to coordinate the delivery of its PLA sub-program, as well as the Lighting and EUC programs, to maximize the energy saving potentials in every home. Whether customers simply look for an energy efficient light bulb to replace their burnt-out incandescent bulb, or the ENERGY STAR's most efficient refrigerator to replace their old unit, or a comprehensive energy saving audit and installation service to support a deep retrofitting project of their home, the customer-facing staff must be able to guide the customer seamlessly to the appropriate programs. All of the program's ME&O and WE&T would be conducting coordinated initiatives to equip the customer-facing staff with the necessary knowledge to assist customers in maximizing their comfort, security and saving by helping them make the right choice in energy efficient solutions.

Table 15: Cross-cutting Sub-program and Non-IOU Partner Coordination
[Table-15 to be provided as an Excel Attachment to this PIP]

- 1) **Logic Model:** Please append the logic model for this sub-program to the end of this PIP. Describe here any additional underlying theory supporting the sub-program intervention approach, referring as needed to the relevant literature (e.g., past evaluations, best practices documents, journal articles, books, etc.).

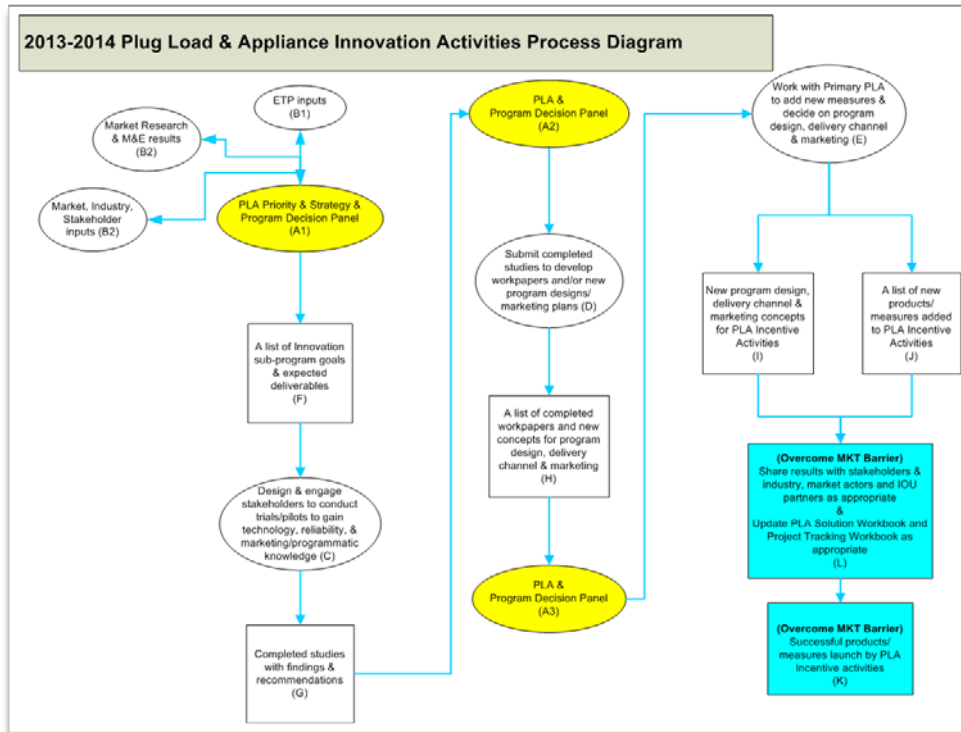
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Figure-8: PLA sub-program Logic Model



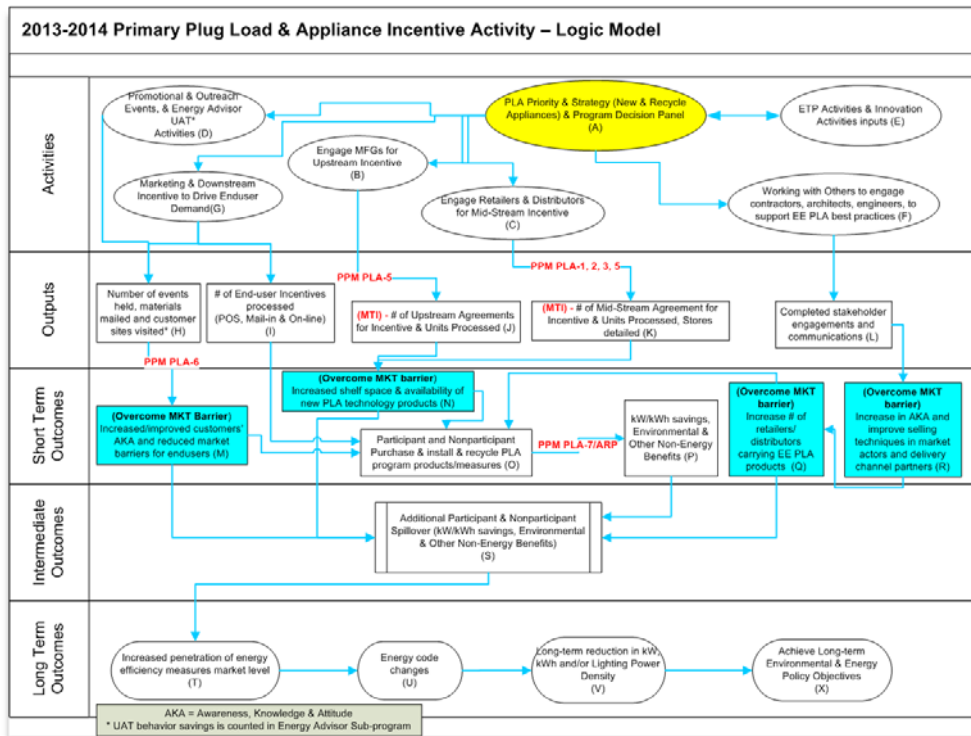
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Figure-9: PLA innovation Process Diagram



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Figure-10: Primary PLA Incentive Activities Logic Model



10) Additional Sub-Program Information

- a) **Advancing Strategic Plan Goals and Objectives:** Describe how sub-program advances the goals, strategies and objectives of the California Long Term Energy Efficiency Strategic Plan

The PLA sub-program will help to achieve the goals identified in Chapter 2 of the Strategic Plan:

2-2: Promote effective decision-making to create wide-spread demand for energy efficiency measures. California IOUs will aggressively incorporate results from studies that determine homeowner “decision triggers” for improving home energy efficiency; and

2-3: Manage research into new and advanced cost-effective innovations to reduce energy use in existing homes. California IOUs will work collaboratively to

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promote the commercialization of home energy management tools, including Advance Metering Infrastructure (AMI)-based monitoring and display tools.

The “Smart Meter” deployment provides the customer the opportunity to access near-real time monitoring of their energy usage patterns at home. The feedback on how a customer is consuming energy through access to hourly billing data will support long-term behavioral strategies to reduce consumption. Moreover, when combined with automated enabling system (e.g., more integrated home management system through In-Home devices/displays and systems, programmable controllable thermostats, load control devices, smart appliances, etc.), the Smart Meter technology will provide customers the energy management tools that report increased savings as energy-efficient measures are installed. At the same time, the Smart Meter will offer residential customers the unique opportunities to participate in demand response and AMI-enabled technologies services. These information feedback systems enable more accurate assessment of IDSM program impacts and guide the future energy management strategies for customers.

b) Integration

- i. **Integrated/coordinated Demand Side Management:** As applicable, describe how sub-program will promote customer education and sub-program participation across all DSM options. Provide budget information of non-EE sub-programs where applicable.

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

Table 16: Non-EE Sub-Program Information
[Table-16 to be provided as an Excel Attachment to this PIP]

- ii. **Integration across resource types** (energy, water, air quality, etc.): If sub-program aims to integrate across resources types, please provide rationale and general approach.

There are integration opportunities that work across resource types that can be further explored such as combining rebates with water utilities which have provided customers a more simplified process for submitting and receiving their energy and water rebates. The residual benefits of this process was the ability to leverage the larger combined rebate amount to significantly drive sales of qualifying models as well as providing a precedent for disparate water utilities to collaborate around a combined product specification and rebate methodology. IOUs will take these key findings and use them with water agencies and air quality districts when there is alignment around customer

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offerings. Additionally, the retail channel offers significant integration opportunities for marketing DSM solutions. Through effective and engaging point of sale displays and interactive kiosks, the IOUs will co-market a variety of programs and services through a single point of customer engagement.

For example, PG&E begins its fifth year of a Cooperative High-Efficiency Clothes Washer rebate program with a number of water agencies in the Greater San Francisco Bay Area. 12 agencies together with their sub-agencies, constitute a total of 33 water agencies (wholesalers and retailers) participating on PG&E's program. PG&E processes the rebate applications (submitted via paper application or online), sends customer data to the respective water agencies through a secure swap drive, and then issues one check to the customer that combines PG&E's rebate of \$50 and the water agency rebate (either \$50 or \$75, depending on efficiency rating) for a check total of either \$100 or \$125.

SoCalGas will seek opportunities to partner with municipalities, governmental agencies, water agencies and other stakeholders if applicable to promote water and energy conservation via the Energy Advisor Program. Further integration strategies may also include IDSM, ESAP and other energy efficiency programs where pertinent to water and energy conservation.

- c) **Leveraging of Resources:** Please describe if the subprogram will leverage additional investments by market actors or other state, local or federal agencies.

N/A

- d) **Trials/ Pilots:** Please describe any trials or pilot projects planned for this sub-program

The PLA sub-program may include several additional pilots in the 2013-14 Transition Period to evaluate new program delivery methods:

- Market trials to explore sales uplift for PLA targeted products by inviting retailers and or manufacturers to submit proposal for energy efficient PLA sub-program promotion²³.
- Collaborate with manufacturers to provide low-cost ENERGY STAR appliances for lower income customer segments but not qualified for the low-income program services²⁴.
- Field Service teams to provide in-store training of retailer sales staff about energy efficient products; demonstrate energy efficient products to

²³ D&R International, "Massachusetts Market Lift Program - Summary Description and Methodology", April 17, 2012

²⁴ RIA/EMI's Plug Load Market Characterization study

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customers; maintain point-of-purchase education materials and ongoing market surveys of energy efficient products.

- Updating sales channel strategy to respond to growing integration of traditional brick-and-mortar retailers and e-commerce marketing for product evaluation, purchases, and post sales supports.
 - Provide incentives to retrofit projects that used qualified contractors to ensure high quality retrofit and enhance code compliance such as pool pump retrofit projects in compliance with code T20.
 - Coordination with industry partners on an integrated strategy with Codes and Standards bodies around “Horizontal Standards” strategy to influence product standards that lead to energy savings across many product categories.
 - Pilots of Home Energy Centers or Power Management Umbrellas to influence the overall reduction of miscellaneous plug loads in California homes.
 - Coordination with industry partners around voluntary agreements for energy reductions, such as, discussions currently occurring in the Cable and Satellite set-top box space.
 - Technology evaluation and market acceptance testing of PLA emerging technologies, which may include set-top boxes, game consoles, servers, advanced power strips, imaging equipment, audio, video equipment’s and home energy management products and energy saving and demand respond capable appliances and plug-loads.
 - Unit Energy Consumption (UEC) as a long term market transformation indicator for monitoring program influence on overall PLA electricity usage in home instead of product-by-product attribution model.
- e) **Knowledge Transfer:** Describe the strategy that will be used to identify and disseminate best practices and lessons learned from this sub-program

One-Stop-Shop Information Repository

The PLA sub-program supports the Energy Upgrade California web portal to serve as a one-stop-shop for PLA sub-program information, as well as generalized energy education information for residential and small business consumers on efficient PLA products, while still continuing to prompt home and small business owners to immediately take action to participate in available PLA sub-program activities. It should also serve as a repository of information for the utilities,

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practitioners, the California Energy Commission, local government programs, and third-party programs participating in PLA sub-program.

Conference, Seminars and Workshops

Participation in conferences, seminars, and workshops are essential for the PLA market transformation efforts to remain up-to-date on key industry players, new technologies, and best practices to properly support PLA sub-program strategy planning. These events allow the PLA sub-program to expand the network of partners for future collaboration efforts within the energy efficiency and PLA industry. Below are few of the key conferences, seminars, workshops and meetings that PLA sub-program may participate:

- (1) CEE Program Meetings
- (2) EPA ENERGY STAR Products Partner Meeting
- (3) Consumer Electronics Show (CES)
- (4) ACEEE's National Symposium on Market Transformation
- (5) Western [Regional](#) Utilities Collaborative Quarterly Meetings

11) Market Transformation Information: For programs identified as market transformation programs, include the following:

i. A summary of the market transformation objectives of the program.

The PLA sub-program aims to transform the market to achieve sustainable adoption of energy efficient PLA products where ongoing intervention would no longer be required. For the short to mid-term time frame where energy efficiency PLA products are still not the market's default choices, the program uses incentive mechanisms, ME&O, WE&T, and strategic industry collaboration to increase availability, awareness, and adoptions of energy efficient products. For the longer-term time frame, the PLA sub-program leverages Integrated Demand Side Management (IDSMS) programs to influence the development codes and standards in order to ensure the minimum required energy efficiency levels, promote "Energy Efficiency" as the preferred choice in life-style and new product purchases. The program's long-term strategy seeks to create ongoing demands for "Energy Efficiency" products and thus motivate the industry to produce and sell high energy efficient PLA products as the market standard offering.

ii. A description of the market, including identification of the relevant market actors and the relationships among them;

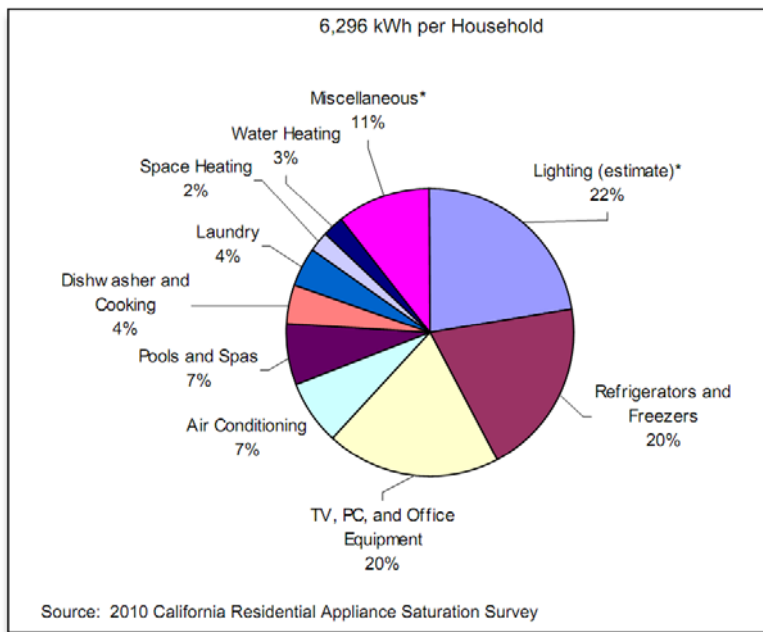
PLA markets comprise of traditional "white" goods or durable appliances such as refrigerators and washing machines, plus miscellaneous plug-load products such as consumer electronic, home office equipment and other small electronics devices requiring external power supply.

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The PLA products consumes about 66% and miscellaneous plug loads (televisions, personal computers and office equipment) accounting for about 20%²⁵. The PLA products comprise one of the largest and fastest growing end-uses of the residential sectors, dwarfing electrical loads from traditional categories such as lighting and HVAC. Clearly, these markets call for strategic interventions if we are to achieve BBEES’s 2020 vision of ZNE for new residential construction and reduction of 40% of residential purchase energy from the 2008 level.

The average annual electricity consumption in California was 6,296 kWh per household. This was an increase of approximately 6 percent compared to the 5,914 kWh per household reported in the 2003 RASS. Televisions, personal computers, and office equipment consume a 5 percent higher proportion of the total consumption compared with the results from the 2003 RASS²⁶. Figure-3 details the breakdown of the 2009 annual household electricity consumption by end use.

Figure-11: 2009 annual household electricity consumption by end use



The average annual natural gas consumption in California households was 354 therms per household based on billing data from PG&E, SDG&E, and SoCalGas.

²⁵ Final Decision for the 2013-14 Transition Period at page 202
²⁶ 2009 California Residential Appliance Saturation Study at page 3

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The household natural gas UEC decreased by approximately 18 percent from the 431 therms per household reported in the 2003 RASS. Figure 3 details the breakdown of the 2009 annual household natural gas consumption by end-use. Compared to the 2003 RASS, consumption for water heating increased by 5 percent to 49 percent, whereas space heating decreased by 7 percent to 37 percent²⁷.

Figure-12: 2009 Annual Household Natural Gas Consumption by End-use

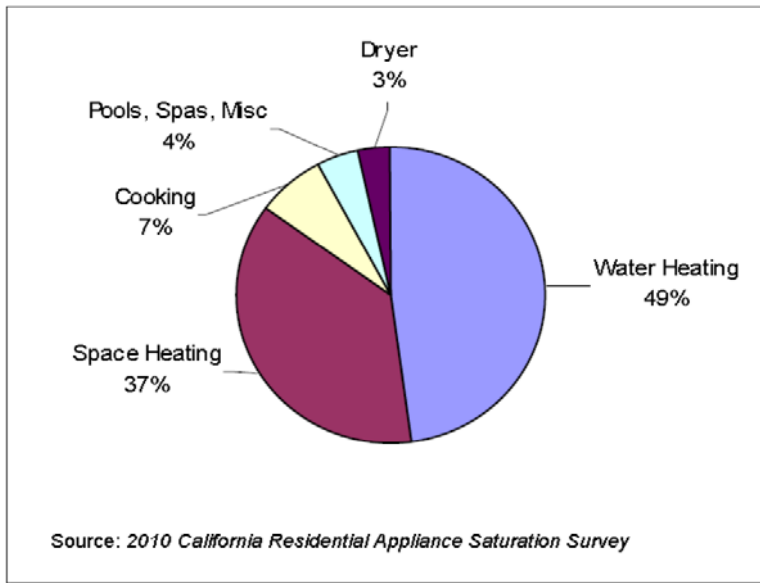


Table-B: PLA Market Actors & Relationships

Relevant Actors	Relationships & Dynamics Among Market Actors
Product Manufacturers	<p>Develop and commercialize a family of technologies based on long-term roadmap planning. The products derived from the manufacturer’s technology roadmap are released to the markets on an annual basis with incremental new features for consumer electronics categories.</p> <p>The effective point-to-influence of manufacturers would be their technology development roadmap whereby IOUs have the opportunities to influence the manufacturers on a longer-term strategic basis.</p>

²⁷ KEMA, 2009 California Residential Appliance Saturation Study at page 9

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Relevant Actors	Relationships & Dynamics Among Market Actors
Distributors	<p>Most of the appliance and electronic products reach the market through two distribution layers – manufacturers to regional distributor, and then regional distributor to local retailers. The distributor layer is an important layer that must be taken into account in the IOU’s program design.</p> <p>The distributor’s key value is to provide product inventory and logistics management on the behalf of the manufacturers and retailers. The manufacturer ideally benefits from working with a distributor as the manufacturer has fewer ship-to locations and fewer retailers to sell their product to. The distributor would break out bulk product packaging and do all the individual shipping and selling to retailers for the manufacturers.</p> <p>Similarly, the retailer ideally benefits from working with a distributor as the retailer has fewer manufacturers to work with in purchasing their products. The retailer would be able to purchase a wide range of products from different manufacturers which the distributor represents. Sometimes the distributor may even own the product inventory thus allowing the manufacturers and retailers to mitigate the financial risk of holding their own product inventories.</p> <p>The distributor has significant influences on the manufacturers and retailers. The distributor would be very selective in which manufacturers to represent, which products to carry in their inventories, and which retailers they would sell to. They look for assurance that the represented products would have high sales volume based on the evaluation of the brand’s marketing strength, brand advertising and other market data.</p> <p>The IOUs, representing large regional markets, could work together to exert coordinated influence on the distributor. This in turn would make it easier to the IOUs to convince the retailers to sell and manufacturers to produce products carried by their distributors.</p>
Retailer – National	<p>Retailers serve their target customer bases with store outlets across the country. The national retailers make product purchasing decisions based on maximum sales potential to their target customer base and bulk discounts for those products.</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
	<p>One of the retailer’s key objectives is to maximize the sales of their most profitable products. Therefore, the IOUs could influence the retailer’s ability to reach their key objectives through inventive program and joint promotions to generate sales uplifts.</p>
Retailer – Regional	<p>Similar to national retailer chain but operates on smaller geographical market foot print. The regional retailers sell products to their targeted customer base through store outlets located within the regional market. The regional retailers generally have less clout in influencing the manufacturers and distributors due to their lower sales volume.</p> <p>The regional retailers have similar business objectives as any other retailers, maximizing the sales by focusing on highly popular products in the markets. Therefore, the IOUs could influence the retailer’s ability to reach their key objectives through inventive program and join promotion to generate sales uplifts.</p>
Retailer – Small	<p>Most of the small retailers are privately owned and operate with one or two store outlets in local markets. Their small purchasing power does not allow them to purchase products from big distributors. As a result, the majority of small retailers join large buying groups so that they can leverage their collective buying power to compete with the larger retailers.</p> <p>Small retailers could be an effective channel for reaching small hard-to-reach markets for IOUs programs.</p>
E-commerce Retailer/Resellers	<p>E-commerce has a growing importance in the customer’s product purchasing process. The customer toggles back and forth between the traditional brick-and-mortar retailers and e-commerce sites for product research, price shopping, purchases, and post sales support.</p> <p>IOUs will explore new sales channel strategies that include the integration of traditional brick-and-mortar and e-commerce channels to facilitate ease of access to energy efficiency information; enabling customers to readily find information about energy efficient products and services, identify participating retailers in their neighborhoods, and complete on-line sign-ups to receive notification about special efficiency</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
	offerings, rebates, or incentives.
Recycle Service Provider	<p>At least 18 states have enacted landfill bans for appliances since 2000 to extend the life of the nation’s landfills, requiring private industry and public sector to implement recycling of these goods. The recycling service providers enable the customer to dispose unwanted appliances and turn recycled appliances into valuable resources manufacturing raw materials. Recycling appliances has positive impact on the environment, since some material takes four times as much energy to manufacture material from their virgin state as it does to make the same steel from recycled scraps.</p> <p>The typical services provided range from logistic arrangements to pick up of old appliances; tracking recycled items’ serial number, manufacturer, model; dismantling the appliances into various materials; glass recycling by removing all glass and create cullet to be used in remanufacturing; shredding the separated materials to reduce their size; sorting shredded material into non-ferrous metals, plastics and other distinct categories which are then bulk packed for transport; commodity sales of the recycled materials in a wide range of new products and keeping building block materials out of landfills.</p> <p>The recycle service provider works with the retailers for bulk pickup of collected turn-in old appliances from the retailers’ new appliance customers, collaborate with organization such as Utilities to pick up individual old appliances from the Utility’s customers. The bulk pickup from the retailer’s collection point is more cost effective as compare to individual pickup from multiple customer homes.</p>
Pay TV Service Providers	<p>There are nearly 22 million set-top boxes (STB) delivering paid television content to California residential markets. Nearly all of these STBs are owned and installed by approximately nine large Pay TV service providers. In 2009, set-top boxes in California homes consumed approximately 4.4 billion kilowatt-hours of electricity, which is a significant consumption load demanding a strategic approach to improving the efficiency and reducing the cost of operating these electronics relied upon by so many customers.</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
	<p>These service providers have relatively strong marketing power with their customers. They have the opportunity to access a customer’s home, track STB inventory, device configuration and possibly power states of the installed devices. They would be in a unique position to provide home energy management systems through these ubiquitous set-top boxes.</p>
Contractors	<p>Contractors have significant influence on home owner’s purchase of low-touch appliances such as pool-pump/motor and water-heaters. IOUs could use midstream incentive to influence the products that the contractors carry and recommend to their customers.</p> <p>The IOUs have the opportunity to influence the contractors by providing:</p> <ol style="list-style-type: none"> 1. Incentives for projects installed by certified or qualified contractors would be an effective solution to ensure pool pump and motor retrofit projects be in compliance to code T20. 2. Training either at the IOU’s Energy Centers or in conjunction within store retailer trainings on installing energy efficiency products and control system, IOUs energy efficiency programs and codes and standard relating to energy efficiency.
ACEEE	<p>The American Council for an Energy-Efficient Economy (ACEEE) is a nonprofit organization founded in 1980 by researchers in the energy field that aims to advance energy efficiency policies, programs, technologies, investments, and behaviors. ACEEE carries out its mission by collaborating with government, private sectors, research institutions and other nonprofit organizations to cover energy efficiency policy and technology issues.</p>
CEE	<p>The Consortium for Energy Efficiency (CEE) is a consortium of efficiency whereby program administrators from across the U.S. and Canada who work together on common approaches to advancing efficiency. Through joining forces, the individual efficiency programs of CEE are able to partner not only with each other, but with other industries, trade associations, and government agencies. By working together with CEE, administrators leverage the effect of their funding dollars, exchange information on effective practices and, by doing so, and achieve greater energy efficiency for the public good.</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
<p>Advocate Organizations</p>	<p>Non-profit organizations dedicated to advocates for various stake holder groups (end-customer, environment, manufacturers, etc.) and at time exert influences on California’s energy policies making process and California IOUs activities. Examples of such organizations in California would be Natural Resources Defense Council (NRDC) and Division of Ratepayer Advocates (DRA).</p> <p>NRDC is an effective environmental action group, combining the grassroots power of 1.3 million members and online activists with the courtroom clout and expertise of more than 350 lawyers, scientists and other professionals. NRDC staffs work with businesses, elected leaders, and community groups on the biggest issues we face today such as “Curbing Global Warming and Creating the Clean Energy Future”.</p> <p>The DRA is an independent consumer advocate within the California Public Utilities Commission (CPUC) that advocates solely on behalf of investor owned utility ratepayers. DRA plays a critical role in ensuring that the customers of California’s energy, water, and telecommunications utilities are represented at the CPUC and in other forums that affect how much consumers will pay for utility services and the reliability and safety of those services. Additionally, DRA supports environmental protections and seeks to ensure that utility actions comport with CPUC rules and California environmental laws. DRA actively participates in CPUC proceedings to aid the Commission in developing the record from which it will formulate its final decisions. DRA also actively lobbies decision-makers on behalf of ratepayers to ensure that the consumer perspective is heard.</p> <p>Both NRDC and DRC are active key players in California’s energy industry. They provide inputs into CPUC’s policy and rule making processes.</p>
<p>EPA ENERGY STAR</p>	<p>ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping the market to adopt energy efficient products and practices. ENERGY STAR helps customers make energy efficient choices by providing a market accepted energy performance rating system that is being used across the country</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
	<p>on hundreds of thousands of PLA products.</p> <p>ENERGY STAR works with the manufacturers, trade associations, government agencies and utilities to set energy performance rating system.</p>
EPA RAD	<p>EPA Responsible Appliance Disposal (RAD) is a voluntary partnership program that began in October 2006 by the U.S. Environmental Protection Agency to help protect the ozone layer and reduce emissions of greenhouse gases using best practices. As part of the RAD program, partners recover ozone-depleting chemicals from old refrigerators, freezers, window air conditioners, and dehumidifiers.</p> <p>EPA RAD serves as a technical clearinghouse on responsible appliance disposal program development and implementation; calculates annual and cumulative program benefits in terms of ozone-depleted savings and greenhouse gas emission savings and equivalents and, as available, potential cost savings; and provides partner recognition for achievement, such as through press releases, brochures, articles, and awards.</p> <p>EPA RAD partners include utilities, retailers, local governments, manufacturers, universities, and other interested organizations.</p>
CEC	<p>The California Energy Commission (CEC) is the state's primary energy policy and planning agency. It is responsible for promoting energy efficiency by setting the state's appliance and building efficiency standards Title-20 and Title-24 respectively. The CEC works with local government to enforce those standards. The IOUs work very closely with the CEC to develop energy efficient codes for appliances and plug-loads.</p>
Local Government	<p>In D.05-01-055, the Commission also directed the IOUs to initiate energy efficiency partnerships with local governments. Having continued this practice in the 2010-2012 portfolios, the IOUs now have two portfolio cycles and almost seven years of experience with increasing levels of local government. The IOUs continue to partner with local governments to increase the delivery of energy efficiency and enhance code compliance programs.</p>

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Relevant Actors	Relationships & Dynamics Among Market Actors
Regional Utilities / IOUs	The IOUs collaborate with each other and other regional Municipality-Run-Utilities to share resources, information, and joint research projects. By working closely with each other, the IOUs seek to increase the collective negotiating power when working with PLA retailers.
Customers	End-user of residential energy efficient products and services that are provided by sales channels through IOUs' EE program intervention. The IOUs may reference to the PLC framework to segment the customer bases for targeted intervention initiatives.

iii. A market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies;

Utilities face uphill battles in influencing the PLA markets due to powerful national market trends that dominate manufacturers and national retailers' choice of product offering. Other market characteristics that pose great challenges to the current product-by-product program design include: small incremental energy savings from many plug load devices resulting in product-based programs that are not cost effective for IOUs; the consumer electronics' rapid product life cycle of 6-12 months pose significant difficulties in establishing saving baselines and timely work-paper approval for individual measures; and growing trends of networked home electronics making energy savings attribution on a product-by-product basis problematic.

There are still specific product-based saving opportunities that address specific market barriers or conditions. However, the big market trends suggest a holistic market transformation approach that targets an overall reduction in plug loads and using Unit Energy Consumption (UEC) as a market transformation indicator (MTI) could be more effective in addressing the market long term barriers. In this approach, the program could rely on California Residential Appliance Saturation Survey or equivalent reports which provide forecast of plug load use in California as a basis for the measurement of program impacts. Once a forecast of plug load energy usage is established, the targets could be set for changing the UEC curve to slow its growth or even lower its intensity over time. This approach could improve flexibility in measure implementation by moving away from the work paper process and short-term cost-effectiveness requirements that hamper effective product based program design in fast-moving markets.

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The PLA sub-programs could evaluate current pilots, such as the PG&E Home Energy Centers that provide consumers with energy usage information from smart meters or SCE's proposed Power Management that provide an umbrella approach to influence the overall reduction in miscellaneous plug loads in California homes. By 2015, we expect smart chip-enabled and networked appliances to be available, and thus fueling the proliferation of more comprehensive home automation and energy management systems (i.e., Intelligent Home Network, comprehensive Home Automatic Network and etc.). These systems will help customers lower their overall energy consumption at home instead of focusing on savings per product basis. The Emerging Technology activities in the 2013-14 period will assess the enabling smart and connected PLA technologies that have the potentials to deliver not only hardware based energy savings, but also information feedback to enable broad customer's behavior savings opportunities.

On the state of recycling, the saturation level of second refrigerators and freezers has been slowly creeping up over the last decade. From the 2009 CEC Residential Appliance Saturation Study²⁸, the second refrigerator and freezer saturation levels are up to 33% for second refrigerator and 23% for additional freezer for the statewide single family home. This is a marked increase of secondary refrigerators from the 2003 RASS results, which may have resulted from the popularity of large super-stores such as Costco and Super Wal-Mart stores in the past ten years. The large discount stores encourage large bulk food purchases, which in turn, generates the need for increased food cooling storage. The current Statewide Appliance Recycling channel offers customers the convenience of free-pickup plus small cash incentives for old working refrigerators to help minimize the return of units back to the used-appliance market as secondary refrigerators. Similarly, the IOUs work with the retailer based appliance recycling channel to offer customers the convenience of "deliver-and-haul" by hauling away the old appliance when the new one is delivered. Furthermore, the PLA sub-program supports the US EPA RAD, which eliminates the current market practice of reselling old appliances removed from customer homes during the delivery of new ones.

Market Actors and Their Relationship in the Markets

Depending on the application and appliances, market actors within the supply chain may be involved in the delivery of products and services to the customers. The list of key market actors and the dynamic relationship among them is discussed in Table-B.

iv. A description of the proposed intervention(s) and its/their intended results, and specify which barriers the intervention is intended to address;

The PLA sub-program is designed with the overarching objectives of influencing the market to produce and sell high energy efficient products, customers to adopt

²⁸ KEMA, 2009 California Residential Appliance Saturation Study

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energy efficient products and employ energy conservation usage behavior, and codes and standards to support minimum energy efficiency levels across all PLA product categories. The PPMs (Section 9, iv, (c)) are goal posts guiding the program's efforts and MTIs (Section 12, vi) provide feedback on how the program progresses against the overarching objective stated above. Table-C below identifies key market barriers, and the intended market effects from the proposed intervention.

Table-C: Market Barriers and Market Affects from Proposed Intervention

#	Barrier	Interventions & Intended Results
1	High first cost	<p>Applying appropriate incentive to influence the market or the customer through the appropriate stream (upstream, midstream or downstream)</p> <p>The intended results of this intervention are to help customers overcome the high first-cost barrier and encourage adoption of higher energy efficient products over standard offerings.</p>
2	Lack of retailer sales staff knowledge on how to sell energy efficiency products	<p>Providing in-store training for sales staff or associates on program guidelines and energy efficiency.</p> <p>The intended results of this intervention are to increase sales staff's or associates' knowledge and increase accessibility to energy efficiency information thus enabling more effective sales efforts.</p>
3	Lack of contractor's awareness of energy efficiency products and code requirements	<p>a) Providing training for contactors either at IOU's Energy Centers or in conjunction with the in-store retailer trainings.</p> <p>b) Providing incentives to projects installed by certified or qualified contractors</p> <p>The intended result of this intervention is to increase the contractor's knowledge on energy efficiency. Thus enable more effective sales efforts and higher efficient installed projects.</p>
4	Lack of customer's knowledge on benefits of energy efficiency	<p>a) Providing in-store demo to customers</p> <p>b) Enhancing in-store marketing and education materials</p> <p>c) Providing product information on websites and other communication channels</p> <p>d) Providing customer education at community out-reach events</p>

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#	Barrier	Interventions & Intended Results
		<p>The intended result of this intervention is to increase the customer’s knowledge on how energy efficiency benefits their lives and to impart “energy efficiency” as the preferred life style and choice in new product purchases.</p>
5	<p>Incremental savings too small to motivate customer’s behavior changes and not cost effective for IOU’s program</p>	<p>Create a holistic and flexible program to address residential plug loads as a category and develop intervention that targets an overall reduction in plug loads. It would also require an evaluation framework that assesses the overall reduction in plug loads due to multiple measures, instead of focusing on a per-product/per-measure evaluation framework.</p> <p>The intended results of this intervention is to move away from the short-term cost-effectiveness requirements and work paper process that hampers effective product based program design in fast-moving markets.</p>
6	<p>Short product life cycle for miscellaneous electronics make the establishment of baseline difficult and timely work-paper development and approval impractical</p>	<p>Same solution as above – moving toward comprehensive approach rather than focusing on per-product/per measure program.</p> <p>Targeting the same intended results as above.</p>
7	<p>Proliferation of interconnected electronics and small devices making intervention per products less efficient.</p>	<p>Same solution as above – moving toward comprehensive approach rather than focusing on per-product/per measure program.</p> <p>Targeting the same intended results as above.</p>
8	<p>National market trends dominate the PLA markets</p>	<p>Develop longer-term market transformation initiatives that seek to influence key market actors’ long-term technology development roadmap.</p> <p>This also calls for the program design and evaluation framework that address the residential plug loads as a category and develop programs that target an overall reduction in plug loads versus saving per-product/per-measure.</p>

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#	Barrier	Interventions & Intended Results
		Targeting the same intended results as above.
9	The market is able to make more money by selling older but still working appliances to the second-hand markets as compared to permanently dispose them.	<p>Data suggests that around 11% of the customers prefer to sell their old appliances into the used appliance markets. Additionally, about 10% - 25% of old appliances picked up by the retailers are often reconditioned and put back into the used appliance market.</p> <p>Proposed Intervention to address customers that sell their old appliances to used appliance market - Provide free-pickup and downstream incentive and/or other strategies to customer who surrenders their old but still working appliances to IOUs. This strategy will win over customers who seek the most convenient way to dispose of their old appliance.</p> <p>Proposed Intervention to address retailers that sell the collected old appliance to used appliance markets:</p> <ul style="list-style-type: none"> a) Provide higher midstream incentives to retailers that provide completed cradle-to-grave product life cycle management and compliance to EPA RAD b) Provide to customer down-stream incentives plus free-pickup of old but still working appliances c) Increase in-store marketing education's efforts to educate the customer about high operating cost from using old appliances.
10	Customer's lack of awareness of the high energy cost in operating secondary and older appliances. This has led to the significant growth of secondary refrigerators and freezers found in homes over the last decade.	<ul style="list-style-type: none"> a) Increase marketing education and outreach efforts on the high operating cost when using old and or refurbished/resold appliances. b) Provide free-pickup and downstream incentive and/or other incentives to customers who surrenders their secondary old but still working appliances to IOUs. This strategy will win over customers who seek the most convenient way to dispose of their old appliance. <p>To reverse this trend, the IOUs are directing more focus toward retiring secondary units in the 2013-2014 Transition Period. And to better distinguish and track "primary" vs. "secondary" units, the IOUs will explore new program design logic to more clearly differentiate</p>

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#	Barrier	Interventions & Intended Results
		between a primary and a secondary unit. Also, this new process may require additional verification procedures to ensure the participants would demonstrate persistence of this removal and not replace the secondary unit at a later date.

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- v. **A coherent program, or “market,” logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results²⁹;**

Refer to Section 10(l) for detailed diagrams of PLA sub-program logic models that describe the relationship between the proposed interventions and their intended results.

The Principal logic model (PLA Program Logic) for the Plug Load and Appliance Program (PLA) is the governing model for the PLA program components. This program component is responsible for selecting and prioritizing new products to be introduced to incentive programs as well as for judging when markets for products currently in incentive programs have been transformed so that the products can be removed from incentive programs. The PLA Incentive logic model portrays the logic of the incentive program, i.e. the production aspect of the PLA program.

PLA Program Logic

Since the primary function of this program component is to make decisions about the entry and exit of products to and from the PLA Incentive programs, the central activity is represented in the model by the Program Decision Panel (A). The logic of the program component is that this decision panel takes information and research from many sources and makes its decisions, assures that programs are designed and tested and that they are ready as production programs. The sources that feed into and receive feedback from the Decision Panel are: Priority & goals for PLA incentive and program activities (B), market, industry, stakeholder inputs, market research, and M&E studies (C2), codes and standards (C1), and ETP inputs (D). With all of this information the decision panel facilitates solution workbooks, activity tracking workbook, and, of course, lists of new and old measures. More centrally, it oversees the education and influence of market actors and stakeholders (F), which produces collaboration and agreements (M), thus overcoming some market barriers at that level. It also causes trials and pilots to be completed (O), which also feeds into the agreements with PLA stakeholders and manufacturers. These agreements promote end user purchase and installations and recycling among participants and ultimately non-participants as well (spillover).

PLA Incentive Program Logic

The PLA Program Logic described above addresses the collaborations and agreements that the IOUs generate with various market actors and stakeholders, but the PLA Incentive program logic specifies these activities in more detail. The activities at this level include promotion, and outreach events, EA Universal Audit Tool (D), advertising and direct mailing and incentives (G), engaging manufacturers with upstream incentives (B), engaging retailers and distributors (C),

²⁹ If this logic model is the same as that requested in #10.(O), only provide once. As needed, provide a more detailed logic model emphasizing the market transformation elements of the program and/or how such elements integrate with resource acquisition elements.

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and working through professional and trade organizations to engage contractors, architects, and engineers to support best practices (F). These agreements and collaborations yield reductions in market barriers at the upstream and midstream levels so that program products will be stocked and available to customers. The direct mail, advertising, and EA UAT promote the products directly to consumers so that they will look for the products at stores, and purchase them, reflecting the overcoming of barriers sufficient to generate the initial purchase. After the initial purchase, further barriers are reduced and more purchases are envisioned, both under the program and outside of the program (spillover).

vi. Appropriate evaluation plans and corresponding Market Transformation indicators and Program Performance Metrics based on the program logic model.

Due to the need to comply with the Decision's timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section "18.1. Evaluation Budget" in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation - Market Effects: The market transformation program's theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program's scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones.

Formative evaluation: The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program's direct outputs.

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Prahl (MT Workshop, Nov 2011) suggest that declaring the program's strategic intent through the market transformation initiative's theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to

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individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual efforts, and we believe the market transformation evaluation discourse should be focused on collaboration. We will disregard MT attribution by realizing we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals and it doesn’t matter which entity contributed how much but whether, as a state with our numerous market actors, we were successful or not. The PLA sub-program’s MTI will be based on the Commission Staff’s recommendation as shown in Table-D below.

Table-D: PLA Market Transformation Indicators³⁰

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

MTI#	Description
Appliance 3	Percentage of key appliances sold in California that are ENERGY STAR®

12) Additional information as required by Commission decision or ruling or as needed:

Include here additional information as required by Commission decision or ruling (As applicable. Indicate decision or ruling and page numbers)

Table-E: Final Decision’s Ordering Paragraphs on PLA Sub-program³¹

Ordering Paragraph	SW PLA PIP’s Response	PLA PIP’s Reference
Include the criteria used to determine the best delivery channel for any given plug load or appliance incentive or intervention - OP 63	Criteria used to determine the best delivery channels for any given PLA product is based on the market characteristics for the products and specific barriers or market opportunities.	Section 10(f) Section 10 (i)(i,ii,iii)
Identify the selected delivery	The selected delivery channels for all	Section 10(f)

³⁰ Market Transformation Indicator Final List, May 24, 2012

³¹ Final Decision for the 2013-14 Transition Period on pages 411-412 and 434

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Ordering Paragraph	SW PLA PIP's Response	PLA PIP's Reference
channels for all measures - OP 64	measures follow practice of the current cycle. For post-2012, the criteria used to determine the best delivery channels is based on the current cycle practices	Section 10 (i)(i,ii,iii)
Identify where synergies allow for more coordinated engagement work with retailers and manufacturers - OP 64	The PLA sub-program framework provides guidance for synergistic collaboration with industry partners as the measures transition through different market adoption stage.	Section 9(a) Section 12(ii)
Simplify and streamline program to maximize synergies with manufacturers and retailers and reduce administrative costs - OP 65	The PLA sub-program framework provides guidance for simplifying and streamlining program in order to maximize the collaboration with industry partners for reducing cost.	Section 9(a) Section 10(c) Section 12(ii)
Explore how to implement voluntary product specifications that support the development of mandatory "horizontal standards" (i.e., product standards that lead to energy savings across many categories) - OP 66	Coordination with NRDC, Code & Standard bodies, manufacturers and other market actors to develop and adopt "horizontal standards" for multiple product groups.	Section 11(d)
Re-orient Appliance Recycling Program and take all feasible steps in minimizing cost while maximizing savings - OP 68	Increase collaboration with retailers and the current appliance recycle service providers to support completed cradle-to-grave product life cycle management and encouraging disposal of older inefficient products from the grid.	Section 10(iv,v)
Discuss how the program advance market transformation toward Title 20 Codes & Standards changes - OP 67	Work with manufacturers, Codes & Standards bodies to influence code development and approval process	Section 12(ii)
Identify potential pilot projects or trials to test new program designs that would improve marketplace innovation and engagement and homeowner awareness within the 2013-2014 timeframe – OP 71	PLA sub-program identifies multiple potential trial and pilot projects planned for the 2013-13 Transition Period to evaluate new program delivery methods through a variety of channels and industry partners.	Section 11(d)
Propose initiatives that have been	Proposing PLA sub-program framework with	Section 9(a)

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Ordering Paragraph	SW PLA PIP's Response	PLA PIP's Reference
designed to accomplish “market transformation” – OP 162	embedded market transformation functions and dedicated program activities for driving successive waves of advance PLA technologies through the market adoption life cycle. The proposed PLA sub-program framework employ stage-gate process for managing the flow of technologies through IOUs EE programs.	Section 12(ii)

Additionally, Table-F below provides the Final Decision's requirements on the Re-orientation of the Appliance Recycling activities and IOUs' responses.

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Table-F: Final Decision’s Requirements on Appliance Recycling³²

Final Decision’s Requirements	SW PLA PIP’s Response	PLA PIP’s Reference
1) Add New Appliances: Expand recycling efforts to include clothes washers and air conditioners - (FD, page 206).	Explore the opportunities to add new appliances but will not consider clothes washers or room air conditioners as both have been proven not to be cost effective.	Section 10(v)
2) Switch to Distribution Center Pick-Ups: Reduce overall program costs by directing retailers to pick up units for recycling. IOU program collections of appliances in the home could be replaced by collections at partner retailer distribution centers. IOUs must avoid duplicating existing efforts with these strategies - (FD, page 206).	Will use the results of SCE’s Retailer Based Appliance Recycling Trial Study to develop the new Retailer Base Appliance Recycling Element.	Section 10(iv)
3) Emphasize High Consumption and Secondary Units: Target units with highest savings potential and emphasize collection and recycling of vintage models, secondary units, and extra freezers - (FD, page 206).	Increasing focus on recycling of higher consumption and secondary units as part of the Statewide Appliance Recycling activities.	Section 10(v)
4) Influence Appliance Purchaser’s Decision: Use the results of current recycling retailer trials to determine the best approaches to partnering with retailers. These partnerships could seek to cost-effectively capture savings through influencing a new appliance purchaser’s decision to retire their old units. IOU retailer partnerships could include delivering new appliances at the	Will use the results of SCE’s Retailer Based Appliance Recycling Trial Study to develop the new Retailer Base Appliance Recycling Element.	Section 10(iv)

³² Final Decision for the 2013-14 Transition Period on pages 206-207

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Final Decision's Requirements	SW PLA PIP's Response	PLA PIP's Reference
<p>same time as collecting old units for recycling. The IOUs should seek to coordinate collection of old units with appliance manufacturers and recyclers - (FD, page 206).</p>		
<p>5) Participants Receive Appliance Incentives upon Surrender of old Appliance: Condition the provision of appliance incentives upon surrender of older units for recycling - (FD, page 207).</p>	<p>Will focus on combining rebates for the purchase of high efficient appliance and Retailer Based Appliance Recycling program. This new strategy allows customers to participate in appliance recycling as part of the new appliance delivery-and-haul away process. This approach will not require customer to surrender their appliance as part of the rebate process but still allows IOU's to reduce program implementation cost while providing options that improve the customer experience.</p>	<p>Section 10(v)</p>
<p>6) Transition of Recycling to Market Actors: Transition the current appliance recycling program to market players by a specific date - (FD, page 207).</p>	<p>Transition of the current appliance recycling program to market players by a specific date could not be answered with certainty at this point. The IOUs will continue to engage the Commission and appropriate market actors on this – See Section 10(v) for more detail intervention treatment in the short-mid and long terms.</p>	<p>Section 10(v)</p>
<p>7) Highest Standard of Recycling: Require ARP participating recyclers to comply with highest standards of recycling, including for GHG emissions in refrigerants and foam insulation - (FD, page 207).</p>	<p>Continue to require all participating recycling service providers to comply with the EPA RAD (Responsible Appliance Disposal) guidance.</p>	<p>Section 10(iv, v)</p>
<p>8) Properly Target Multifamily Residences: Develop new recycling approaches for the multifamily sector, including a bulk exchange approach - (FD, page 207).</p>	<p>Offer bulk pickups (at reduced recycling costs) <u>where feasible</u> and <u>possibly</u> explore adding new program element to include appliance exchange program.</p>	<p>Section 10(v)</p>

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Final Decision's Requirements	SW PLA PIP's Response	PLA PIP's Reference

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1. Program Name: SW-CALS-MFEER
Program ID: SCG 3704
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 - reference the [CalSPREE](#) for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the [CalSPREE](#) for projected savings details

4. Program Description

a) Describe program

The [Multifamily Energy Efficiency Rebate program \(MFEER\)](#) is a continuation of the existing statewide program within the residential energy efficiency portfolios. In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including: whole house solutions, plug load efficiency, visual monitoring and displays, performance standards, local government opportunities, and DSM integration.

Historically, owners and managers of multifamily properties have been less responsive to energy efficiency efforts than other residential customers. As one of California's largest segments, this unique market warrants additional attention and effort needed to motivate property owners and managers to actively participate in energy efficiency programs. The MFEER proposes a series of comprehensive measures designed to address systems within multifamily housing.

The MFEER offers ~~prescribed rebates~~ [a variety of incentives](#) for energy efficient products [and services](#) to motivate the multifamily property owners/managers to install energy efficient products in both common and dwelling areas of multifamily complexes and common areas of mobile home parks and condominiums. An additional objective is to heighten the energy efficiency awareness of property owners/managers and tenants.

[The creation of energy-efficient complexes provides benefits beyond the direct energy savings. Through the incorporation of energy efficient measures by multifamily property owners and managers, tenant behaviors can be influenced and comfort improved. The hope is that these behaviors can contribute to a virtual cycle of energy efficiency - as tenants receive upgrades that reduce their energy costs and improve comfort, they in turn recruit and mentor other tenants.](#)

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The MFEER ~~must address~~addresses the ongoing concern with “split incentives”, where the residents are not the owners of the property, so they lack incentive to improve their energy usage. Similarly, the property owners do not live on-site and pay higher utility expenses due to inefficient appliances, thus lack any incentive to upgrade. The MFEER ~~was~~is designed to drive this customer segment toward participation by offering property owners a variety of energy efficiency measures and services.

Program Integration: The MFEER marketing plans include print material, direct mail campaigns, print advertisement, trade show exhibitions, and presentations,~~and statewide advertising; the program also links program rebates for ENERGY STAR® refrigerators with incentives from the ARP and coordinates with the HBES Program. to related target market organizations.;~~

The program also links program incentives from the PLA and coordinates with the Energy Savings Assistance program Middle Income Direct Install (MIDI) Program, Multifamily Energy Upgrade California (MF EUC) Program, as well as other energy efficiency programs.

Support for ~~LIEEESAP~~ Qualifying and Non-~~LIEEESAP~~ Qualifying Low Income Families: To make property owners/managers aware of income-qualified services available to tenants, the MFEER promotes the ~~LIEE efforts~~ESA P program within the customer application and outreach efforts. The MFEER will work with municipal entities to support AB811 to serve the needs of non-~~LIEEESAP~~ qualifying low income families while still adhering to MFEER’s program design.

b) List measures

Measures and services to reduce energy usage may include, but are not limited to, the following:

Electrical measures:

Screw-in CFLs (ENERGY STAR® Qualified)

Lighting

- Screw-in CFL Reflector bulbs (ENERGY STAR-Qualified)
- ~~High Performance Dual Pane Windows~~
- ~~Ceiling Fans (ENERGY STAR® Qualified)~~
- Interior LED Lamps
 - Interior CFL Fixtures (ENERGY STAR-Qualified)
 - T5 or ~~T8~~-Lamps w/electronic ballasts
- ~~Attic and/or wall insulation~~
- ~~Electric storage water heaters~~
 - Exterior CFL fixtures (ENERGY STAR-Qualified)
- Exterior LED lamps
- Exterior LED fixtures
- Occupancy sensors

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- Photocells
- ~~Exit Signs~~
- ~~Package terminal air conditioners & heat pumps~~
 - ~~Room air conditioners~~ Ceiling Fans (ENERGY STAR-Qualified)
- ~~Refrigerators (ENERGY STAR® Qualified)~~
- ~~_____~~

- ~~Gas measures:~~

- ~~High efficiency Dishwasher~~
- LED Pool and Spa lighting
- Vending Machine Controls

Building Envelope

- High Performance Dual-Pane Windows
- Attic and/or wall insulation

Water Heating

- Electric storage water heaters
- Central system natural gas water heaters
- Natural gas water heater and/or boiler controllers
 - Natural gas storage water heater
- Tankless water heaters

HVAC

- Package terminal air conditioners & heat pumps
- Unitary AC Units
- HVAC Quality Maintenance
- Brushless Fan Motor for Central AC
- Evaporative Coolers
- Programmable Thermostats
- Central natural gas furnace

Appliances

- Refrigerators (ENERGY STAR® Qualified)
- High-efficiency Clothes Washers
- High-efficiency Dishwasher (does not apply to SoCalGas)
- ~~Central natural gas furnace~~
- Cold Water Clothes Washers

Pumping

- Variable Speed Pool Pumps

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- [Programmable Thermostats \(Common Areas only\)](#)
- [Demand Control for Centralized Water Heater Recirculation Pump](#)

Measures may be added or removed from the program as technologies evolve and market potential warrants.

c) List Non-incentive Customer Services

MFEER schedules training workshops to educate contractors about the benefits of the measures offered by this program and other energy efficiency programs, including the [low-incomeESA](#) program.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Multifamily Energy Efficiency Rebate Program (Resolution E-4385, Appendix A):

Table 3 – [MFEER PPM](#)

Multifamily Energy Efficiency Rebate	1. Percentage of non-lighting measure savings as compared to the total EE measures adopted in the MFEER program. (KWh for single-commodity IOU and BTU for mixed-commodity IOU.)	2a
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b) Market Transformation Indicators

Resolution E-4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.

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c) Program Design to Overcome Barriers

Previous MFEER participants often state their intent to continue upgrading their complexes with energy-efficient products. Lowered energy bills and reduced maintenance efforts (e.g., changing out short-lived incandescent lamps) are economical. Below is a list of program barriers:

Ongoing Concern with Split Incentives

While some market barriers are the same as for other residential programs such as the HEER (described below), others are unique to the MFEER. For this program, which must deal with both owners/managers of multi-family buildings and with tenants, the split-incentive barrier is high. Any measure or appliance that is installed in the tenant dwelling area will provide benefits to the tenant while costs may go to the owner/manager. This fact implies an uphill effort to get owner/manager participation.

In alignment with California's BBES and EAP policy initiatives, and advanced by the Strategic Plan, the MFEER is in the unique position to overcome the split incentive barrier by serving two distinct beneficiaries of energy savings, the property owner and the tenant.

MFEER design has been overcoming the split incentive barrier since the program's inception in 2002, as had its predecessor; the Residential Contractor Program did since 1999. Program design has been effective to such an extent that the majority of MFEER rebates paid were for products installed in tenant dwelling units.

The diversity of multifamily building types makes it highly challenging to develop program delivery models, incentives and consistent packages of building upgrade measures that meet the needs of every situation.

The multifamily sector encompasses a range of building sizes, system types and configurations of dwelling units and nonresidential areas. Because multifamily building types are so diverse, it is highly challenging to develop program delivery models, incentive programs and consistent packages of building upgrade measures that meet the needs of every situation.

In many cases, the property owner or manager's energy efficiency knowledge is limited. As such, deciphering though the variety of offered measures can prove to be challenging, and in some cases even discouraging. Additionally, in a multifamily building's lifecycle, there are specific times when it is most cost effective and convenient for the property owners/managers to make energy and green upgrades. The program needs to focus on these triggers or entry points to engage and educate customers on energy efficiency benefits.

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MFEER has proven success developing an established network of professionals who are experienced in their specific trade and are effective at both marketing program availability to potential clients and installing the specific set of measures.

This network of professionals tailors their services (lighting, HVAC, appliances, etc.) to take advantage of these entry points.

Difficult to reach due to property owners lack cohesiveness as a group and high turn-over rate of property managers

Further planning difficulties are generated by the fact that property owners/managers, in large part, are not a cohesive group. This leads to disparities and gaps in industry knowledge and poses a barrier to knowledge sharing. In addition, since on-site property managers tend to be somewhat transient, maintaining consistent contact is difficult.

The multifamily property sector consists of commercial enterprises that provide residential living spaces. In this quasi-commercial role, the property owner straddles the residential and commercial energy efficiency programs' definitions. The MFEER specifically addresses their often overlooked needs.

The desired outcome of MFEER implementation is to realize long-term energy savings through the installation of energy-efficient products in both the common areas and dwelling units of multifamily complexes and the common areas of condominium complexes and mobile home parks. Another objective is the inclusion of rented mobile homes when those park owners/managers are making replacements in common areas.

The creation of energy-efficient complexes provides benefits beyond the direct energy savings to common areas. Through the incorporation of energy efficiency measures by multifamily property owners and managers, the opinions and behaviors of tenants can be influenced. These behaviors can contribute to a self-reinforcing cycle of energy efficiency responsibility throughout a complex as more knowledgeable customers install measures that can reduce the overall energy footprint, with no loss of safety or comfort.

Issue of Affordability

Out-of-pocket costs pose a significant participation barrier for the customer. With the exception of some of the larger property management firms, pay-back terms, no matter how favorable, are perceived as an unacceptable risk by the average customer.

Selected Measures Account for Majority of Program Savings

Although the MFEER offers a comprehensive list of measures for multifamily dwellings, most of the program results are provided by lighting-related measures. The cause of this is

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~~under investigation in the 2006-2008 process evaluation report, which is expected to be completed in 2009.~~

Program Integration to Overcome Barriers

~~Multifamily building owners and managers find it daunting to sort through the various programs, funding and incentive options, and program requirements.~~ To address the trend toward comprehensive solutions and to reduce the potential for lost opportunities, MFEER will integrate opportunities with other energy efficiency programs and services, such as the ~~existing~~ ESA program and ARP, HEES Energy Advisor as well as the MF EUC and income-qualified MIDI programs. ~~While programs will be coordinated and integrated, their respective policies and procedures will be followed in the delivery of services. Operational efficiencies will be employed to streamline the application process and installation of measures.~~ This unprecedented integrated approach combines market-rate and income-qualified energy efficiency measures that will benefit multifamily property owners and tenants; providing the opportunity to educate building owners on the benefits of energy efficiency and conservation efforts spanning the range of needs for the multifamily market.

This collaboration should increase participation levels for each respective program:

- The MFEER will continue to work with the ARP to promote the turn-in of inefficient (but functional) property owner-owned refrigerators. To generate interest and gain higher participation levels through joint marketing efforts, MFEER will also consider opportunities to cooperate with other energy efficiency programs or services.
- MFEER will promote the ~~LIEE program~~ ESA program and the California Alternate Rates for Energy (CARE) program within the application by making the property owner/manager aware of the available income-qualified services for the tenants. Additional marketing efforts may include reaching tenants through direct-mail to promote services not offered under MFEER, such as the CARE electricity bill discount of 20% or more and the income-qualified refrigerator replacement.
- MFEER will coordinate with the HEES Energy Advisor (“HEA”) program to promote, and potentially develop, a survey specific to the multifamily segment that engages the property owners/managers by helping identify opportunities for saving energy and money by using MFEER and other energy efficiency programs.
- The MF EUC program seeks deeper energy savings through a comprehensive approach. The program targets property owners/managers with scheduled project rehabilitation who are willing to invest in a performance-based whole-building approach. The incentives are designed to influence the implementation of comprehensive measures and therefore are based off of energy reduction

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achieved. As such, MFEER will guide property owners/managers with comprehensive project potential to the MF EUC program.

d) Quantitative Program Targets

The statewide MFEER is striving to meet the following program activity targets. The proposed targets may be modified due to funding restrictions, especially for ~~the 2009 bridge funding~~ the 2013-2014 year.

Table 5: Proposed Program Activity Targets

SCE Program Name	Program Target by 2010	Program Target by 2011	Program Target by 2012
<p align="center">Target #1</p> <p>Direct mailing to reach 20,000 multifamily sites</p> <p>Advertising in trade journal (dependent on approved marketing budget)</p> <p>Support outreach events such as trade shows</p>	<p>Complete 20,000 pieces of direct mailing,</p> <p>place monthly trade journal advertising,</p> <p>attend 3 trade shows per year</p>	Same as 2010	Same as 2010
<p align="center">Target #2</p> <p>Require 100% of program participating electrical contractors to meet licensing requirements</p>		Same as 2010	Same as 2010

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	100% for 2010-2012 program cycle		
Target #3 Deliver program specific communications to participating contractors	2 communications per year	Same as 2010	Same as 2010
Target #4 Continue to solicit participation from mega property management Company	3 per year	Same as 2010	Same as 2010
SDGE Program Name	Program Target by 2010	Program Target by 2011	Program Target by 2012
Target #1 Support outreach events	Participate in community outreach programs min one per quarter	Same as 2010	Same as 2010

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Target #2			
Require 100% of program participating electrical/gas contractors to meet licensing requirements	100% for 2010-2012 program cycle	Same as 2010	Same as 2010
Target #3			
Deliver program specific communications to participating contractors	2 communications per year	Same as 2010	Same as 2010

<u>Program Target</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>Target #1</u> <u>Direct mailing to reach 5,000 multifamily property owners/manager (SoCalGas)</u> <u>Advertising in trade journal (depended on approved marketing budget) (SoCalGas)</u> <u>Support outreach events such as trade shows (SoCalGas)</u>	<u>Complete 5,000 pieces of direct mailing,</u> <u>place monthly trade journal advertising,</u> <u>attend 2 trade shows per year</u>	<u>Same as 2013</u>
<u>Target #2</u>	<u>100% for 2013-2014 program cycle</u>	<u>Same as 2013</u>

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<u>Program Target</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>Require 100% of program participating electrical contractors to meet licensing requirements</u>		
<u>Target #3</u> <u>Deliver program specific communications to participating contractors</u>	<u>2 communications per year</u>	<u>Same as 2013</u>
<u>Target #4</u> <u>Continue to solicit participation from mega property management Company</u>	<u>3 per year</u>	<u>Same as 2013</u>

Note: The proposed activities above may be limited by program funding restrictions, especially for 2009

e) Advancing Strategic Plan Goals and Objectives

In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including: whole-house solutions, plug-load efficiency, performance standards, leveraging of local government energy partnership opportunities, and DSM integration. As technology progresses, this program will adopt newer measures such as home energy monitoring and displays. Each of these measures works to reduce the energy and carbon footprint of multifamily dwellings and will create additional energy savings and integration opportunities through inter-program referral, data sharing, and bundling of DSM solutions across energy efficiency, DR, CSI, smart meter and other IDSM efforts.

The MFEER will support the following Strategic Plan as described below:

- 2.1.3.2. Home buyers, owners, and renovators will implement a whole-house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment, household appliances, lighting and “plug load” amenities;
- 2.1.3.3. Plug loads will be managed by developing consumer electronics and appliances that use less energy and provide tools to enable customers to understand and manage their demand; and

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- 2.1.3.4. The residential lighting industry will undergo substantial transformation through the deployment of high-efficiency and high-performance lighting technologies, supported by state and national codes and standards.

The current program design does not specifically address the Energy Division's market transformation goal of having 100% of multifamily households achieve a 40% reduction in energy consumption from 2008 levels by 2020. However, the program is part of the solution to reach the multifamily transformation goal for California. A portion of the 2020 goals could be achieved through codes and standards ratcheting or by other local program's implementations. To become a market transformation program, MFEER will need to make significant changes to program design, program cost effectiveness, and many other economic feasibility issues. Furthermore, the MFEER program will need to be sensitive to the CPUC/CEC market potential studies.

5. Program Implementation

a) Statewide IOU coordination

The MFEER ~~provides cash rebates~~ offers a variety of incentives for installing qualified energy-efficiency products in existing apartment dwelling units and in the common areas of apartment and condominium complexes, and common areas of mobile home parks. Property owners and managers of existing residential multifamily complexes with two or more dwelling units may qualify.

Incentive levels

Table 6: The MFEER offers incentives in the following forms:

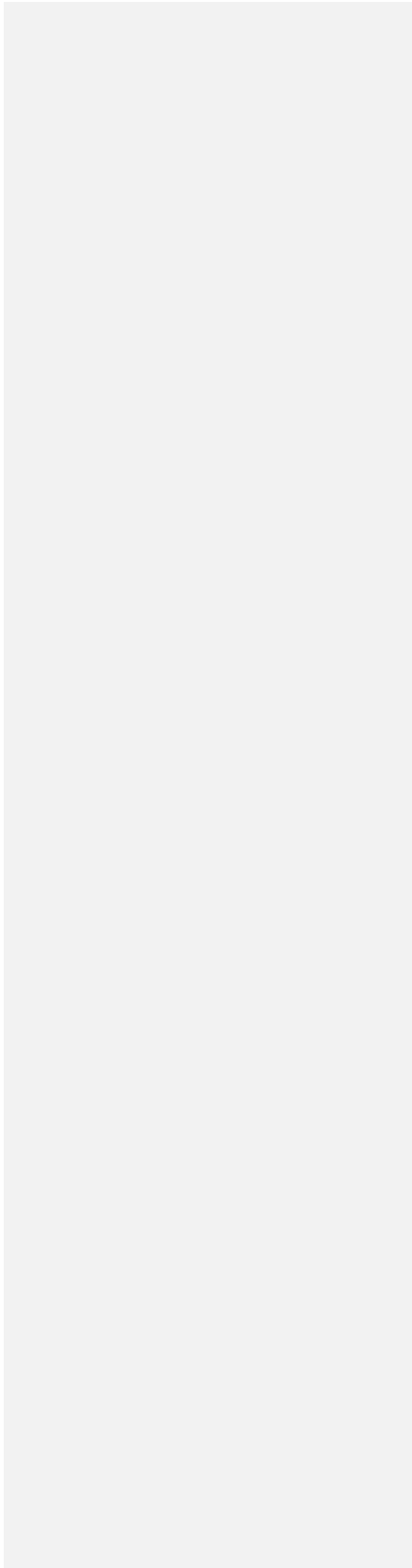
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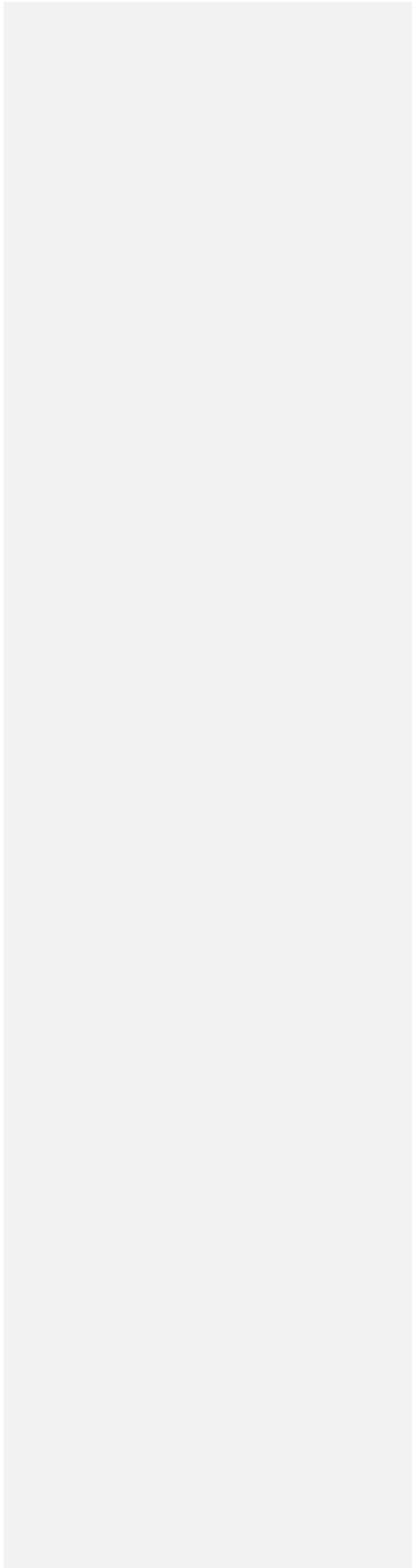


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<p align="center">R e s i d e</p>	<p align="center">\$0 + 0 pe r</p>	<p align="center">n/a</p>	<p align="center">n/ a</p>	<p align="center">n/a</p>

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<p>estimated retrofit costs for residential separate space heating equipment</p>	<p>sq. ft.</p>			

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<p>• R e s i d e n t i a l C o o l l e c t i v e P r o g r a m S t e p</p>	<p>• \$0 p e r sq. ft.</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>

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M E A S U R E	P G & E	S C E	S C G	S D G & E
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<p>MEASURE</p>	<p>PROGRAM</p>	<p>STATUS</p>	<p>START DATE</p>	<p>END DATE</p>	<p>STATUS</p>
<p>attest</p>					
<p>natural gas water heater</p>	<p>n/a</p>	<p>n/a</p>	<p>\$750,000</p>	<p>\$750,000</p>	<p>\$750,000</p>

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<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>r a n d / o f B o i l e r C o n t r o l l e r s</p>				
<p>• N a t u r a l</p>	<p>• n/a</p>	<p>• n/a</p>	<p>• \$ 1, 5 0, 0, 0, 0, 0</p>	<p>• \$7 50 .0 0/ ## #</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center"> ← M E A S U R E </p>	<p align="center"> ← P G & E </p>	<p align="center"> ← S € E </p>	<p align="center"> ← S € G </p>	<p align="center"> ← S D G & E </p>
<p align="center"> G a s W a t e r H e a t e r a n d / o r D e i t e r € o n t r </p>			<p align="center"> # # t </p>	

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">o l l e r s</p>				
<p align="center">C e n t r a l i z e d e m o n s t r a t i o n s a n d c o m p a r i s o n s</p>	<p align="center">\$ 1 00 /sy ste m</p>	<p align="center">n/a</p>	<p align="center">\$ 1, 5 0 0/ s y ste m</p>	<p align="center">\$ 1 5 00 /sy ste m</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">o i l e r s - H e t W a t e r / S p a c e H e a t i n g</p>				
<p align="center">N a t</p>	<p align="center">\$3 0. 00</p>	<p align="center">n/a</p>	<p align="center">\$ 3 0.</p>	<p align="center">\$3 0. 00</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">u r a t G a s S t o r a g e W a t e r H e a t e r</p>	<p align="center">/u nit</p>		<p align="center">0 0/ u nit t</p>	<p align="center">/u nit</p>
<p align="center">E l e e t r</p>	<p align="center">• \$3 0. 00 /u nit</p>	<p align="center">• \$3 0. 00 /u nit</p>	<p align="center">• \$/ u</p>	<p align="center">• \$3 0. 00 /u nit</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>i e S t o r a g e W a t e r H e a t e r</p>				
<p>• C o m m e r c i a l S</p>	<p>• \$5 0. 00 /a nit</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>t e a m</p> <p>T r a p s - a n y</p> <p>p r e s s u r e</p>				
<p>• C o m m e r c i</p>	<p>• \$1 00 0/ m it</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>a t t e n t i o n a l i n s t r u c t i o n</p>				
<p>• I n d u s t r i a l</p>	<p>• \$ 0 0 0 0 0 0</p>	<p>• n/a</p>	<p>• n/a a</p>	<p>• n/a</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>a t t e # # H # # P # - y + S P # + S</p>				
<p>• L O # - F + O #</p>	<p>• \$1 5. 00 /h mit</p>	<p>• n/a</p>	<p>• n/a #</p>	<p>• \$5 0. 0/ # #</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>S h o w e r h e a d</p>				
<p>• F a u t e t A e r a t o r s</p>	<p>• n/a</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• \$1 2 5/ ## #</p>
<p>• D e t e</p>	<p>• \$3 00 :0 0/ ##</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>






























































**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S € E</p>	<p>• S € G</p>	<p>• S D G & E</p>
<p>d</p> <p>E v a p o r a t i v e € o o l e r - L e v e l t</p>	<p>#</p>			
<p>• D # e t e</p>	<p>• \$4 00 -0 0/ ##</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C E G</p>	<p align="center">S D G & E</p>
<p>d</p> <p>E v a p o r a t i v e C o o t e r i t i h</p> <p>W e #</p> <p>P r e</p>	<p>#</p>			

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

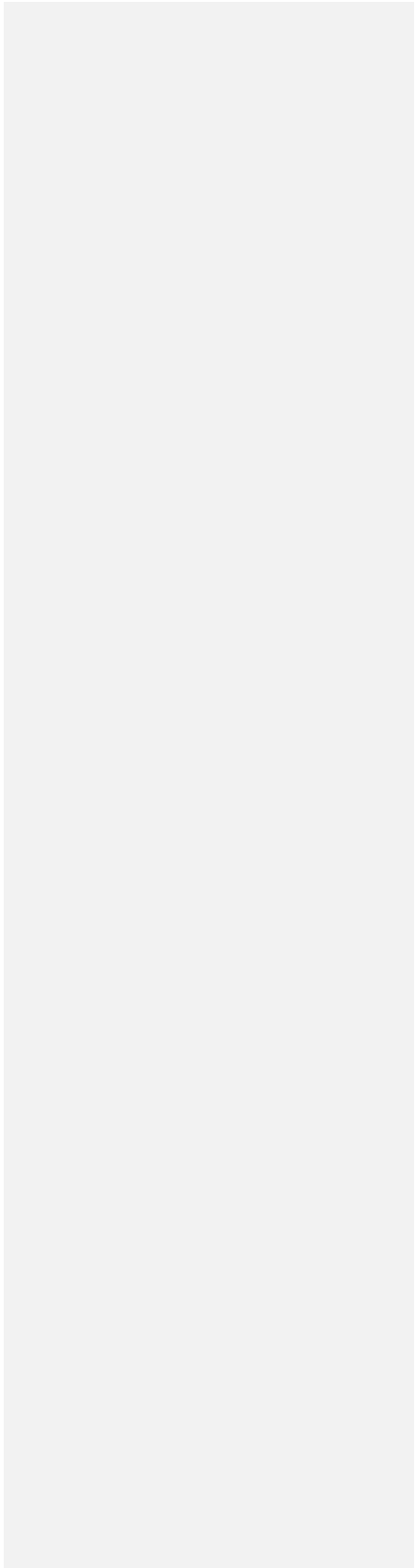
<p>  M  E  A  S  U  R  E </p>	<p>  P  G  &  E </p>	<p>  S  C  E </p>	<p>  S  C  G </p>	<p>  S  D  G  &  E </p>
<p>  s  s  t  r  e  R  e  l  i  e  f  D  a  m  p  e  r  ( s )  -  L  e  v  e  l  t </p>				
<p>  D  u  e  t </p>	<p>  \$5  00  0  0/ </p>	<p>  n/a </p>	<p>  n/  a </p>	<p>  n/a </p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

M E A S U R E	P G & E	S C E	S C G	S D G & E
e d E v a p o r a t i v e C o l l e c t i v e L e v e l 2	## it			
D u e t	\$6 00 -0 0/	n/a	n/ a	n/a

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p>e d E v a p o r a t i v e C o o l l e c t i v e i n i t i a t i v e P r</p>	<p>## #</p>			



**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">e s s e n t i a l e f f e c t i v e n e s</p>				
<p align="center">P a c k a g e s T e r m i n i</p>	<p align="center">\$1 00 0 0 ## #</p>	<p align="center">\$1 00 0 0 ## #</p>	<p align="center">N/A #</p>	<p align="center">\$1 00 0 0 ## #</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center"> ← M E A S U R E </p>	<p align="center"> ← P G & E </p>	<p align="center"> ← S C E </p>	<p align="center"> ← S C G </p>	<p align="center"> ← S D G & E </p>
<p align="center"> n a t A i r C e n d i t i o n e r s a n d P a e k a s e T e </p>				

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>r m i n a t i o n a l H e a l t h P u b l i c</p>				
<p>• E n e r g y * R e t e n A i r</p>	<p>• \$5 0. 00 /t nit</p>	<p>• \$5 0. 00 /t nit</p>	<p>• \$5 0. 00 /t nit</p>	<p>• \$5 0. 00 /t nit</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>C o n d i t i o n e r s</p>				
<p>• V a r i a b l e S p e e d M e t e r</p>	<p>• \$5 0. 00 /a nit</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">(V S M) A i r H a n d l e r S y s t e m</p>				
<p align="center">Q 2</p> <p align="center">A F U E</p> <p align="center">C e</p>	<p align="center">\$2 00 .0 0/ # #</p>	<p align="center">n/a</p>	<p align="center">\$ 2 0 0. 0/ # # t</p>	<p align="center">\$2 00 .0 0/ # #</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>n t r a t i o n a l G a s F u n d e d</p>				
<p>• 9 4 A F F E C T</p>	<p>• \$3 00 -0 0/ 00 it</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">e n t r a t i o n a l N a t i o n a l G a s F u n d a t e d</p>				
<p align="center">E n e r g y *</p>	<p align="center">\$3 0. 00 /ft xft xft e</p>	<p align="center">\$3 0. 00 /ft xft xft e</p>	<p align="center">/ft ft</p>	<p align="center">\$3 0. 00 /ft xft xft e</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center"> ← M E A S U R E </p>	<p align="center"> ← P G & E </p>	<p align="center"> ← S C E </p>	<p align="center"> ← S C G </p>	<p align="center"> ← S D G & E </p>
<p align="center"> E x t e r i o r H a r d w i r e d F i t t e r e s e n t F i </p>				

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

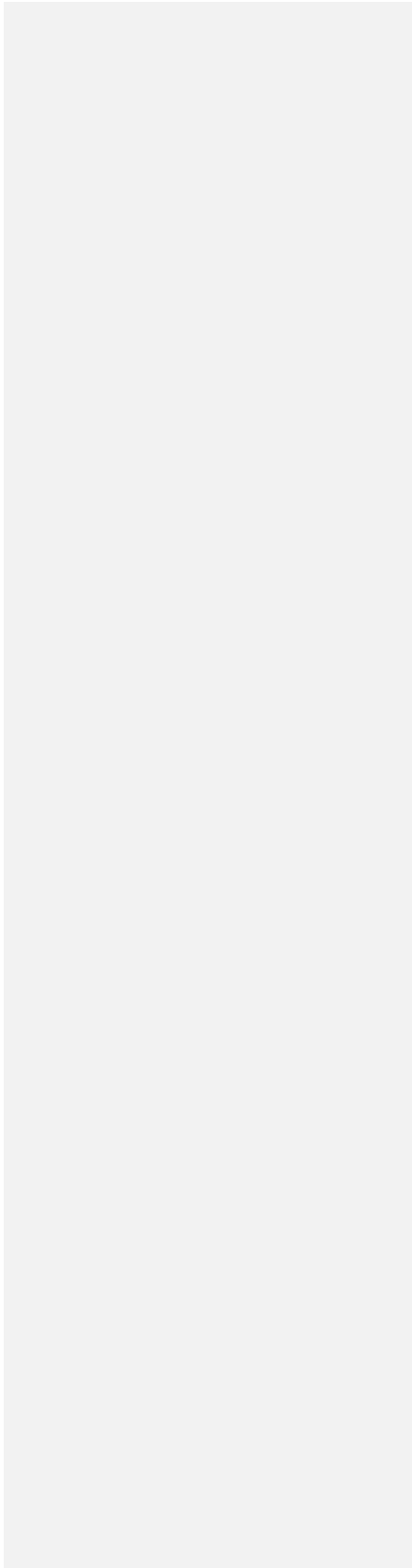
<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>x t t r e s</p>				
<p>• E n e r g y E f f i c i e n c y I n t e r i o r H a r d w a r e</p>	<p>• \$4 0. 00 /sq ft yr e</p>	<p>• \$4 0. 00 /sq ft yr e</p>	<p>• \$4 0. 00 /sq ft yr e</p>	<p>• \$4 0. 00 /sq ft yr e</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">F i t t e r e s e n t F i x t u r e s</p>				
<p align="center">E n e r g y L a b</p>	<p align="center">\$2 0. 00 /ft xt ur e</p>	<p align="center">\$2 0. 00 /ft xt ur e</p>	<p align="center">1/ #</p>	<p align="center">\$2 0. 00 /ft xt ur e</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center"> M E A S U R E </p>	<p align="center"> P G & E </p>	<p align="center"> S € E </p>	<p align="center"> S € G </p>	<p align="center"> S D G & E </p>
<p align="center"> e t e d € e i t i n g F a n s w i t h E n e r g y * € </p>				



**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
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<p>• M E A S U R & E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>F L</p>				
<p>• L E D E x i t S i g n s</p>	<p>• \$3 5. 00 /ft xt ## e</p>	<p>• \$3 5. 00 /ft xt ## e</p>	<p>• n/ a</p>	<p>• \$3 5. 00 /ft xt ## e</p>
<p>• O e e # P # # e y S e # s e</p>	<p>• \$1 0. 00 /se ns or</p>	<p>• \$1 0. 00 /se ns or</p>	<p>• n/ a</p>	<p>• \$1 0. 00 /se ns or</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
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<p>• M E A S U R E</p>	<p>• P G & E</p>	<p>• S € E</p>	<p>• S € G</p>	<p>• S D G & E</p>
<p>r s</p>				
<p>• P h e t e r o g e n e o u s</p>	<p>• \$1 0. 00 /p ho tee ell</p>	<p>• \$1 0. 00 /p ho tee ell</p>	<p>• \$1 0. 00 /p ho tee ell</p> <p>• n/ a</p>	<p>• \$1 0. 00 /p ho tee ell</p>
<p>• S e r e w - I n € e m P a e t F t</p>	<p>• \$8 0. 0/ ## #</p>	<p>• \$8 0. 0/ ## #</p>	<p>• \$8 0. 0/ ## #</p> <p>• n/ a</p>	<p>• \$8 0. 0/ ## #</p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center"># o f e s e e # t (C F) R e f t e e t o f B # t b s - R 3 0</p>				

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
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<p> ● M ● E ● A ● S ● U ● R ● E </p>	<p> ● P ● G ● & ● E </p>	<p> ● S ● C ● E </p>	<p> ● S ● C ● G </p>	<p> ● S ● D ● G ● & ● E </p>
<p> ● S e r v i c e C o m p a n y P a r t i c i p a t i o n e e n t (C F) </p>	<p> ● \$1 0. 00 /u nit </p>	<p> ● \$1 0. 00 /u nit </p>	<p> ● n/ a </p>	<p> ● \$1 0. 00 /u nit </p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
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<p>• M E A S U R & E</p>	<p>• P G & E</p>	<p>• S C E</p>	<p>• S C G</p>	<p>• S D G & E</p>
<p>R e f l e e t o r B u i l t s - R 4 0</p>				
<p>• T i m e C i t e k s</p>	<p>• \$3 6. 00 /h me ele ek</p>	<p>• n/a</p>	<p>• n/ a</p>	<p>• n/a</p>
<p>• T 8</p>	<p>• \$3 2.</p>	<p>• \$3 2.</p>	<p>• n/</p>	<p>• \$3 2.</p>

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<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
<p align="center">0 r T 5 r 2 - f t r t t a m p</p>	<p align="center">00 /u nit</p>	<p align="center">00 /u nit</p>	<p align="center">a</p>	<p align="center">00 /u nit</p>
<p align="center">T 8 0 r T 5 r 2 - f t 2</p>	<p align="center">\$3 4. 00 /u nit</p>	<p align="center">\$3 4. 00 /u nit</p>	<p align="center">n/a a</p>	<p align="center">\$3 4. 00 /u nit</p>

**2013-2014 Energy Efficiency Programs
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<p>MEASURE</p>	<p>PROGRAM</p>	<p>START</p>	<p>END</p>	<p>STATUS</p>
<p>1</p> <p>2</p> <p>3</p>	<p>4</p>	<p>5</p>	<p>6</p>	<p>7</p>
<p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p>	<p>13</p>	<p>14</p>	<p>15</p>	<p>16</p>
<p>17</p> <p>18</p> <p>19</p>	<p>20</p>	<p>21</p>	<p>22</p>	<p>23</p>

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<p> M E A S U R E </p>	<p> P G & E </p>	<p> S C E </p>	<p> S C G </p>	<p> S D G & E </p>
<p> 5 - 2 - f t 4 ↓ a m p s </p>				
<p> T 8 θ r T 5 - 3 - f t - ↓ ↓ a m </p>	<p> \$3 2 00 /4 mit </p>	<p> \$3 2 00 /4 mit </p>	<p> \$3 2 00 /4 a </p>	<p> \$3 2 00 /4 mit </p>

**2013-2014 Energy Efficiency Programs
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<p> M E A S U R E </p>	<p> P G & E </p>	<p> S C E </p>	<p> S C G </p>	<p> S D G & E </p>
P				
<p> T 8 0 f T 5 7 3 - f t 2 l a m p s </p>	<p> \$3 4 00 /a nit </p>	<p> \$3 4 00 /a nit </p>	<p> n/ a </p>	<p> \$3 4 00 /a nit </p>
<p> T 8 0 f T 5 7 3 - </p>	<p> \$3 8 00 /a nit </p>	<p> \$3 8 00 /a nit </p>	<p> n/ a </p>	<p> \$3 8 00 /a nit </p>

**2013-2014 Energy Efficiency Programs
California Statewide Program for Residential Energy Efficiency
Program Implementation Plan**

<p>MEASURE</p>	<p>PROGRAM</p>	<p>START</p>	<p>END</p>	<p>STATUS</p>
<p>3</p>				
<p>4</p>	<p>\$4</p>	<p>\$4</p>	<p>4</p>	<p>4</p>
<p>5</p>	<p>\$3</p>	<p>\$3</p>	<p>5</p>	<p>5</p>

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<p align="center">M E A S U R E</p>	<p align="center">P G & E</p>	<p align="center">S C E</p>	<p align="center">S C G</p>	<p align="center">S D G & E</p>
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<p>MEASURE</p>	<p>PROGRAM</p>	<p>START</p>	<p>END</p>	<p>STATUS</p>
<p>1</p> <p>2</p> <p>3</p>	<p>4</p>	<p>5</p>	<p>6</p>	<p>7</p>
<p>1</p> <p>2</p> <p>3</p>	<p>\$3</p> <p>8</p> <p>00</p> <p>/u</p> <p>nit</p>	<p>\$3</p> <p>8</p> <p>00</p> <p>/u</p> <p>nit</p>	<p>n/a</p> <p>a</p>	<p>\$3</p> <p>8</p> <p>00</p> <p>/u</p> <p>nit</p>
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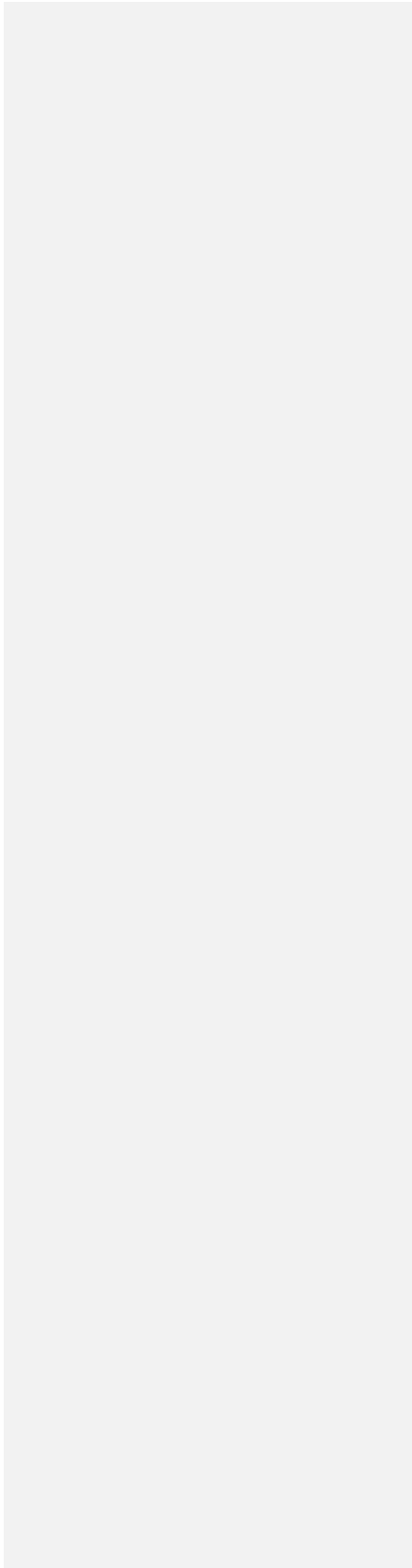
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- [Prescribed rebates;](#)
- [Mid-stream incentives through retailers, distributors, and/or contractors; and](#)
- [Direct Installation of energy efficiency products](#)

i. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The MFEER statewide marketing plans include print collateral material, direct mail campaigns, print media advertisements, trade show exhibitions and presentations [to related target market organizations](#), and leveraging with other IOU energy efficiency efforts and programs where feasible (see targets above, Table 5). [The utilities may use a range of tactics such as; e-mails, flyers, on-Line marketing, direct mail, bill messaging, social media, local events, ethnic media, and other channels that suit the target audience, the message, and the resources. MFEER will also coordinate outreach activity with the ESA program, WHUP, PLA, and HVAC programs to maximize customer engagement and opportunities.](#)

ii. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The MFEER program will coordinate with CEC, ARB, AQMD, and other local agencies and municipalities to implement environmental programs in support of California’s long term Strategic Plan and CPUC initiatives.

iii. Similar IOU and POU programs

The MFEER is a statewide program. Programs outside of California are implementing similar program designs (e.g., Austin Energy).

b) Program delivery and coordination

To motivate multifamily property owners/managers to install energy-efficient products in the common areas and dwelling units of multifamily complexes and common areas of mobile home parks and condominiums, the MFEER Program offers prescribed

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rebates for energy efficient products. An additional objective is to increase the energy efficiency awareness and knowledge of property owners/managers and tenants.

The program leverages an extensive network of contractors to reach property owners and property managers. In addition to these contractors, the program also makes direct outreach to ~~mega-larger~~ property ~~management~~ companies ~~such as the Irvine Company~~. This network of contractors helps identify prospective properties and contact people. The contractors also help property managers develop lists of improvements that are eligible for utility incentives. When ready, the contractors install the measures then often will assist the property owners/managers complete the incentive application paperwork.

For marketing and outreach activities, the MFEER not only reaches out to the end users, but will also make special outreach and training sessions available to the ~~MFEER affiliated~~ specific trade contractors ~~on a regular basis~~.

i. Emerging Technologies (ET) Program

The program collaborates with the Emerging Technologies Program in assessing energy efficiency technologies that are new and/or underutilized in the residential/multifamily market.

ii. Codes & Standards Program

The MFEER works with the codes and standards group to ensure that all the measures offered by the program are updated timely.

iii. WE&T efforts

The implementation of various training and coverage may differ for each IOU. For SCE, the energy centers traditionally did not offer classes specifically designed for the MFEER contractors and property owners. The MFEER will work with the energy centers to develop new and modify existing education and training classes for contractors and property owners, to assist in advancing the objectives of the Strategic Plan.

iv. Program-specific marketing and outreach efforts

The MFEER marketing plans consist of print collateral material, direct mail campaigns, print advertisement, trade show exhibitions and presentations, ~~statewide advertising to related target market organizations~~, and leveraging other IOU energy efficiency efforts and programs where feasible. Additionally, program-specific marketing and outreach activities are necessary to drive participation and attain program goals.

i.—

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v. **Non-energy activities of program**

Training of contractors and outreach to mega-large property owners are part of the program's non-energy activities.

vi. **Non-IOU programs**

The program allows cross promotion of other applicable programs, such as those of water agencies that offer rebates for clothes washers and dishwashers. Program staff will work with other utilities and groups, as appropriate, to increase program participation and savings levels.

vii. **CEC work on PIEREPIC**

The MFEER will work with the residential program team to track the latest developments from CEC and PIEREPIC.

viii. **CEC work on C&S**

MFEER is very sensitive to the codes and standards that the IOUs and CEC are working on. The program will monitor these activities and incorporate any standards ratcheting as appropriate.

ix. **Non-utility market initiatives**

Along with the HEER program, MFEER supports all ENERGY STAR® activities. In addition, MFEER also participates in activities with the local and national housing authorities.

c) **Best Practices**

Given the difficulty of reaching potential customers, the MFEER is designed to leverage the knowledge and contacts of its network of contractors. Given the limited marketing budget, this targeted outreach method has yielded fruitful results for the program. It also consistently helped the program in overcoming the split-incentive barrier within this segment.

This program also drives permanent change in California and achieves market transformation through the installation of ENERGY STAR® interior and exterior hardwired fixtures qualified products, thereby reducing tenants' energy usage in apartments and also reducing property owners' energy usage in common areas.

d) **Innovation**

A key program innovation is the customer referral process, which was developed to assist property owners who own apartment buildings served by different IOUs. In this process, a property owner who is working with an IOU and owns properties served by other IOUs is automatically referred to the appropriate program managers at those IOUs. Confusion

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and barriers that can result when working with multiple entities is reduced since the IOUs operate identical rebate programs and use similar rebate applications.

As one of the few programs in the nation that specifically address this hard-to-serve market segment, this unique and innovative program has developed a model approach for other utilities to emulate. In addition, the program represents an innovative partnership among California utilities, demonstrating the great potential of a statewide energy efficiency program and creating processes, upon which other partnerships can build.

This program is especially innovative since multifamily property owners/managers and tenants have traditionally been unable to receive energy efficiency rebates. Some tenants qualified for the low-income programs, and before 2002, under the RCP program, a few multifamily properties received installation of CFLs, water heater controllers, and duct test and sealing. The development and implementation of the statewide MFEER has increased the participation of not only property owners/managers (for the common area energy efficient measures), but also of tenants who use approximately 80% of the energy in multifamily buildings. Traditionally, this has been an untapped market. Each year that rebate funding has been available, energy savings have increased exponentially.

e) **Integrated/coordinated Demand Side Management (ISDM)**

To identify successful integration approaches and offerings, potential pilot programs and metrics, the IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force.

The MFEER [program](#) will work with ISDM initiatives to identify the best possible collaboration. The potential offer could include smart metering, load management and other services, as appropriate. The details of this collaboration will be better defined in the ~~2010-2012~~[2013-2014](#) program cycle.

f) **Integration Across Resource Types (energy, water, air quality, etc)**

The program allows for cross-promotion of other available programs, such as water companies that offer rebates for clothes washers and dishwashers. SCE agrees to investigate and implement a similar market program to make multiple resource offerings in MFEER consistent statewide.

~~SCE and SoCalGas will [identify areas of opportunity to](#) collaborate to create a pilot program specifically for the [Multifamily-multifamily](#) market segment. [The pilot will be created by adding a multifamily component to the current \(joint\) HEES Program. The audits will address water, gas, and electric savings for multifamily buildings. SCE and SCG will share the results of the multifamily HEES pilot. If successful, the MFEER will adopt this implementation as part of the statewide initiative.](#)~~

g) **Pilots**

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~~A multifamily component will be added to the HEES program. SCE and SCG will create a pilot program that emulates the current energy audit program for single family residents. In order to accomplish this, SCE and SCG will work with a third party to create the multifamily audit tool. IOUS plan to offer the pilot program at various venues such as the Apartment Owners Association meetings, tradeshow, and seminars. This approach should be met favorably as owners typically want to save as much money as possible. By using the audit to perform a comprehensive energy analysis, the MFEER core measures will be recommended when appropriate. We will incorporate recommendations for water savings and refer customers to their local water districts when appropriate.~~

MF Audit Tool - Pilot to target other mixed use property types such as: SF HOA common areas, Senior Living facilities and SROs (i.e. dorms), would like to consider including common areas of HOA for single-family home communities, and Single-room occupancy (SRO) facilities, such as dormitories and assisted living facilities; these are not segments currently targeted by other efforts.

SoCalGas– MF Audit Tool: SoCalGas will offer in coordination with the Energy Advisor Program a multi-family survey as a pilot program in 2012. This involves surveys targeted at the facility owners of apartment buildings that will focus closely and specifically on overall property efficiency. SCG will expand the survey in 2013-2014 to mixed use property types such as SF HOA common areas of condominiums and motor home parks in order to assist those hard-to-reach segments in reaching greater energy savings potential.

h) EM&V

The utilities plan to work with each other and with the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the PIPs.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

- Work with Energy Division to resolve market baseline and transformation issues;
- Update and repeat CLASS and RASS/RMST Appliance Tracking & Saturation studies, as appropriate;
- Conduct statewide process evaluation to assess the following:
 - i. Track the all proposed key metrics;
- Conduct SCE specific process evaluation to improve program design, implementation and market effectiveness; and

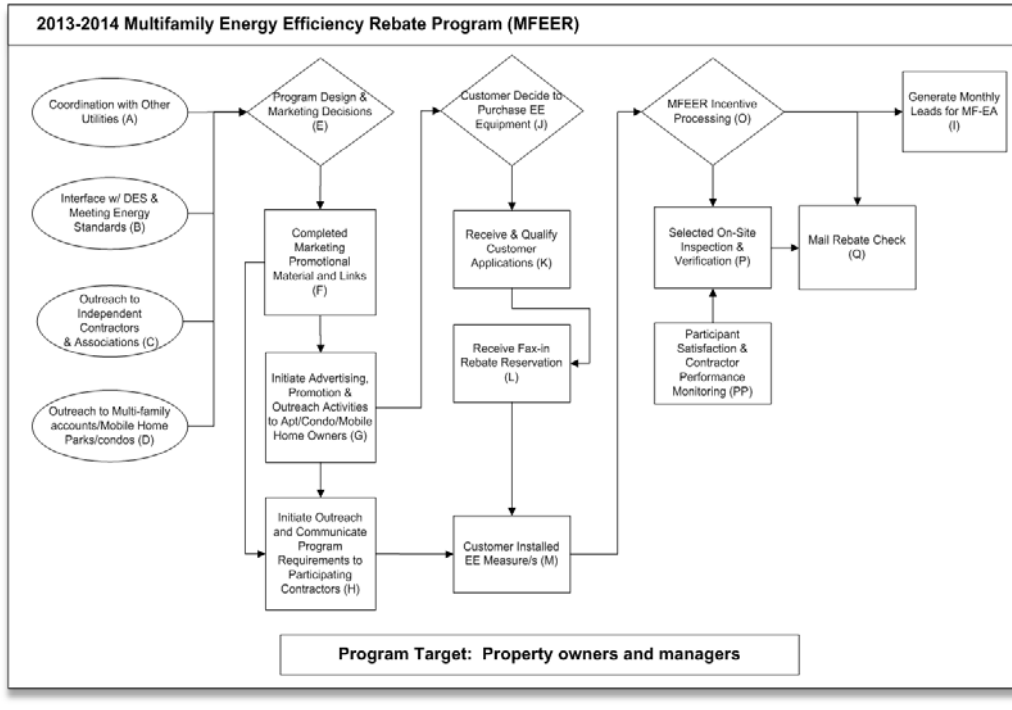
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- Design an M&E study to monitor the pilot program mentioned above, especially to examine the conversion rate from multifamily [HEESEA](#) to MFEER program participation and assess the level of participation relative to the scope of [HEESEA](#) recommendations.

As indicated by the Itron Final Report: Scenario Analysis to Support Updates to the CPUC Savings Goals, 3/2007, the residential sector (single family and multifamily) will be expected to deliver a significant portion of California's energy savings in nearly all scenarios. The statewide MFEER program delivers a portion of the required savings and is part of the total energy efficiency strategy.

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MFEER Process Diagram

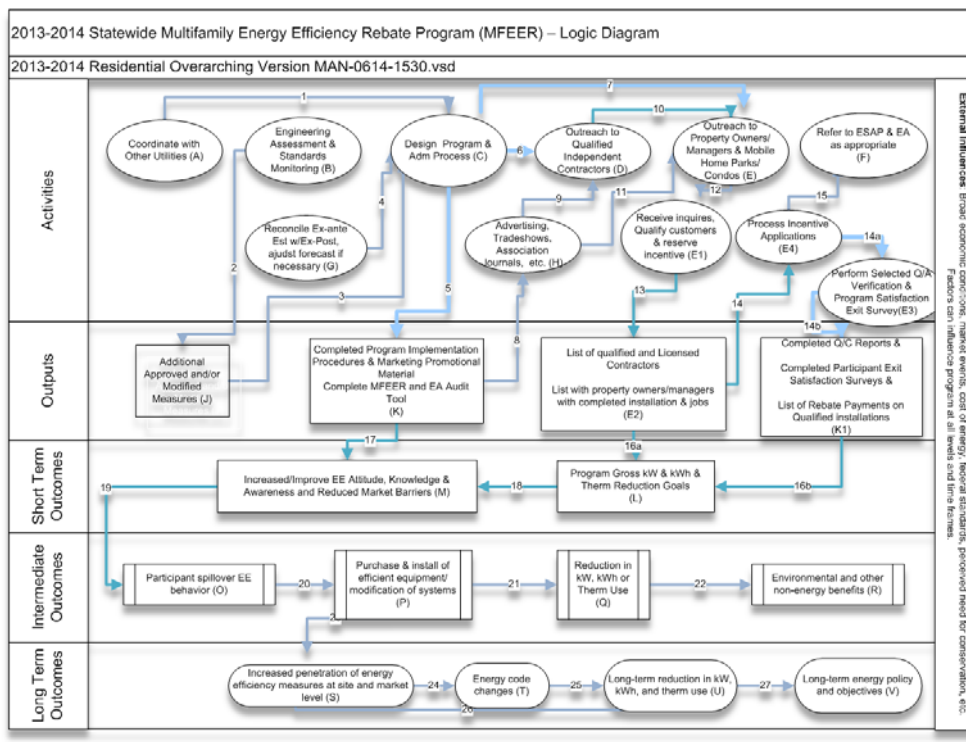


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Program Logic Model MFEER

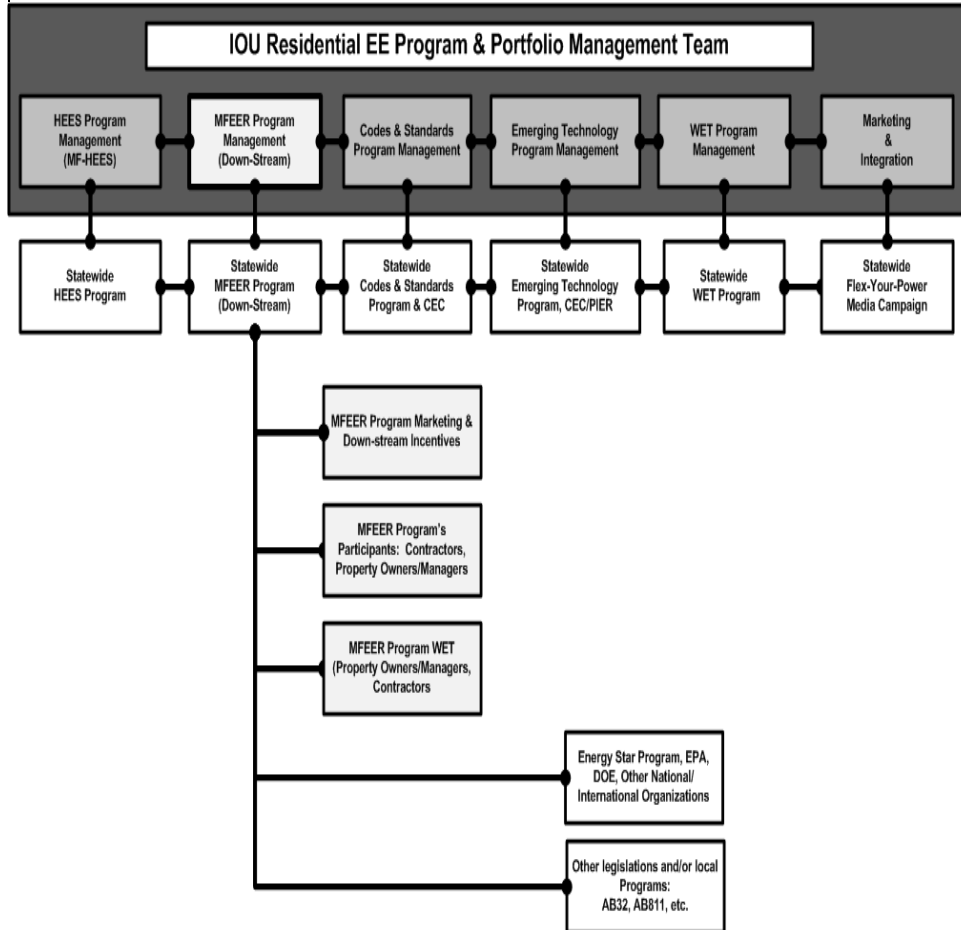
Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Multifamily Energy Efficiency Rebate Program.



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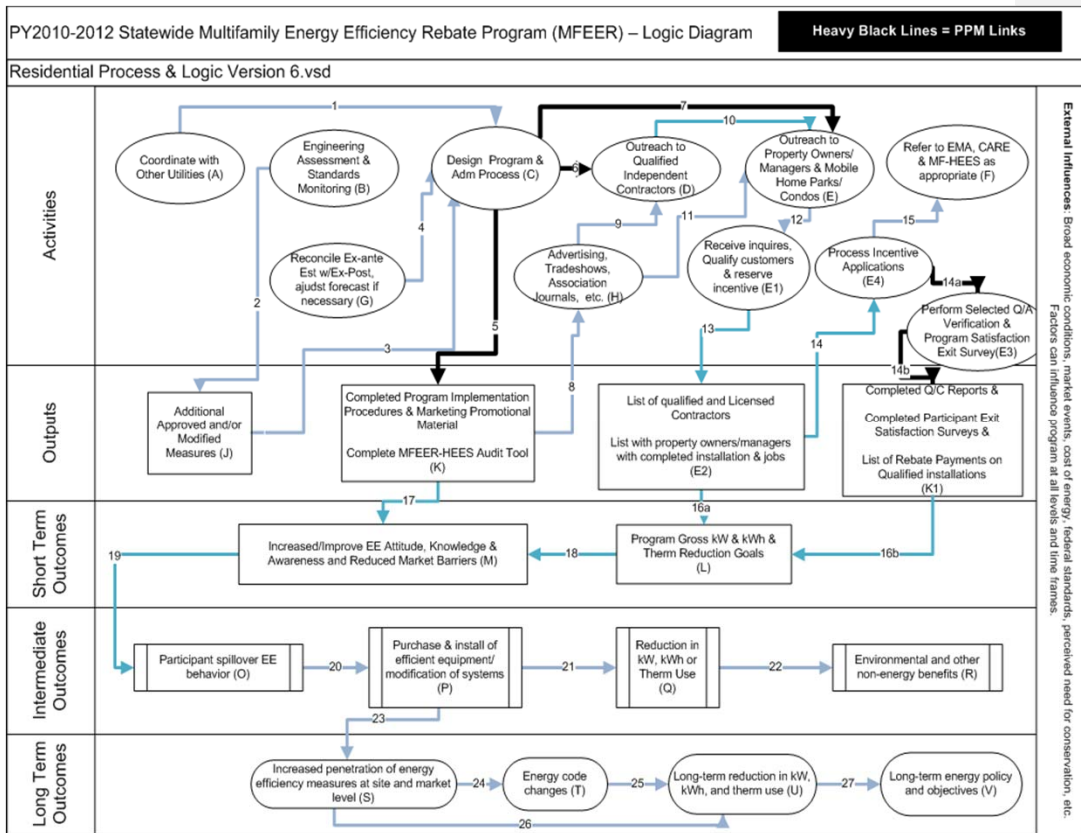
Program Interaction Diagram MFEER



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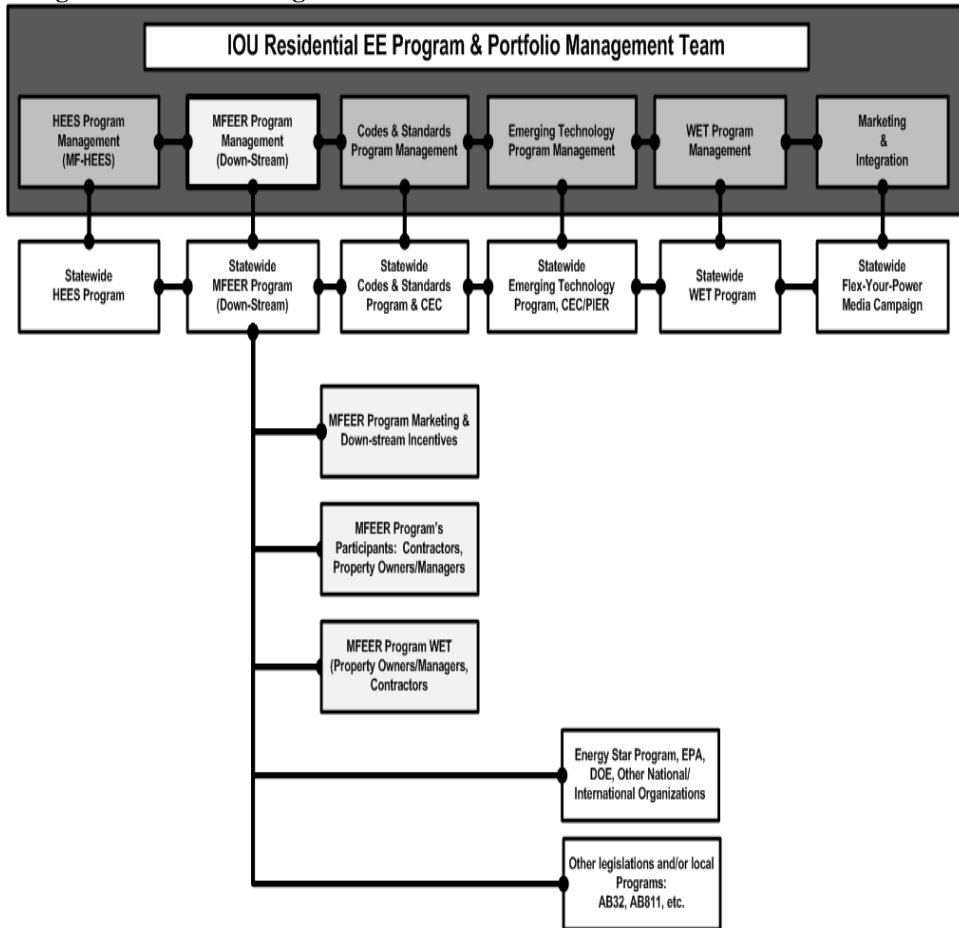
6. Program Logic Model MFEER

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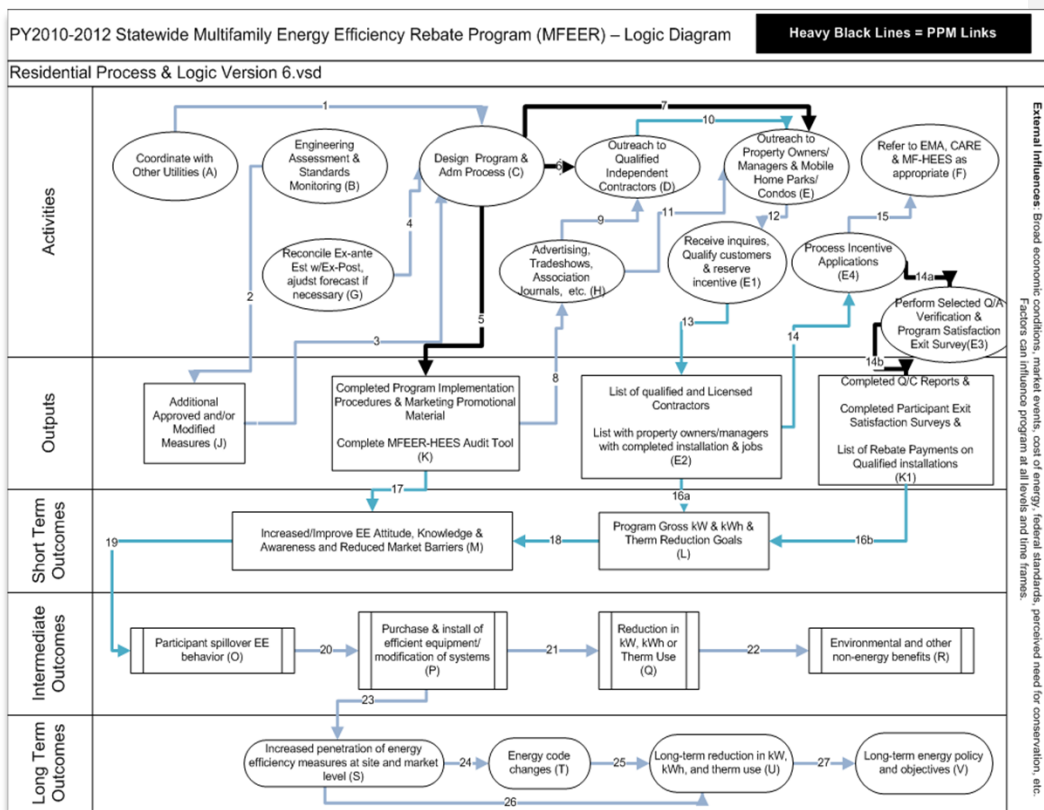
Program Interaction Diagram MFEER



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7. Program Logic Model MFEER

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- 1) **Program Name:** SW-CALS-EUC-WHUP
Program ID: SCG 3705
Program Type: Statewide Core Program
- 2) **Type of Sub-Program:** Core Third Party Partnership
- 3) **Market sector or segment that this sub-program is designed to serve:**
- a. Residential
 - i. Including Low Income? Yes No;
 - ii. Including Moderate Income? Yes No.
 - iii. Including or specifically Multifamily buildings Yes No.
 - iv. Including or specifically Rental units? Yes No.
 - b. Commercial (List applicable NAIC codes: _____)
 - c. Industrial (List applicable NAIC codes: _____)
 - d. Agricultural (List applicable NAIC codes: _____)
- 4) **Is this sub-program primarily a:**
- a. Non-resource program Yes No
 - b. Resource acquisition program Yes No
 - c. Market Transformation Program Yes No
- 5) **Indicate the primary intervention strategies:**
- a. Upstream Yes No
 - b. Midstream Yes No
 - c. Downstream Yes No
 - d. Direct Install Yes No.
 - e. Non Resource Yes No.
- 6) **Projected Sub-program Total Resource Cost (TRC) and Program Administrator Cost (PAC)** TRC ___ PAC ___
- 7) **Projected Sub-Program Budget**

Table 5. Projected Sub-Program Budget, by Calendar Year
[Table-5 to be provided as an Excel Attachment to this PIP]

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8) Sub-Program Description, Objectives and Theory

a) Sub-Program Description and Theory:

According to a report released by the Office of the Vice President, “homes in the United States generate more than 20 percent of our nation’s carbon dioxide emissions, making them a significant contributor to global climate change.”³³ The challenge of addressing residential emissions has been a significant topic for California stakeholders and was addressed when D.09-09-047 acknowledged, “Improving the energy efficiency of all households is necessary to achieve the target outcome for the 2020 existing residential *Strategic Plan* goals.”³⁴

The Office of the Vice President report also identifies three market barriers to comprehensive residential retrofits:

- 1) Lack of customer and contractor awareness and access to information;
- 2) Lack of access to financing; and
- 3) Lack of access to skilled workers.

A shift in market perception, both for contractors and customers, towards a whole house approach must take place to drive customer action. WHUP is designed to offer a one-stop approach to whole-house energy efficient improvements that recognize the need for customers to participate over varied timelines. To assist in the effort to overcome these problems and market barriers, WHUP for single family residences will:

- 1) Offer a statewide entry level pre-set measures based approach (*Basic Path*) and a comprehensive and flexible performance based approach (*Advanced Path*) whole house incentives to help build the home performance contracting industry and offer customers and building owners and managers an easy entry point on the path to home performance (barrier 1);
- 2) Educate customers on the house-as-a-system concept and to encourage behavior changes that increase residential energy efficiency (barrier 1);
- 3) Educate contractors on the benefits of learning how to properly sell and install whole house measures as part of coordinated WE&T efforts (barrier 1 & 3);
- 4) Offer incentives that influence customers to undertake comprehensive residential retrofits (barrier 1); and
- 5) Coordinate with relevant utility financing programs and external funding and financing mechanisms at the county, state and federal levels (barrier 2).

In addition, energy efficiency efforts for the multifamily (MF) segment must overcome a number of barriers, primarily:

- 1) Lack of knowledge regarding energy efficiency, as well as the comprehensive energy efficiency EE programs offered by IOUs;

³³ Middle Class Task Force. Council on Environmental Quality. “*Recovery Through Retrofit*.” October, 2009. Page 1.

³⁴ D. 09-09-047. Page 110.

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- 2) The economics of “split-incentives” where the building owner invests capital but the savings primarily benefit the tenants;
- 3) Access to investment capital and insufficient return on investment (ROI). Up-front out-of-pocket costs and extended payback periods required pose a significant participation barrier for property owners and managers;
- 4) Hassle of dealing with multiple contractors and visits required;
- 5) Time burden for tenants and owners;
- 6) Impact on rental income; and
- 7) Business policy/ profit incentive from replacing equipment on burn-out and unwillingness to negate remaining life in building components requiring capital outlay.

The *Multifamily Path* is envisioned to include a number of tactics to overcome these barriers, primarily:

- 1) To improve a property owner or manager’s energy efficiency knowledge, the *Multifamily Path* would seek to leverage comprehensive investment grade building assessments to identify potential energy efficiency opportunities. (barrier 1).
- 2) To address split incentives and cost of upgrades, the *Multifamily Path* would integrate with the existing Energy Savings Assistance Program (“ESAP”) and the Multifamily Energy Efficiency Rebate (“MFEER”) Program. This would provide comprehensive services to the building, including “low cost” or “no cost” tenant measures in conjunction with the WHUP *Multifamily Path* whole building incentives in order to maximize energy savings for the up-front investment. (barrier 2).
- 3) Incentives would assist property owners or managers with overcoming a wide array of market and financial barriers which may otherwise prevent energy efficiency upgrades (barrier 1 and 5).
- 4) Create a single point of contact that would assist the property owner or manager navigate through the incentive and retrofitting process. This approach would provide support in understanding the various program rules and assistance in determining eligibility. The property owner or manager would be guided through an easy and streamlined preliminary assessment to establish feasibility and estimate project cost for the *Multifamily Path*, with an eye toward leveraging all eligible programs. (barrier 4).
- 5) Target buildings planning on or undergoing renovation projects to limit customer time burden and lost rental income. (barrier 4 and 5).
- 6) Multifamily sector is comprised of a wide diversity of properties which can be segmented by: 1.) rental rate (low – medium – or high; and/or 2.) size of the building and also size of the company that owns or manages the building. Defining the unique concerns and needs of building owners and managers by these variables of tenant socio-economic status and ownership/management

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structure will allow much more effective messaging and marketing communications. (barrier 1, 2, 3, 4, 7)

- 7) Statewide EE energy efficiency financing (SW Fin) which could be focused on the tenant or the common property energy agendas. This program will provide access to capital to fund investments in energy efficiency upgrades for buildings at an attractive interest rate. (barrier 2, 3, 7).

Other considerations to meet all income strata and address split incentives for property owners and tenants may include a direct install strategy, as well as prescriptive rebates through the existing MFEER Program. While programs will be coordinated and integrated, their respective policies, and procedures will be followed in the delivery of services. Efforts at operational efficiencies would be made to streamline eligibility, income verification, and installation of measures.

Despite the noted barriers, the multifamily sector presents a significant opportunity for whole building energy efficiency programs with a deep energy reduction approach. A whole building offering has the potential to achieve deep energy savings because:

- 1) Building owners can leverage incentives to address common areas and systems as well as individual unit upgrades to make more cost effective improvements.
- 2) Major rehabilitation projects are common in the multifamily sector. It is theoretically more cost effective to include energy efficiency upgrades at the time of these renovation projects. These projects typically have well-financed construction budgets and broad scopes that could include energy efficiency measures.
- 3) Multifamily properties tend to be operated and maintained by professional building staff. Providing resources to building staff would theoretically increase the odds that the building will be operated efficiently after energy upgrades are installed, perpetuating savings benefits.
- 4) Within the tenant units, the energy efficiency upgrades will often be duplicated – allowing for efficiency in bulk purchases of supplies and equipment, as well as hiring of specialized workers with less non-productive set-up/break-down and travel time.

The WHUP is a Market Transformation orientated program and is a continuing program which began in the 2010-2012 residential energy efficiency portfolio of the four California Investor Owned Utilities (IOUs) – Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas).

As a recognized market transformation program only halfway through its second full year of statewide rollout, the WHUP is expected to be a major contributor to achieving the goals of the California Long Term Energy Efficiency Strategic Plan (*Strategic Plan*) as it relates to existing residential homes, and it faces significant

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hurdles in customer and contractor awareness, industry and workforce development, and traditional cost effective metrics towards measuring effectiveness and success.

This Program Implementation Plan (PIP) is for the statewide WHUP that will be offered consistently across the IOU service territories. The PIP is intended to align with the goals established in the *Strategic Plan* and is a culmination of ongoing statewide efforts to design WHUP.

WHUP is designed to build customer and contractor³⁵ awareness of the house-as-a-system approach to residential retrofits and the many corresponding benefits of improving the energy savings potential and comfort of their dwelling. It promotes the idea that energy efficiency measures are most effective when taking into account interactive effects of measures.

The WHUP moves customers from a prescriptive, widget or single-measure based approach to energy efficiency to one of deeper, comprehensive energy retrofits that respect the energy efficiency loading order³⁶, and which takes the approach that a house is a series of interdependent systems that must be considered holistically. In addition, this approach optimizes building shell (thermal boundary) provides increased comfort and indoor air quality while enabling smaller and more affordable space conditioning equipment and reduced energy use associated with space heating and cooling. The thermal boundary consists of two layers or components – air barrier and insulation – which should both be continuous as well as contiguous (in contact with each other) for optimum performance. Because of the interaction between the thermal boundary and space conditioning loads, heating or cooling system upgrades are ideally not to be performed until the building shell is optimized. Building shell and duct air sealing will be addressed in conjunction with combustion appliance safety and indoor air quality tests. Base load reduction measures involving major electrical appliances, lighting, plug loads, and demand response can be performed at any time without compromising the loading order.

Customer outreach and education efforts for the WHUP will be coordinated with other IOU Demand Side Management (DSM) program offerings (e.g. Energy Advisor, Plug Load and Appliance (PLA), Comprehensive HVAC, SmartAC and other Residential Demand Response programs, Energy Savings Assistance [program](#), California Solar Initiative (CSI)) to leverage multiple customer touch points.

³⁵ A successful program recognizes the need to develop the pool of qualified home retrofit contractors (with the help of third party implementers) to engage in – and have the opportunity to profit from – performing quality work. Through comprehensive training curricula (currently available in the marketplace) broken into the key elements of a home: Building Envelope and Lighting, and Heating, Cooling and Hot Water delivery (major systems); skilled tradespersons will have the opportunity to enter the home retrofit market and grow their businesses.

³⁶ The loading order specifies improvements in the following sequence: (1) air sealing to obtain a tight building envelope; (2) insulation to complete the thermal boundary; (3) proper sizing, design, installation and commissioning of space heating and cooling systems; (4) proper sizing, design, installation, commissioning and insulation of the hot water system, including distribution; (5) efficient lighting and appliances, and demand response measures; and (6) renewables.

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For single family residences, the whole house approach of WHUP promotes two paths, a prescriptive based *Basic Path* and a comprehensive, measured *Advanced Path*. These complimentary paths will be presented to customers³⁷ as one comprehensive offering.

For multifamily buildings, building owners and managers will be able to participate in the WHUP *Multifamily Path*. WHUP will offer a consistent program model that can be contractor or rater driven and/or adopted by local governments for roll-out in their communities.

In sum, these paths will provide an ideal platform to utilize the concept of continuous energy improvement for residential customers; tracking and encouraging a logical sequence of energy improvements made by customers over time, creating an ongoing, actionable dialogue with each customer regarding their energy use.

WHUP *Advanced Path*

WHUP *Advanced Path* offers customers a customized path to comprehensive whole house energy efficiency that drives the customer to deep retrofits. *Advanced Path* solutions will require Participating Contractors to obtain higher levels of expertise than those who perform the *Basic Path* installations. Customers can also participate in *Advanced Path* by using a Participating Rater. The *Advanced Path* requires diagnostic “test-in” and “test-out” whole house assessments. The “test-in” assessments will generate a comprehensive work scope and the “test-out” assessments will be used to document that specified improvements have been properly sized and installed. The *Advanced Path* will build off of the pre-set measures of the *Basic Path* and:

The *Advanced Path* delivers comprehensive energy efficiency improvement packages tailored for both the home resale and home remodeling markets. The *Advanced Path* solicits, screens, and trains qualified residential repair and renovation contractors and HERS II Raters, to assemble capable contracting teams and perform whole-house diagnostics, propose a comprehensive energy efficiency improvement package, and install the improvements. The program also includes marketing activities to help educate customers on program services, and in some cases may provide additional customer leads to trained and experienced contractors. Incentives and resources for available financing options will be provided to help offset the initial homeowners cost for the energy efficiency improvements.

WHUP *Basic Path*

During the 2013-2014 transition cycle, the IOUs will convene interested stakeholders at the state and/or regional level to propose one or more statewide and/or regional pilot programs to explore potential changes to the *Basic Path* in order to make it more appealing to customers, particularly moderate income households.

³⁷ Residential customers including homeowners, renters, and multifamily properties when these services are available to them.

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WHUP *Basic Path* will offer customers and contractors an easy entry point on the path to home performance with a defined package of measures. Incentives will be available for customers to offset a portion of the cost of specific comprehensive retrofits. The *Basic Path* will allow customers to reduce their energy usage while increasing the energy performance of their existing homes and minimizing lost opportunities for future comprehensive retrofit options.

The *Basic Path* will also educate contractors and customers on the benefits of implementing comprehensive whole house retrofits on existing buildings that will provide systematic reductions in energy use. The *Basic Path* will help to:

- Utilize no-cost (to customer) surveys (Energy Advisor) as an entry point to identify opportunities for efficiency improvements³⁸;
- Offer targeted marketing campaigns to engage participants that receive stand-alone EE rebates for completing qualified home improvement measures;
- Promote completion of retrofits based on preferred building science loading order;
- Offer incentives to encourage progression along a preferred approach towards comprehensive retrofits;
- Continuously engage customers over time as they progress toward a home performance approach;
- Leverage available opportunities to move customers to the *Advanced Path* by informing them about available local or third-party financing options and other complementary revitalization efforts that may be available within a particular jurisdiction;
- Offer a holistic path towards home performance by aggregating key elements of a dwelling into its core elements: building envelope and fixed lighting; heating, cooling and hot water, and appliances;
- Coordinate with communities, local governments, workforce education & training, industry organizations and allied third-parties for outreach on local retrofit and contractor training opportunities available.

³⁸ The Energy Advisor provides residential customers with entry-level energy surveys online, over the phone, or by mail. The surveys are not intended to serve as an audit but are meant to provide consistent messaging and an easy on-ramp to WHUP. The Energy Advisor surveys are also an ideal link between the California Solar Initiative (CSI) and EUC WHP. This synergy will be discussed later in the document.

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The WHUP *Basic Path* offers a comprehensive approach to delivering prescriptive pre-set retrofit solutions to Californians by recognizing the essential interplay and relationships between groups necessary in the delivery of a successful program.

SoCalGas Gas Only Whole House Retrofit Program 2013-2014

SoCalGas will continue implementing a “gas only” Whole House Retrofit program that will service those customers that are in a municipal electric service provider territory. This enables SoCalGas to reach out to approximately 1.7 million customers who are not eligible for the joint SCE/SoCalGas Energy Upgrade California Whole House program. Due to our single fuel utility effort, we can only substantiate the therm savings for our program hence the difference in the incentive amounts from the other IOU incentives. SoCalGas will look for additional partnership opportunities with municipalities’ EE programs to maximum savings to shared customers.

SoCalGas will also continue its efforts to implement a joint program with SDG&E that would result in a shared application and single streamlined process for our contractors and the customers. Additionally, besides QA/QC shared costs, SoCalGas will look for other synergies between our programs in our joint PG&E/SoCalGas service territories (i.e.: one shared application, processing).

WHUP Multifamily Path

The vision of a WHUP *Multifamily Path* is to deliver comprehensive energy efficiency upgrades tailored to the needs of existing multifamily dwellings and their owners, tenants and management companies

The *Multifamily Path* will is envisioned to specifically target the multifamily housing (MF) retrofit market and would promote long-term energy benefits through comprehensive whole building energy efficiency retrofit measures—including building shell upgrades, high-efficiency HVAC units, central heating and cooling systems, central domestic hot water heating and other deep energy reduction opportunities. These energy efficiency measures would be identified through an investment grade assessment.

This performance-based approach would assist property owners and managers with making informed decisions, identify measures for energy savings, and to maximize energy reductions for each property owner, manager, and tenant, as applicable. The *Multifamily Path* is envisioned as a logical next step to the prescriptive based MFEER and would be coordinated with the ESA Program and MFEER to present a singular and streamlined approach for multifamily tenants, property owners and property managers, in accordance with the Strategic Plan. A key feature of the *Multifamily Path* would be a single point of contact to assist multifamily raters and

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customers and to streamline their experience. The single point of contact will recruit and assist multifamily owners and property managers to evaluate specific property and advise the program that best suits the needs of particular buildings.

This integrated approach combines market-rate and income-qualified energy efficiency measures and educates building owners on the benefits of energy efficiency and conservation efforts spanning the range of needs for the multifamily market. The *Multifamily Path* will leverage and integrate the MFEER resource components and ESA program offerings in a singular customer facing program that presents a simplified view from the customer perspective.

The *Multifamily Path* would guide ~~MF-multifamily~~ customers towards deeper, comprehensive energy efficiency measures, including: whole house solutions, plug load efficiency, visual monitoring and displays, performance standards, local government opportunities, and IDSM integration. The *Multifamily Path* will support the strategies, where possible, in the Low Income Proposed Decision.

b) Sub-Program Energy and Demand Objectives-

Table 6. Projected Sub-Program Net Energy and Demand Impacts, by Calendar Year

[Table-6 to be provided as an Excel Attachment to this PIP]

c) Program Non-Energy Objectives:

Table-16: Non-Energy Objective

[Table-16 to be provided as an Excel Attachment to this PIP]

d) Cost Effectiveness/Market Need:

The California IOUs look forward to continue playing a leading role, in collaboration with local governments, in moving the existing residential homes market towards larger reductions in energy usage and towards the *Strategic Plan* goal of achieving 40% purchased energy reductions in all existing homes by 2020.

At this time, current market conditions and barriers are:

1. Relatively high cost of home assessments.
2. Relatively high gross costs of comprehensive energy upgrades.
3. Market unawareness of non-economic value to comprehensive energy upgrades.
4. Fledgling contracting and supporting industry for existing home energy upgrades.
5. Low consumer awareness of incentive programs and the concepts of comprehensive home energy assessments and upgrades.

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- Lack of common home rating protocols and common vernacular for the market to assign value to homes which undergo comprehensive energy upgrades.

The WHUP seeks to address these barriers through:

- Continued marketing of Energy Upgrade California and whole house concepts. (barrier 3, 5).
- Continued contractor recruitment (at a pace aligned with demand), training and mentoring. (barrier 4, 5).
- Continued customer uptake through WHUP incentives. (barrier 1, 2, 5).
- Continued stakeholder outreach to address barriers. (barrier 1, 3, 4, 5,6).
- Continued partnerships with local and state government to address barriers. (barrier 1, 2, 3, 4, 5, 6).

It will be critical to establish market transformation (MT) metrics and milestones that are in alignment with cost effective metrics that can more accurately assign cost effectiveness of resources expended towards MT goals. As the Value Proposition figure below represents, there currently is significant non-economic value being assigned by the marketplace towards whole house projects but which are not accounted for in cost effectiveness metrics currently used.

Non-economic value can be assigned as:

Gross Cost – (annual savings x EUL) – (assigned increased market value of home)

By this definition, and information regarding gross costs and savings to date, it would appear that the market currently is assigning significant non-economic value to WHUP projects. However, current cost effective metrics assign all value towards economic value related to energy savings only. Failure to align MT goals and cost effective metrics will result in inaccurate measurement of resource impacts on MT goals.

The IOUs during the 2013-2014 cycle recommend the Commission remove the WHUP from the EE portfolio cost effective analysis and to work with commission staff and relevant stakeholders to develop meaningful cost effective metrics during the 2013-2014 cycle that aligns MT goals of WHUP towards the *Strategic Plan*.

VALUE PROPOSITION

(Greater the Value Proposition = Faster Market Transformation and Consumer Uptake)

	Consumer Value	Consumer Costs
Economic Value	<ul style="list-style-type: none"> Monthly utility bill savings (kWh, kW, therm) Recognized Market Value of EE home 	<ul style="list-style-type: none"> Gross Project Costs

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Non-Economic Value	<ul style="list-style-type: none"> • Health & Comfort • Altruistic <ul style="list-style-type: none"> • Environment • National Security • Being part of Green Movement 	<ul style="list-style-type: none"> • <i>Offsets:</i> <ul style="list-style-type: none"> IOU Incentives Financing
	Driving Up Value	Driving Down Costs
	<ul style="list-style-type: none"> • Standard Ratings where the Market can assign value • Higher monthly utility bills 	<ul style="list-style-type: none"> • More Qualified Providers • Higher Demand • Streamlined Processes • Innovative Marketplace

e) **Measure Savings/ Work Papers:**

- a. WHUP *Basic Path* utilizes deemed savings values by climate zone for building vintages pre-1979 and by climate zone post- 1979

WHUP *Advanced Path* utilizes CEC approved software (i.e. Energy Pro Res Module at the time of this PIP) for calculated project savings.

WHUP *Multifamily Path* envisions measured savings for all low-rise multi-family buildings utilizing the Energy Pro, Residential Performance Module (for Site savings calculations). For all high-rise buildings, would utilize the Non Res Module.

- b. Indicate work paper status for program measures:

Table 4 – Work paper Status

[Table 4 Work paper Status to be provided as an Excel Attachment to this PIP]

9) **Program Implementation Details**

In addition to traditional marketing efforts, the IOUs will work through service providers and vendors to engage qualified tradespersons in the crafts that they have chosen and will continue to invite input from stakeholders to further develop additional ways to meet program objectives.

One of the avenues that the IOUs plan to pursue to advance the program’s efforts to achieve deeper energy savings retrofits in homes is to build closer partnerships with

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California's real estate industry, including via such activities such as voluntary training and outreach partnerships. Based on input already gathered from relevant stakeholder groups, experts, and Commission Staff, the IOUs plan to implement the following main areas of activities for this initiative to leverage partnerships with the real estate industry:

- 1) Training for all relevant aspects of the real estate industry and point of sale chain (real estate agents, lenders, inspectors, green/efficiency specialists, appraisers, rater's public agencies and contractors). An emphasis will be placed on training the cross-functional teams that already work together in the market, since all pieces of the process needs to be covered to be effective, especially on the financing side. The use of successful case studies will also be explored.
- 2) Driving customer demand for energy efficient homes via collaborative consumer education and outreach, using easy to understand messaging and including efforts such as the promotion of home energy improvements and "green" labeling around the time of purchase and sale of a home. This is a critical timing in the market that can be leveraged. The Joint Center for Housing Studies estimates that home buyers spend more than \$6,000 per year on home improvements in the first two years after buying homes. In subsequent years, the annual average outlay drops to \$2,500.³⁹

A key to success for this initiative is properly aligning design with the personal and business interests of the stakeholders involved particularly the Realtors, home buyers, and sellers. While promotion of energy efficiency and green building practices is the paramount objective, the initiative would remain consistent with stakeholders' interests. By remaining stakeholder focused, the initiative aligns short-term private interests with long-term public interests.

Further details and continuous improvement of this plan will be developed by inviting additional input from an ongoing set of stakeholder collaboration discussions. Identification of appropriate regional differences and their implications to implementation will be incorporated into the plan. And short- and long-term success criteria and a periodic assessment timeline for evaluation of this initiative will be developed.

Also, during the transition cycle the IOUs will explore potential of offering pilot tests of expanding building science certifications and home evaluation and performance improvement processes beyond BPI to potentially include equivalent certifications, and home evaluation and performance improvement processes such as those through ACCA. To increase the number of qualified participating contractors and contribute to the creation of a sustainable workforce, third party program implementers will solicit and

³⁹ Joint Center for Housing Studies of Harvard University (2011), *The State of the Nation's Housing: 2011*, http://www.jchs.harvard.edu/research/state_nations_housing

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screen qualified contractors. The program will also include marketing activities to help educate customers on program services and other activities to provide additional customer leads to trained contractors.

The program will employ a number of integrated delivery strategies:

- 1) Educate contractors and residential customers on the concept of home performance;
- 2) Coordinate with existing residential program offerings (e.g. ESA, HVAC, HEER, Energy Advisor and MFEER) within the utility portfolios;
- 3) Provide robust quality assurance and quality control protocols that encourage quality installation and drive contractors to obtain additional training and qualifications;
- 4) Provide robust EM&V feedback loops to inform program enhancements;
- 5) Integrate with marketing efforts of the broadened statewide “Energy Upgrade California” brand, when launched, and deliver complementary marketing messaging to drive customer demand and contractor participation;
- 6) Coordinate contractor training, marketing and outreach efforts with local governments, as appropriate; and
- 7) Develop an incentive structure that drives customers to undertake comprehensive residential retrofits.

Statewide Steering Committee

Given the ambitious market transformation goals of WHUP, it’s relatively new entrance into the IOU EE portfolio, and its challenges during the first two years of rollout, the IOUs during the 2013-2014 transition cycle are committed to providing the leadership and working with CPUC, CEC, local government staff, as well as relevant stakeholders to convene a statewide WHUP steering committee to address relevant and significant issues for adoption in the 2015 IOU program cycle.

Where feasible, necessary and relevant, the IOUs will retain the services of qualified consultants or other entities with experience in the whole house retrofit industry to assist in these efforts in the areas of research, facilitation, or other assistance as may be required. IOUs will also engage utilities, non-profits and other stakeholders who may have experience in other parts of the country in deploying whole house programs. The steering committee will as necessary to focus on the following issues on a statewide level for consideration in the 2015 program cycle:

1. Role of local governments
2. Software standards
3. Data collection standards
4. Home Assessment standards
5. Home Assessment reporting standards
6. HERS II Ratings and alignment with WHUP EE Programs

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7. Contractor certification standards
8. QA/QC standards
9. Streamlined project reporting and programmatic best practices
10. Integration of HVAC programs
11. Engagement of California Real Estate Market
12. Future of Basic Path
13. Identification of Market Transformation Milestones and Metrics
14. Cost effectiveness metrics aligned with Market Transformation goals.
15. Long term incentive structure

a) **Timelines:**

Table 5: Sub-Program Milestones

[Table 5 to be provided as an Excel Attachment to this PIP]

b) **Geographic Scope:**

Table 6: Geographic Regions Where the Program Will Operate

[Table 6 Geographic Regions to be provided as an Excel Attachment to this PIP]

c) **Program Administration**

Table 7: Program Administration of Program Components

[Table 7 to be provided as an Excel Attachment to this PIP]

d) **Program Eligibility Requirements:**

i. Customers:

Single family or multi-family building customers with an active IOU account OR owners or property management firms who own or operate single family or multifamily buildings that are served by an active IOU account, may participate in WHUP provided they utilize a Participating Contractor or a Participating Rater per program guidelines.

Participating Contractors or Participating Raters shall be the single point of contact for customers and are responsible for submission of all program requirements. Participating Contractors and Participating Raters will install or ensure installation of all measures in accordance with IOU QA/QC and Measures Installation Standards guidelines in accordance with applicable contractor/ rater participation agreements.

Table 8: Customer Eligibility Requirements (Joint Utility Table)

[Table 8 to be provided as an Excel Attachment to this PIP]

ii. Contractors/Participants:

Participating Contractor Requirements for Basic Path and Advanced Path

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Participating WHUP Contractors must be certified and licensed according to all applicable federal, state and local laws. Participating Contractors shall meet, and provide sufficient evidence and supporting documentation for the following minimum requirements:

1. Contractor State Licensing Board (CSLB) license in the appropriate specialty;
2. Bonding and in good standing.
3. Insurance to IOU minimum insurance standard;
4. Execution of a contractor participation agreement;
5. Completion of all utility training course requirements, including Participation Workshop and a 3-Day Basic and/or Energy Upgrade Training, Workshop, if not BPI-certified Basic or Advanced Training, as appropriate;
6. BPI-certified Building Analyst (BA) to complete Combustion Safety and Carbon Monoxide Protection and all other minimum Health and Safety Requirements specified in the BPI Technical Standards for Building Analyst Professional;
7. Ensure HVAC permits will be pulled on all work that is appropriate per local jurisdiction requirements;
8. Participating Contractors who participate in *Advanced Path* projects, must employ at least one staff person who holds an active BPI Building Analyst certification. BPI accreditation is strongly encouraged and may be required of all participating contractors at some point during the program cycle;
9. Additional IOU requirements, as appropriate.

Participating Rater Requirements for All WHPR Paths

Participating Energy Upgrade Raters must meet all requirements as a Participating Contractor and must be both HERS II certified and hold an active BPI Building Analyst certification or BPI MF Building Analyst certification as may be applicable. WHUP *Basic Path* and *Advanced Path* projects submitted by a Participating Rater must utilize a WHUP Participating Contractor for installation of the measures specified by the Participating Rater.

Table 9: Contractor/Participant Eligibility Requirements (Joint Utility Table)
[Table 9 to be provided as an Excel Attachment to this PIP]

e) Program Partners:

a. Manufacturer/Retailer/Distributor partners:

Table 10: Manufacturer/Retailer/Distributor Partners
[Table 10 to be provided as an Excel Attachment to this PIP]

b. Other key program partners:

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Table 15: Energy Division, California Energy Commission, local governments, BPI and other standards bodies, as well as other partners
[Table 15 to be provided as an Excel Attachment to this PIP]

f) **Measures and incentive levels:**

Advanced Path Incentives

Incentives for the *Advanced Path* will be paid based upon modeled site savings energy utilizing any CEC approved simulation modeling software approved by IOUs. Incentives for *Advanced Path* are designed to encourage customers to reach for deep energy savings. *Advanced Path* incentives are for both gas and electric measures provided by the customers' participating utility program.⁴⁰ Currently, Energy Pro simulation modeling software is the only approved software for use with WHUP. During the 2013-2014 transition cycle, the IOUs will work collaboratively with the CEC and other stakeholders to identify potential approaches to adequately broaden the allowable software under the WHUP while containing costs required for needed Commission Staff reviews.

Savings/ Participation Level: % Reduction	Incentive Amount
<i>Basic Package: 10%</i>	<i>\$1,000</i>
10%	\$1,000
15%	\$1,500
20%	\$2,000
25%	\$2,500
30%	\$3,000
35%	\$3,500
40%	\$4,000
45%+	\$4,500

⁴⁰ In various service territory where one of the customer's utility service provider (municipality), is not a program participant adjustments may be necessary to the incentive.

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Basic Path Incentives

The *Basic Path* customer incentive is up to \$1,000. The customer will receive the entire rebate amount as a direct result of participating in *Basic Path*. Additionally, *Basic Path* incentives will be:

- Consistent statewide;
- Lower than the *Advanced Path* incentives;
- Compatible with municipal financing options; and
- Implemented so as to leverage external funding where appropriate.

Multifamily Path Incentives

Incentives for *Multifamily Path* will be paid based upon modeled site savings energy utilizing any CEC approved simulation software approved by IOUs. Incentives will be offered on a tiered structure, paid per building on a “per dwelling unit” basis according to the total building energy savings percentage. The tiered approach will reward participants for realizing deeper savings. While a “per unit” approach enables participants to experience economies of scale with larger multifamily buildings.

Ten Year Stepwise Incentive Structure

During the 2013-2014 transition period the IOUs will meet not fewer than two times with statewide stakeholders to develop a 10 year stepwise incentive structure which will be triggered at defined market transformation milestones. It is anticipated that the plan will include a defined timeline, for incentive update decisions and that incentive level changes will be updated at defined market trigger metrics associated with the number of participating homes towards the *Strategic Plan* goals. As the number of participants increases over time, incentive levels will be lowered accordingly to reset the incentive amounts.

The IOUs will invite statewide stakeholder inputs to lock in these targets prior to the start of 2015, using every 20,000 homes/dwelling units treated and decreasing incentive levels in \$250 increments as a starting point for discussion. Once the statewide target is confirmed, the IOUs will notify contractors when the program has reached 75%, 90% and 95% of the goal so contractors can plan accordingly.

Table 11: Summary Table of Measures, Incentive Levels and Verification Rates
[Table 11 to be provided as an Excel Attachment to this PIP]

Permitting Requirements

No incentives for equipment requiring a building permit shall be provided any contractor or customer without that contractor or customer certifying that s/he has complied with all permit requirements and utilized a licensed contractor.

Qualified Measures

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During the transition cycle, the IOUs will work to better leverage WHUP to achieve greater energy savings from plug loads, appliances and swimming pools through:

1. Greater cross marketing of HEER and WHUP customers.
2. Work with EnergySoft to find solutions to pool pump modeling.
3. Incorporate lighting and appliance options as a more predominate feature in standard assessment reports to customers.

Required *Basic Path* Measures Installed Per Measures Installation Standards:

- Whole House Air Sealing
- Attic Insulation
- Duct Test and Seal
- Domestic Hot Water Pipe Insulation
- Thermostatic Shut-Off Valve
- Low-Flow Shower Head

***Advanced Path* Measures Installed Per Measures Installation Standards:**

- Attic Insulation
- Cool Roof Installation (CRRC-certified)
- Cooling System Upgrade
- Domestic Hot Water Heater Upgrade (non-solar)
- Domestic Hot Water Pipe Insulation
- Duct Insulation
- Duct Test and Seal
- Exterior Lighting Upgrade – Permanently Installed High-Efficacy
- Floor Insulation
- Heating System Upgrade
- Interior Lighting Upgrade – Permanently Installed High-Efficacy
- Low-Flow Shower Head
- Radiant Barrier Installation
- Thermostatic Shut-Off Valve
- Wall Insulation
- Whole House Fan Installation
- Whole House Air Sealing
- Window Upgrade
- Other Measures as may be modeled and allowed by IOUs per regional market needs

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Ineligible Measures

- Screw-In Lighting Fixtures and Lamps
- Solar Domestic Hot Water Heater System
- Distributed Generation Systems - Solar PV, Fuel Cell, Wind, etc.
- Pool Pump Upgrade
- Clothes Washer Upgrade
- Clothes Dryer Upgrade
- Dishwasher Upgrade

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Multifamily Building Eligible Measures

- Attic insulation upgrade
- Wall Insulation upgrade
- Floor insulation upgrade
- Window replacements – 2008 T-24 standard or better
- Cool roof – CRRC rated product
- Radiant barrier
- Window shading – permanent, non-retractable
- Duct Sealing - with HERS test
- A/C equipment replacement – Must meet current T-20 standard
- Furnace replacement – Must meet current T-20 standard
- Premium efficiency motors (ECM included)
- VFD controls for CHW, HW, CW pumps
- VFD controls for cooling tower fans
- Pipe insulation – From ½ inch to 1-inch, or none to 1-inch
- Controls optimization (OA reset, zone reset)
- Boiler or DHW replacement – Must meet current T-20 standard
- Insulate hot water piping – From ½-inch to 1-inch, or none to 1-inch
- DHW tank insulation
- Add VFD to circulation pump
- Update central DHW pump to demand control – From no control to demand control
- Common area lighting fixtures – high efficacy hardwired fixtures
- Dwelling unit lighting fixtures – high efficacy hardwired fixtures
- Lighting controls – Occupancy sensor, photo sensor, or dimmer switch
- Outdoor lighting retrofits – high efficacy hardwired fixtures
- ENERGY STAR Refrigerator
- ENERGY STAR Dishwasher (if a dishwasher is installed in pre-retrofit condition)

g) Additional Services:

Table 12: Additional Service

[Table 12 to be provided as an Excel Attachment to this PIP]

h) Sub-Program Specific Marketing and Outreach:

IOUs will conduct integrated as well as program-specific marketing and outreach which will be coordinated with the statewide marketing and outreach program. The utilities may use a range of tactics such as; e-mails, flyers, on-Line marketing, direct mail, bill messaging, social media, local events, ethnic media, and other channels that suit the target audience, the message, and the resources.

Marketing, Education and Outreach plans

1) Objectives

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- Generate greater awareness, understanding and for the whole house system concept;
- Drive response amongst qualified customers to seek out whole house projects; and
- Build demand in the marketplace for home retrofit services.

2) Target Audiences

WHUP marketing and outreach aims to include all stakeholders in the retrofit process, throughout the life of the program. This will help to ensure that all audiences receive consistent information and will enable a more informed dialogue about program specifics, in an effort to continuously engage stakeholders in the energy efficiency retrofit process. The initial target group is comprised of the following audiences listed below. Based on the results of the statewide market survey research.

Target Group:

- Single family residential customers in proposed targeted segments
- Multifamily residential customers
- Residential customers with a history of prior EE engagement including, but not limited to: rebates, online tool enrollment and energy audits
- Local governments, community-based organizations and other stakeholders (i.e. the realtor community)
- Efforts may target select public events and work with local earned media to publicize the program's benefits.

3) Keys to Success

Execution of a successful campaign that introduces customers and contractors to the benefits of comprehensive home energy efficiency retrofits will largely be dependent on funding available to support outreach to all audiences. With that in mind, following is the proposed approach and specific tactical recommendations that the IOUs aim to pursue, funding permitting:

- Continue to utilize a statewide brand and message; and a creative envelope for WHUP marketing efforts to avoid market confusion;
- Co-brand where feasible;
- Coordinate with local governments;
- Engage contractors, stakeholders and local governments in generating customer demand; and
- Provide collateral pieces to participating contractors to assist in lead generation and education;
- Employ expanded community based marketing approach; and

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- Use a variety of innovative marketing strategies such as time of sale assessment vouchers.

i) **Sub-Program Specific Training:**

Specific workforce development efforts supporting WHUP include the following:

- CEC/EDD: California Clean Energy Workforce Training Program Community college programs;
- Third party programs; and
- IOU training offerings (IOU trainings will serve as backup if required. IOU courses do not duplicate modules available in the marketplace but will serve backup role in the event that a market need is identified and best served by the IOU Energy Training Centers).

WHUP will be coordinated with the statewide IOU WE&T program, local government residential retrofit and contractor training programs that are tied directly to workforce education and training efforts on a state and federal level. In addition, IOU WE&T programs will continue to offer both building-block house as a system courses that educate students on the concepts that form the foundation of home retrofit programs when a needs assessment determines that these areas require attention. Those concepts include:

- Advanced house-as-a-system concepts and issues;
- Combustion and other safety training updates;
- Green building techniques applicable to the program;
- Blower Door Based Air Sealing;
- Codes and standards (Title-24) implications;
- Advanced lighting, HVAC technologies and problem solving; and
- Business training (including the enhancement of sales, marketing, training, and accounting skills).

Contractor training requirements will be based WHUP requirements and will provide contractors necessary training without sacrificing any considerations for applicable safety requirements.

Contractor recruitment efforts will be conducted primarily by third party program implementers – a model that has proven successful in statewide IOU HVAC programs in the 2010-12 program cycle. Program implementers will continue to primarily recruit contractors through:

- The network of contractors already participating in IOU HVAC, insulation and weatherization programs;
- Direct outreach through trade groups with locally active memberships;

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- Workforce development departments (to target unemployed general contractors)

Program implementers will verify and enroll Participating Contractors and Raters and provide required program participation related training. Once enrolled, the Participating Contractor and Rater lists will be posted in a centralized location for customers to view. IOUs will direct customers to appropriate websites for lists of eligible Participating Contractors and Raters.

Upon completion of 2012 Energy Upgrade California process evaluations, the IOUs will convene a workshop to review workforce training needs.

j) **Sub-Program Software and/or Additional Tools:**

a. List all eligible software or similar tools required for sub-program participation.

- Energy Pro energy simulation modeling software

b. Indicate if pre and/or post implementation audits will be required for the sub-program.

Pre-implementation audit required Yes ___ No

Post-implementation audit required Yes ___ No

c. As applicable, indicate levels at which such audits shall be rebated or funded, and to whom such rebates/funding will be provided (i.e. to customer or contractor).

Table 13: Post-implementation Audits

[Table 13 Program to be provided as an Excel Attachment to this PIP]

k) **Sub-Program Quality Assurance Provisions:**

Payment of customer incentives will be tied to the contractor's delivery of full job required program documentation. Program implementers will randomly select a minimum of 5 percent of each participating contractor's reported retrofits for onsite job verification and review 100 percent of the job data inputs from contractors. Verifications will include homeowner interviews, intensive visual checklist inspections, and selective retesting of key items. A subset of these energy savings estimates may later be validated against the first year's after-retrofit utility bills plus climate data and homeowner interviews as needed to identify changes in other factors affecting energy use. IOUs will collaborate to develop QA/QC plans and documents that reflect statewide uniformity to the greatest extent possible. QA/ QC documents and standards will be updated regularly with contractor input and will include:

1. QA/QC Process and Protocols

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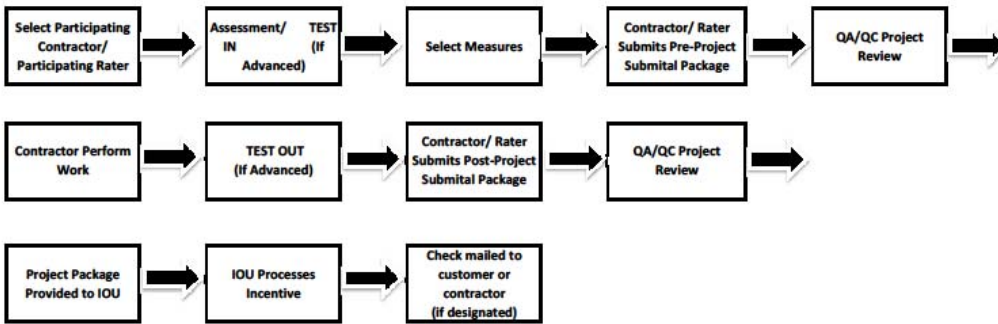
2. Minimum installation standards for all allowable measures
3. Emergency and Fast Track equipment replacement protocols.
 - a. Exhibit A attached includes existing and continuing IOU Emergency and Fast Track protocols.
4. Permitting requirements
 - a. WHUP shall support Heating Ventilation and Air Conditioning permit acquisition as a matter of course.
 - b. WHUP jobs involving HVAC replacement must include submittal of the HVAC permit number and a contractor certification that appropriate permits have been obtained, for inclusion in program records.

Table 14: Quality Assurance Provisions
[Table 14 to be provided as an Excel Attachment to this PIP]

| **Sub-program Process Flow Chart:**

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Whole Home Upgrade Program Process Flow

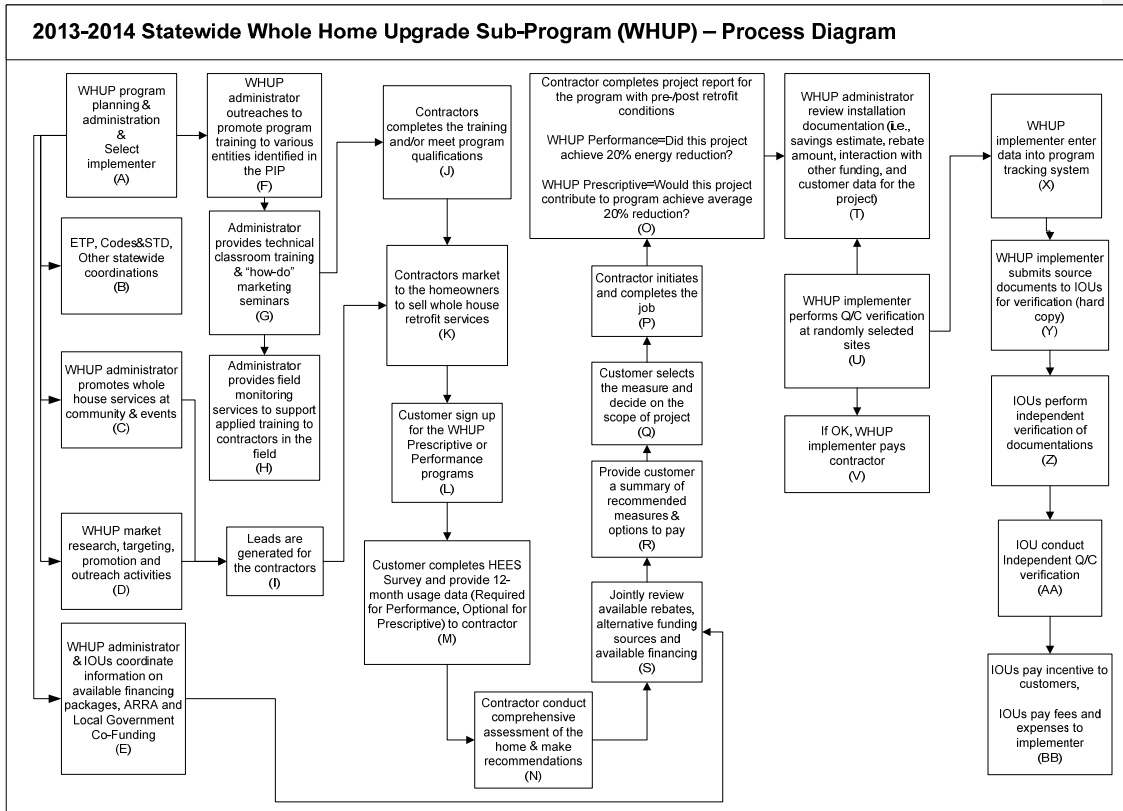


l) **Cross-cutting Sub-program and Non-IOU Partner Coordination:**

Table 15: Cross-cutting Sub-program and Non-IOU Partner Coordination
[Table 15 to be provided as an Excel Attachment to this PIP]

m) **Logic Model:**

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10) Additional Sub-Program Information

a) **Advancing Strategic Plan Goals and Objectives:**

The WHUP is consistent with the requirements of the *Strategic Plan*. The program addresses the Whole-House Strategy of the *Strategic Plan* by influencing contractors and customers to implement comprehensive home retrofit energy efficiency measures through either the *Basic Path* on-ramp, *Advanced Path* or *Multifamily Path*.

WHUP responds to the need for much larger energy savings in existing homes and multifamily buildings than is possible with conventional checklist audits or single measure improvement (prescriptive) programs. WHUP addresses the key “whole house” strategy of the *Strategic Plan* by influencing “decision triggers” to improving energy efficiency and understand advantages to expand participation to reach savings goals. This program is also a vehicle to increase penetration of shell upgrades and cost effective, high efficiency appliances, water heaters and

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HVAC upgrades. The *Strategic Plan* further states that a similar approach must be developed for multifamily housing. The program will help to achieve the following goals identified in Section 2 of the *Strategic Plan*:

Table 6. Whole House Alignment with California Long Term Energy Efficiency Strategic Plan			
Residential and Low Income Goal 2: Existing Homes			
Goal Number	Strategy	WHUP Strategy	Integrated Programs & Activities
2-1	Deploy full-scale Whole-House programs.	Monitor performance of selected lower energy homes. Design implement, monitor and continuously improve full-scale programs for whole-house energy efficiency and renewable energy retrofits.	Programs: WHUP, Solar, Demand Response, MFEER, Plug Loads, ESAP Marketing: Customer segmentation and local coordination EM&V: Studies to provide early feedback and establish baselines
2-2	Promote effective decision-making to create widespread demand for energy efficiency measures.	Continue to offer Energy Advisor programs online, by mail, and over-the-phone to provide customers with information to promote effective decision-making, in combination with other segment specific marketing outreach and educational activities.	Programs: Energy Advisor WHUP, MFEER Marketing: Customer and contractor education to promote building efficiency and appropriate EE behaviors in a segmented manner
2-3	Manage research into new/advanced cost-effective innovations to reduce energy use in existing homes.	Coordinate with Emerging Technologies and other programs to integrate market-ready technologies into the Whole House offering when appropriate. Promote commercialization of home energy management tools including AMI-based monitoring and display tools	Programs: Emerging Technologies, Demand Response, Solar, and others
2-4	Develop financial products and programs such as on-bill financing to encourage demand for energy efficiency building products, home	Ensure that customers are aware of the most effective and attractive financing packages that are available to them.	Programs: WHUP Coordination: Local government partnerships and other state/federal financing entities

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	systems, and appliances.		
2-5	Increase Title 24 compliance through specific measures leading to aggressive statewide enforcement.	Partner with local governments to expedite the permitting process to decrease the barriers to entry in the home performance industry.	Coordination: Local government partnerships

b) Integration

- i. **Integrated/coordinated Demand Side Management:** As applicable, describe how sub-program will promote customer education and sub-program participation across all DSM options. Provide budget information of non-EE sub-programs where applicable.

The IOUs have identified IDSM as an important priority. The IOUs plan to monitor the progress of other IDSM efforts and to work closely to identify comprehensive integration approaches that feed into the overall statewide strategy and to implement best practices as rapidly as practical.

The statewide WHUP is a platform for integration of solutions to the residential customer and is intended to provide an easy entry point for customers and contractors that ultimately integrate other programs for whole house and customer solutions. As awareness of the cost-effective opportunities in whole house retrofits grows through training and education efforts, customers will be presented with the ability to integrate Demand Response and properly-sized onsite generation.

With the inherent synergy that exists between the energy efficiency awareness efforts of CSI and the Whole House programs, WHUP information will be made available to IOU teams in call-centers with the intent of providing a WHUP introduction to customers or contractors interested in CSI.

Coordination with stakeholders who maintain approved solar contractor lists may also provide an opportunity to deliver the whole house message to parties interested in installing solar systems.

The statewide Energy Advisor program will also provide a unique nexus between CSI and WHUP. CSI customers are required to conduct an energy efficiency survey prior to installing solar, which presents a unique opportunity to educate customers on the benefits of improving the efficiency of their home

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prior to purchasing solar equipment. These efforts are expected to include, but will not be limited to:

- WHUP links and information on IOU CSI sites;
- Links to WHUP landing pages from Energy Advisor;
- Targeted messaging during and after each survey;
- Information about WHUP incentives; and
- Educational information that encourages customers to “reduce then produce.”

In addition, any contractors who work onsite with customers can provide delivery channels for DR programs information or installation of DR technology.

WHUP will also serve as a platform to integrate technology advancements in DR and Advanced Metering. IDSM efforts will be part of an ongoing conversation with customers to enhance program offerings and increase their participation in DSM efforts over time.

Table 16: Non-EE Sub-Program Information
[Table 16 to be provided as an Excel Attachment to this PIP]

- ii. **Integration across resource types** (energy, water, air quality, etc): If sub-program aims to integrate across resources types, please provide rationale and general approach.

WHUP is designed to deliver comprehensive solutions to customers while integrating across resource types to maximize customer benefits not only in terms of energy savings, but through improvements to occupant health, safety and comfort. Primarily, there are opportunities for water efficiency and indoor air quality improvements.

One of the major benefits of comprehensive home retrofits is improved indoor air quality. Residents will notice more consistent temperatures throughout their home and in many cases, improved indoor air quality.

The embodied energy in water distribution will become an increasingly important part of utility programs. The consumer education process in the house-as-a-system approach will provide an opportunity for local governments to present customers with information on non-energy savings inherent in comprehensive retrofits.

[This information can be found in Table 16 Non-EE Sub-Program Information to be provided as an Excel Attachment to this PIP]

- c) **Leveraging of Resources:**

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Local Governments

i. SDG&E

Local Governments play a unique and important role in the promotion and advancement of Energy Upgrade California. Beginning in 2009, when the American Recovery and Reinvestment Act was passed and programs like the State Energy Program and the Energy Efficiency & Conservation Block Grant program, jurisdictions across the state were given the unique opportunity to make significant investments on energy programs. Because of the unique and collaborative relationship that exists among the local jurisdictions and SDG&E, and the existence of a non-resource local government partnership program, the San Diego region saw the development of a number of community focused residential retrofit programs including innovative marketing pilots, specialized workforce education & training programs, and a variety of rebate and loan programs that sought to incentivize residents to perform energy upgrades in their homes.

Over the course of the last few years, SDG&E has worked closely with each local government to ensure local programs are closely coordinated and achieve the highest level of collaboration and consistency across the region. Building off the lessons learned over the course of the last few years as well as the unique authorities afforded local governments, SDG&E and the local government program advisory group has developed the following list of key roles that local governments will play to advance Energy Upgrade California during the transition cycle.

1. Incorporate building retrofits & building occupant health and safety issues into Climate Action Plans, General Plans, and other relevant planning and long term strategy documents;
2. Leverage community relationships and resources to market Energy Upgrade California including targeted outreach and education to the community;
3. Provide targeted education on EUC and its benefits to key community stakeholders, business sectors and elected officials
4. Coordinate workforce education and training program activities;
5. Leverage building permit interactions to encourage WHUP enrollment and work to develop streamlined permitting process as it relates to WHUP;

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6. Leverage unique authority to encourage/require building rating/audits to drive customers to EUC;
7. Pilot unique incentive programs such as point of sale audits, to encourage participation in Energy Upgrade California;
8. Work with the financing community to deploy innovative products and services to further enable residential and commercial energy upgrades throughout their jurisdictions.
9. Pilot incentives for Whole Home Energy Rating System II assessment as part of the WHUP.

Please refer to the Local Government Partnership Program PIP for budget details associated with these activities.

WHUP will coordinate IOU incentives and marketing outreach with local government efforts in neighborhood outreach and contractor recruitment. This effort allows for multiple levels of engagement that, through coordination with local entities, will reach to a neighborhood level that will drive awareness and market adoption.

ii. PG&E

During the development and implementation of the 2010-2012 Whole House Program PG&E partnered and coordinated closely with recipients of American Recovery Reinvestment Act (ARRA), State Energy Program (SEP), and Energy Efficiency & Conservation Block Grant (EECBG) statewide and within the PG&E service territory. In the 2013-2014 Transition Period, PG&E plans to continue to work with and leverage these partners as described in further detail in the Local Government PIP.

iii. SoCalGas

SoCalGas has worked closely with local governments who received American Recovery Reinvestment Act (ARRA), State Energy Program (SEP), and Energy Efficiency & Conservation Block Grant (EECBG) in the last couple of years. This has allowed SoCalGas and local governments to achieve a high level of collaboration and consistency across the service territory. In conjunction with SCE, SoCalGas is in discussion with local governments who are interested in continuing collaboration post ARRA, SEP, and EECBG era. These discussions will determine key roles for local governments, based on lessons learned and their successful offerings from ARRA, SEP, and EECBG grants. Such activities may include:

1. Expanding existing outreach programs to the Real Estate Community
2. Leveraging existing low-interest financing

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- [3. Drawing upon LA County's experience with FlexPath for modifications to meet the CPUC's goal for a more appealing approach.](#)
- [4. Marketing and Workforce Development support for contractors](#)

iv. SCE

SCE has worked closely with local governments who received American Recovery Reinvestment Act (ARRA), State Energy Program (SEP), and Energy Efficiency & Conservation Block Grant (EECBG) in the last couple of years. This has allowed SCE and local governments to achieve a high level of collaboration and consistency across the service territory. SCE is in discussion with local governments who are interested in continuing collaboration post ARRA, SEP, and EECBG era. These discussions will determine key roles for local governments, based on lessons learned and their successful offerings from ARRA, SEP, and EECBG grants. Such activities may include:

1. Expanding existing outreach programs to the Real Estate Community
2. Leveraging existing low-interest financing
3. Drawing upon LA County's experience with FlexPath for modifications to meet the CPUC's goal for a more appealing approach.
4. Marketing and Workforce Development support for contractors

d) Trials/ Pilots:

1) SCE/ SoCalGas Moderate Income Direct Install-MIDI

The Local MIDI Program will be offered by SCE and SoCalGas to eligible customers residing in single family and multifamily properties (multifamily common areas excluded) served by SCE and SoCalGas. The MIDI Program will coordinate with SCE and SoCalGas' Energy Savings Assistance program (ESAP) to deliver MIDI measures through select ESAP Contractors. ESA Program infrastructure will be used to administer the MIDI Program. When working in joint SCE/SoCalGas territory, shared contractors will offer both IOU's Program measures. The MIDI Program will encourage residential owners/property managers of single family and multifamily properties to install comprehensive energy efficiency improvements.

The EUC Program traditionally requires significant financial contributions by customers who wish to participate. The MIDI Program closes the financial gap by installing no-cost measures thereby reducing the total amount of money a customer would need to invest in their property in order to participate in the SF or MF EUC Program.

SCE and SoCalGas propose:

- To implement a MIDI trial with a set goal of 1,000 units served
- Develop a scalable program design for larger rollout in future cycles.

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- Evaluate delivery of MIDI Program utilizing existing ESA program infrastructure.

a) Customer/Living Unit Eligibility

To participate, the following guidelines must be met:

- i. participants must be income eligible (between 201% and 250% of FPG)
- ii. living unit must not have received ESAP services after January 1st, 2002
- iii. living unit must meet the current ESAP/MIDI minimum measure requirements

b) Measures

ESA program approved measures excluding appliances

c) Contractors

SCE and SoCalGas will coordinate with select experienced joint ESAP contractors to perform an assessment of the living unit, complete customer enrollment, and install measures as applicable in the MIDI Program trial.

2) SDG&E Trial Incentives

SDG&E may explore additional incentive trial offerings for customers who perform an HVAC QI installation as part of a scope of work. Additional trial integration offerings may include offering IHDs, PCTs, or other enabling technologies for advance path customers who achieve certain saving levels.

11) Market Transformation Information:

1) Summary of the market transformation objectives of the program.

The WHUP program is designed to fulfill the goals of the *Strategic Plan* by guiding and incenting home and building buyers, owners and renovators to implement a whole house approach in energy consumption undertaken in their purchase and use of existing and new homes and buildings, home and building equipment (e.g. HVAC systems), household appliances, lighting and “plug load” amenities. The target is all existing homes in an effort to realize the maximum energy efficiency potential via the delivery of a comprehensive package of cost-effective whole-house and whole-building energy efficiency retrofit measures. These programs will include building shell upgrades, high-efficiency HVAC systems – appropriately sized for the building structure, and emerging deep energy reductions in the lighting, appliance, plug-load and other residential oriented sectors. This initiative will be structured around a comprehensive audit, installation of the variety of retrofits required across the

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entire building structure, and access to attractive financing programs. The WHUP effort will be achieved via the parallel and coordinated efforts of the utility programs, partners and other private market actors, and the State and local government policies and programs made available. As IOUs implement a system of automatic meters and wide-area network to enable data transport, the IOUs and customers will have the opportunity to integrate additional home automatic systems and integrated energy management features into the home (i.e., interim Intelligent Home Network, comprehensive Home Automatic Network and etc.) to support IDSM integration and deployment. The Plug Load and Appliance Program will have the potential to offer not only hardware based energy savings, but also comprehensive behavior savings opportunities.

2) Identification of the relevant market actors and the relationships among them.

The Whole Home Upgrade program is designed to serve residential homeowners, moderate income households and property owners and managers. For the 2013-2014, the program consists of the following paths:

- *Basic Path,*
- *Advanced Path*
- *Multifamily Path*

The Whole Home Upgrade Program is a contractor lead program in that it is the local contractor who interfaces with the customer, markets and sells the concept of Whole House Retrofits, and completes the actual work. The Statewide Process Evaluation (5/1/12) revealed that 32% of participants first heard about the EUC program from a contractor. A number of Local Governments, most initially supported by CEC/ARRA funding during the 2010-12 time frame, also support the program via local marketing and incentive offerings. Coordinated on a Statewide basis – the IOUs offer consistency in program scope (to the degree possible) and a consistent marketing message.

3) A market characterization and identification of key barriers and opportunities to advance demand-side management technologies and strategies

Market Characterization

The IOUs statewide Whole House Program has initially focused on training a pool of qualified contractors available to perform these comprehensive retrofits. The number of individuals with active BPI certifications grew dramatically between January 1, 2010 and November 1, 2011. Total active certified individuals grew from 65 to 1,596. The number of certifications (individuals may have more than one type of BPI certification) grew from 88 to 2,349. The 2010-2012 PG&E and SCE Whole-House process evaluation study by SBW/ODC/ASW, produced a number of findings, including:

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Overarching program participant profile

- The program participation is primary through the *Advanced Path* and there is little engagement in the *Basic Path* service.
- *Advanced Path* jobs report energy savings of 30% average in this first program phase.
- The average cost per job ranges from \$13,000 to \$16,000
- The utility incentives covered typically 23% to 27% of the project costs.
- Despite the large supply of program contractors, only a limited pool of larger contractors complete the majority of the projects
- Many – 44% of participants – used financing to pay for their projects.

Contractor recruiting/training/mentoring—from SCE’s in-depth assessment

- There are widespread contractor performance gaps despite a certification requirement (i.e., BPI).
- The current contractors’ participation training does not adequately prepare them for job processing expectations and the rigor of the QA/QC process,
- BPI certification does not guarantee a standardized job performance level
- Since the requirements for certification often vary (i.e., (1) on-line training versus in-person classes, (2) different region may place different emphasis, i.e., Vermont may focus more on heating, while California may focus more on HVAC).

For the targeted population—from PG&E’s in-depth market effectiveness assessment

- 29% of the targeted population are aware of Energy Upgrade California (EUC),
- 13% of the targeted population reported seeing logo displayed,
- 3% of the targeted population have visited the website,
- 43% of the targeted population has been exposed to at least one marketing treatment from EUC.
- Among those “aware” in the targeted population, 27% first heard of the program from radio, (PG&E did not do radio ads but the local governments did), 18% from direct mail, 11% Newspaper, and 10% each for Word-of-Mouth, Internet and Television.
- Among workshop participants, word-of-mouth and events are the most effective communication channels.

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- Program homeowner participants ranked “comfort”, “reduced energy bill”, “benefits of the incentive” and “home energy assessments” as important reasons for why they participated.
- Contractors report the most effective messaging in their opinion are the messages of: Comfort, Incentives, Lowering energy bills

Market Actors:

- Homeowners/renters & property owners/managers
- Contractors
- Realtors
- Financial Institutions
- Property Appraisers
- Local governments

Relationship Among the Market Actors:

The contractor community is the key actor with the WHUP. They are the program actor who outreaches personally to the owner of the building and home and communicates the concepts of approaching a building on an entire whole basis. And it is the contractor who proposes the appropriate work and completes the retrofit. The contractor provides the linkage between the WHUP and the customer who receives the rebate.

Working together, the realtor, appraisal and financial communities are market actors that can help push energy efficiency in the home resale market. Realtors can be educated to differentiate the advantages of purchasing energy efficient existing residential structures to prospective home buyers. Working with the appraisal community to perceive installed energy efficient measure in a home as monetary assets to a structure thus increasing the property’s value can be a significant push to the acceptance and importance of energy efficiency and financial institutions recognizing this effort to provide exceptional financing opportunities to prospective home buyers for their investment in an energy efficient home.

Many local governments were very active in the EUC sector in the prior 2010-12 cycle as supported by ARRA funding. Some of those local government programs will be continuing on into the 2013-14 program cycle. The IOUs will continue to provide WHUP as a foundation offering to our customers, and local governments can continue to build upon these (with additional rebates) or support these with customized marketing programs. The IOUs will coordinate and partner with local governments in an effort to achieve the synergy possible between these aligned efforts.

Opportunities to advance demand side management technologies and strategies:

Building owners who have committed to a WHUP retrofit solution will have taken the ultimate step in applying energy efficiency technology to minimize their energy usage. They have evidenced their willingness to pursue minimizing energy usage, and

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are therefore self-identified as highly likely to embrace the next step(s) of demand side technologies and strategies to further minimize energy usage. So the next phase of energy reduction for the EUC retrofit customers will be the variety of demand side reduction programs that the IOUs can make available.

Key Barriers & Opportunity for Intervention:

The barriers for this program for the homeowner sector are the:

- (1) Relatively high cost of home assessments,
- (2) Relatively high gross costs of comprehensive energy upgrades,
- (3) Market not aware of additional non-economic values resulting from comprehensive energy upgrades,
- (4) Fledgling contracting and supporting industry for existing home energy upgrades,
- (5) Low consumer awareness of incentive subprograms and the concepts of comprehensive home energy assessments and upgrades,
- (6) Lack of common home rating protocols and common vernacular for the market to assign value to homes which undergo comprehensive energy upgrades,
- (7) The economic downturn and its impact on the residential housing sector.
- (8) Contractor awareness and access to information,
- (9) Access to financing,
- (10) Lack of access to skilled labor.

Note: Potential participants who have attended a workshop (PG&E) also explain their lack of participation in that they haven't been able to contact/find a contractor yet.

For the owners and/or managers of multifamily buildings, there are another set of barriers, closely aligned to those for private single-family homes, but different in some very important dimensions:

- (1) Lack of knowledge regarding energy efficiency as well as the comprehensive programs that are offered by the IOUs,
- (2) Challenge of the "split incentive" where it is the building owner/manager who must pay for all building improvements, including those inside of the individual rental units. But it is the tenants of the unit that pay the energy bills and therefore receive the immediate benefits of the energy efficient investment (by the landlord),
- (3) Multifamily buildings are managed as businesses, where capital for major improvements must be borrowed. But the extended ROI for most energy efficiency projects is longer than the few years that most business allow for recouping their investments,
- (4) To implement a "whole building" retrofit, the apartment owner/manager must typically bring in several specialty contractors for multiple visits, which in tenant occupied units is a very challenging task,

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- (5) Tenants having to out of the rental units during retrofit work, as well as the management time required on behalf of the building owner/manager – is a costly investment of resources,
- (6) Major retrofit often can only happen when the rental unit(s) is unoccupied – which is a significant loss of income for the owner/manager,
- (7) Managed as a business – multifamily building owners/managers are not inclined to replace any major building component or energy system prior to its actual wear-out/break-down. Building retrofits usually take place toward the “end-of-life” of key components (HVAC – for example) – but not when they break-down. Building owners/managers cannot afford the impact on tenants of having key systems not functioning for any length of time.

4) A description of proposed intervention(s) and its/their intended results

The WHUP seeks to address these barriers for private single-family homes through:

- ~~1)~~—Continued marketing of Energy Upgrade California and whole house concepts. (Barrier 3, 5, 8)
▪ *Intended Results:* Increase awareness
- ~~2)~~—Continued contractor recruitment, training and mentoring. (Barrier 4, 5, 8, 10)
▪ *Intended Results:* Continue to maintain and improve the supply and quality of the contractors serving the program
- ~~3)~~—Expanded customer uptake through WHUP incentives. (Barrier 1, 2, 5)
▪ *Intended Results:* Use incentives to reduce the barrier of entry into the comprehensive retrofit projects
- ~~4)~~—Offering of Financing programs (by IOUs and/or other entities) (Barrier 1,2, 9)
▪ *Intended Results:* Provide building owners the upfront cash they need to borrow
▪ ———to invest in a retrofit project, and amenable loan terms by which to repay that loan (note: this program component will be particularly important in the multifamily sector).
- ~~5)~~—Continued stakeholder outreach to address barriers. (Barrier 1, 3, 4, 5, 6, 8, 10)
▪ *Intended Results:* Leverage resources outside the IOUs to address market needs
- ~~6)~~—Continued partnerships with local and state government to address barriers. (Barrier 1, 2, 3, 4, 5, 6, 8, 9, 10)
▪ *Intended Results:* Leverage local government resources to engage communities and targeted population to participate in the program

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The IOU's considered the following when determining the Program's low, medium and high scenarios for program year 2013-2014:

<u>SoCalGas</u>					
<u>Scenarios</u>	<u>2013</u>		<u>2014</u>		<u>Assumptions</u>
	<u>SF Homes</u>	<u>Budget</u>	<u>SF Homes</u>	<u>Budget</u>	
<u>Low</u>	<u>508</u>	-	<u>508</u>	-	<ul style="list-style-type: none"> · <u>ARRA sunset more challenging than expected</u> · <u>Competition from Local Government programs</u> · <u>Further challenges with the economy</u>
<u>Medium</u>	<u>725</u>	-	<u>725</u>	-	<ul style="list-style-type: none"> · <u>Expected program performance</u>
<u>High</u>	<u>870</u>	-	<u>870</u>	-	<ul style="list-style-type: none"> · <u>Efficiencies and improvement in program model</u> · <u>New financial options coming online</u> · <u>Increase local government involvement & support</u>
<i>Note: These scenarios include SoCalGas only and shared IOU territories.</i>					

And for WHUP *Multifamily* the barriers will be addressed by these actions:

- 1) To improve a property owner or manager's energy efficiency knowledge, the *Multifamily Path* would seek to leverage comprehensive investment grade building assessments to identify potential energy efficiency opportunities. (Barrier 1)

- 2) To address split incentives and cost of upgrades, the *Multifamily Path* would integrate with the existing Energy Savings Assistance Program

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(“ESAP”) and the Multifamily Energy Efficiency Rebate (“MFEER”) Program. This would provide comprehensive services to the building, including “low cost” or “no cost” tenant measures in conjunction with the WHUP *Multifamily Path* whole building incentives in order to maximize energy savings for the up-front investment. (Barrier 2)

3) Incentives would assist property owners or managers with overcoming a wide array of market and financial barriers which may otherwise prevent energy efficiency upgrades (Barrier 1, 5)

4) Create a single point of contact that would assist the property owner or manager navigate through the incentive and retrofitting process. This approach would provide support in understanding the various program rules and assistance in determining eligibility. The property owner or manager would be guided through an easy and streamlined preliminary assessment to establish feasibility and estimate project cost for the *Multifamily Path*, with an eye toward leveraging all eligible programs. (Barrier 4)

5) Target buildings planning on or undergoing renovation projects to limit customer time burden and lost rental income. (Barrier 4, 5)

6) Multifamily sector is comprised of a wide diversity of properties which can be segmented by: 1.) rental rate (low – medium – or high; and/or 2.) size of the building and also size of the company that owns or manages the building. Defining the unique concerns and needs of building owners and managers by these variables of tenant socio-economic status and ownership/management structure will allow much more effective messaging and marketing communications. (Barrier 1, 2, 3, 4, 7)

7) On Bill Financing or Repayment program which could be focused on the tenant or the common property energy agendas. This program will provide access to capital to fund investments in energy efficiency upgrades for buildings at an attractive interest rate. (Barrier 2, 3, 7)

5) A coherent program or “market” logic model

The WHUP is designed to use a market transformation framework to pull in new measures and push out the mature measures. The diagram below describes this iterative process.

The Whole House Program will be serving both homeowners and property owners/managers, with the intent to coordinate its program activities with the low-income program to meet special needs. Like the other market transformation programs, the Whole House program, will work with Emerging Technology (I), Plug

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Load & Appliance, Residential HVAC Programs and other residential programs to leverage new and innovative technologies and applications, while pruning more mature technologies and applications from program offerings. These program interactions are described in the Whole House Program Key Support Activity Process Diagram below. These interaction and coordination decisions will be facilitated by IOUs' Decision Panel (A) as indicated in the logic model.

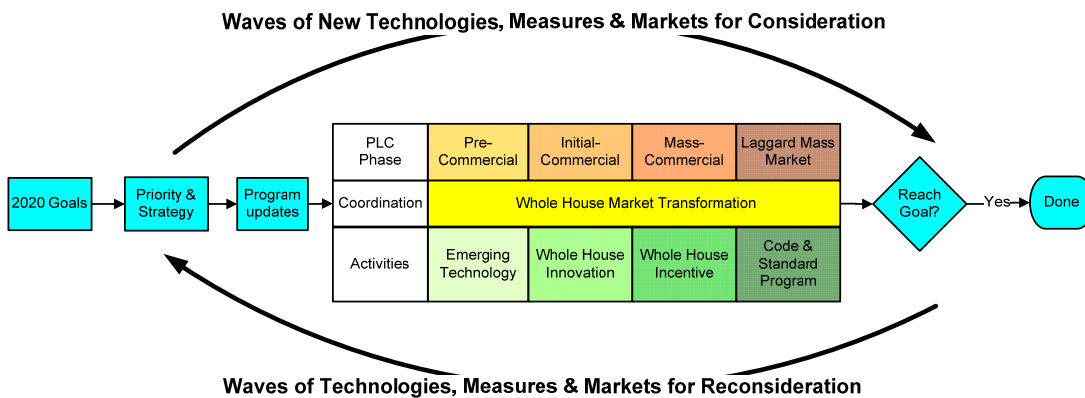
To reduce market barriers, the program's activities are designed to "get the word" out about the benefits of comprehensive retrofits through both mass marketing (D) as well as ground-up individual outreach for neighborhoods and communities (C), by working with local governments and entities. To help property owners understand their energy consumption profile (E), the participants will be encouraged to use a Energy Advisor survey (E) to gauge the overall consumption profile prior to making retrofit decisions, thus respecting the load order of implementation cost effectiveness, and to engage and motivate additional behavior-oriented energy efficiency and conservation actions. To ease the financial burden of the project cost and investment, the program will make financing packages and information available to prospective participants (G).

The program recognizes the importance of having a pool of qualified and competent contractors available to meet the market needs (J & O). The program offers BPI certification training as well as participating contractor ongoing training and mentoring to meet the needs of the workforce and program quality control requirements. This increase in the quality and the quantity of the labor pool, will contribute to contractors' performing projects, outside of the program, to meet deep energy retrofit needs, leading to non-participant spillover effects (R, S & V).

The expected outcome of this program includes increased and improved awareness, knowledge and attitude (AKA) of homeowners and apartment owners towards understanding the benefits of deep energy retrofits (P). After realizing these benefits from program participation, the participant further enjoys other non-energy benefits such as improved comfort of the house and increased value of their properties. The increased value in the property will become more pronounced as the state finalizes its home rating system, so the home purchasers will be aware of the inherent value of properties complete with deep energy reduction retrofits (U). All of these benefits will help the program participants to continue property improvements outside of the program and outside of the program offerings, leading to spillover effects (T). These participant and non-participant spillover effects will eventually change the overall composition of the housing stock at the market level, making housing and building code ratcheting possible for society (X & Y). These codes and standards changes will lead to further reduction of energy consumption at the market level leading to fulfilling the objectives of the California Long-Term energy and environmental policies (AA).

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For the benefit of readers, the associated Program Performance Metrics (PPMs) and appropriate Market Transformation Indicators (MTIs) are identified in this logic model. Additional key program support activities are diagramed as a process diagram for further illustration. The Whole House program will have the option to conduct additional pilots/trials to test technologies, applications or other programmatic design and marketing possibilities. The learning from those activities is expected to contribute to the program innovation and further learning.



Within this context, a decision making body, the IOUs Decision Panel, is formed to manage and guide this process. (Please refer to logic model & activities below)

6) Appropriate evaluation plans, corresponding Market Transformation Indicators and Program Performance Metrics based on the program logic model

Due to the need to comply with the Decision’s timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section “18.1. Evaluation Budget” in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation: Market Effects. The market transformation program’s theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program’s scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program “spillover” and market effects: spillover is energy savings not

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directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

Formative evaluation: The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program’s direct outputs.

Program Performance Metrics:

This information can be found in Table 3 PPM Information to be provided as an Excel Attachment to this PIP

Market Transformation Indicators:

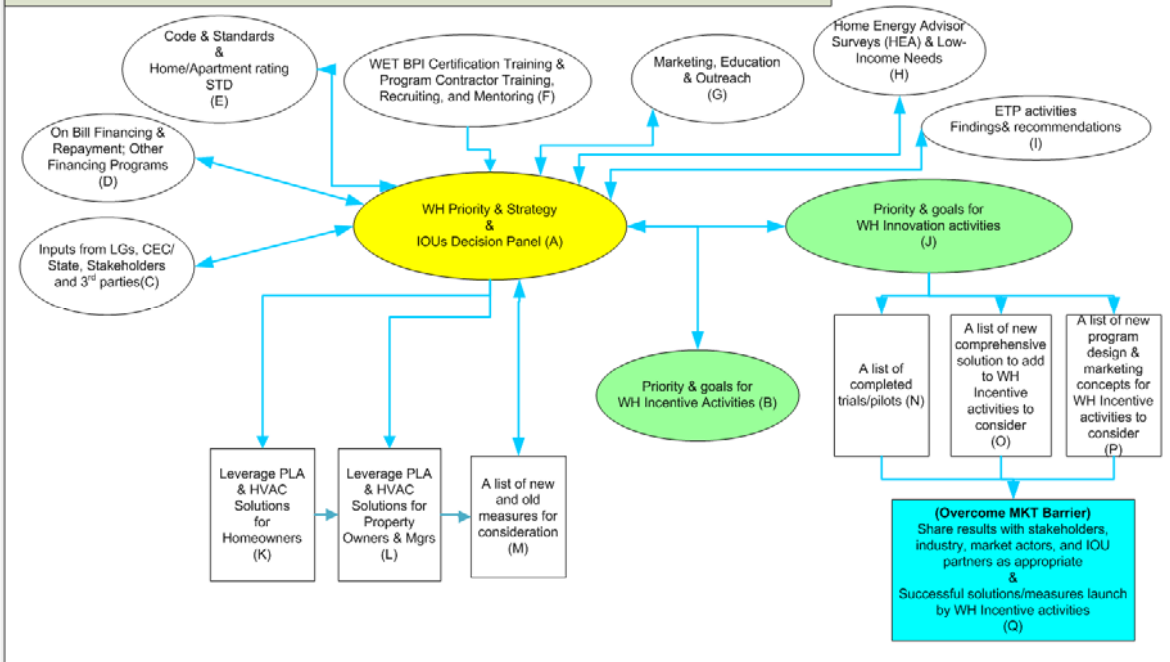
DeepRetrofit-2 The number of households that elect to perform comprehensive energy upgrades.

Market transformation indicator results shall be reported, as available, by Energy Division or the IOUs, depending upon who conducts the necessary market studies. (Res. 4385, 12/2/10)

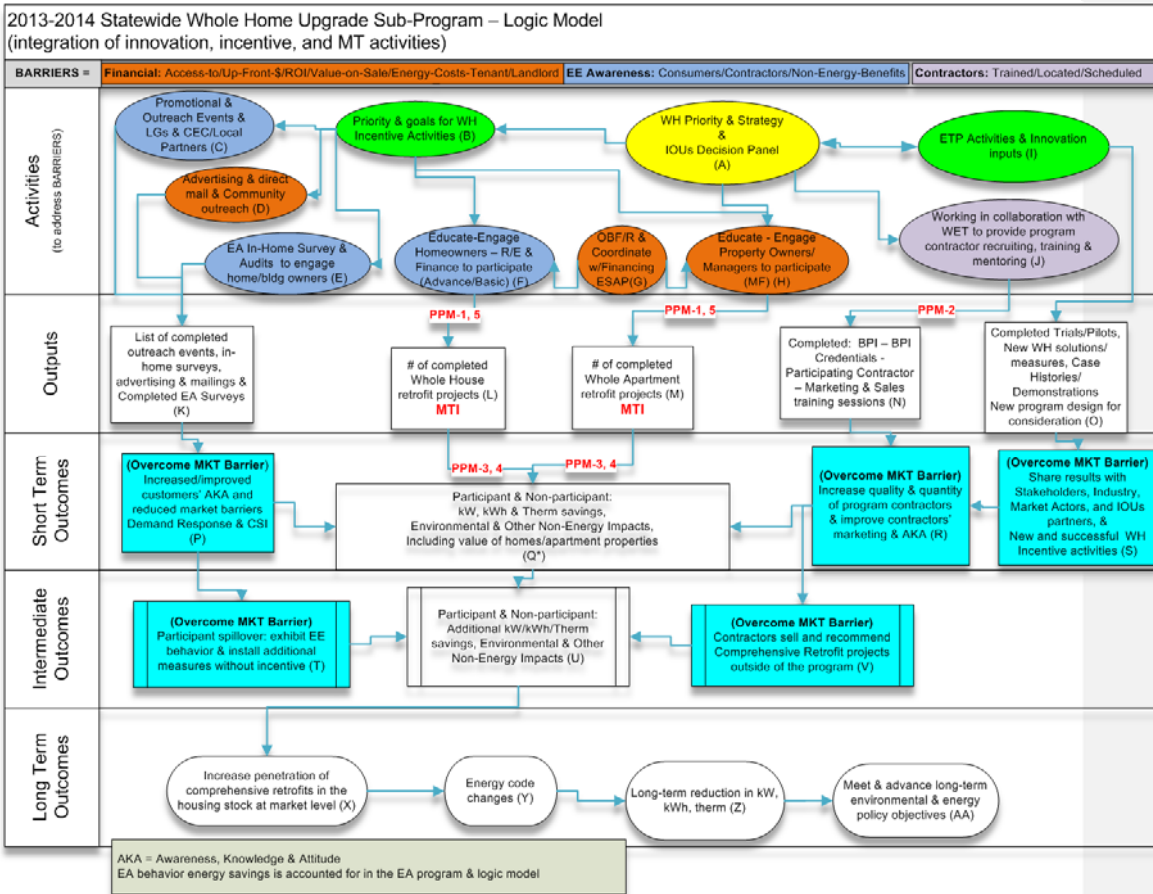
Attribution. Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Prahl (MT Workshop, Nov 2011) suggest that declaring the program’s strategic intent through the market transformation initiative’s theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

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2013-2014 Whole Home Upgrade Sub-Program Key Support Activities
– Process Diagram



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12) Additional information as required by Commission decision or ruling or as needed:

Include here additional information as required by Commission decision or ruling (As applicable. Indicate decision or ruling and page numbers):

IOU Streamlined Emergency Replacement Protocol and Streamlined High Performing Contractor Protocol

1. SDG&E

a. Streamlined Emergency Replacement Protocol

Per section 7 of SDG&E's QA/QC Quality Assurance and Quality Control Plan:

7.0 Emergency Replacement of Major Systems

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- 7.1 *It is recognized that there may be instances whereas immediate replacement of major systems is required due to health, safety and quality of life circumstances. In the event the customer has immediate need for equipment replacement, the QA/QC process will not interfere with a customer's ability to participate in the WHUP.*
- 7.1.1 Major systems that qualify under this provision are identified as:
- a. HVAC Systems or components
 - b. Hot water heater replacements
- 7.1.2 In the event that a contractor wishes to install a major system identified herein under the provisions of an emergency replacement, the contractor shall contact and notify the QA/QC vendor immediately of the customer's emergency situation and to request accommodation under this provision. The QA/QC provider will determine if the circumstances warrant this provision.
- a. The contractor will provide the QA/QC the customer contact information, make/model/serial numbers of existing equipment and date the replacement will be installed.
 - b. The QA/QC vendor may field-verify the equipment to be replaced.
 - c. The contractor can proceed with emergency work.
 - d. To include the emergency work as part of any WHUP project scope, contractors must follow all other procedures for participation in the WHUP program.
 - e. Any and all changes to the home prior to submitting a Pre-Retrofit Project Submittal Package shall be only for the immediate emergency need pre-approved by the QA/QC vendor and must be documented in the Pre-Retrofit Project Submittal Package.
 - f. All other project scope work outside of the approved emergency work must go through the standard QA/QC process as defined in this plan.

b. Streamlined High Performing Contractor Protocol

Per SDG&E's Quality Assurance and Quality Control Plan, SDG&E QA Review turnaround times are guaranteed to be 3 working days or less for both pre and post QA Review (desktop). This time period is consistent with state contracting laws concerning consumer's 72 hr. right to rescind.

Tier 3 contractors, meaning those contractors who have successfully completed a minimum of 30 projects are eligible for random QC Inspection sampling rate of 10% pre and 5% of post project submittals.

In essence this means that high performing contractors with at least 30 projects will have 90% of their pre project submittals and 95% of post project submittals reviewed within 3 working days.

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2. PG&E

a. Streamlined Emergency Replacement Protocol

The following process that is already in place in 2012 serves the purpose of both an emergency replacement protocol, as well as a Fast Track process for all participating contractors in good standing.

The general policy for all equipment replacements performed within the PG&E program is that participating contractors and their subcontractors should wait for a Notice to Proceed to be issued before commencing work on a job for the program. However, in order to proceed with emergency replacements or expedited upgrades due to customer specific needs, contractors may proceed within the guidelines of this Fast Track Process. In order to be eligible for this Process, participating contractors must be active and in good standing under the PG&E program.

Upgrades may be started before the Notice to Proceed is issued if the participating contractor is confident that the job qualifies for the Program. Prior to adjusting or installing measures, the contractor must perform a comprehensive test-in, including combustion safety testing, to document the pre-existing conditions. The contractors should take pictures to document uncommon or unique situations.

Participating contractors that choose to perform work without the Notice to Proceed accept full liability that the rebate funds have not been reserved and that their customers may not be eligible.

In order to make the Fast Track Process work for participating contractors and their customers, the PG&E program recommends that the contractors do the following:

- Ask for a copy of recent PG&E bill to validate that the customer has an active account and have a clear understand the Program eligibility requirements.
- Make sure to understand how to use and model homes in EnergyPro proficiently to reduce the chance of error in rebate calculation or delayed application processing.
- If providing a rebate estimate, make it clear in the proposal that it is based on the un-validated energy model savings and may change after the quality control review process.
- Participate in the Process after completing at least 10 upgrades without desktop or field QA issues.
- Submit the application as soon as possible to ensure timely payment to the customer.

3. SCE

a. Streamlined Emergency Replacement Protocol

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Southern California Edison & Southern California Gas Emergency Equipment Replacement Policy for HVAC/DHW System

Due to the climate of Southern California, during the first few months of summer and winter there is a rise in the volume of HVAC emergency replacements driven by homeowners re-engaging their HVAC systems after periods of non-use. Participating Contractors will be involved in these replacements and they have the opportunity to inform homeowners of the additional benefits of the Program. The Emergency Equipment Replacement Policy for HVAC/DHW Systems allows homeowners to take credit for energy savings from emergency equipment replacement provided **all of the following conditions are met.**

Eligibility

1. The homeowner meets all mandatory *Advanced Path* program requirements as described in the Advanced Package Minimum Specifications and this Emergency Equipment Replacement Policy for HVAC/DHW Systems.
2. The space heating and/or domestic hot water system must have been 'red tagged' or deemed unsafe by the utility, service technician or building inspector; or the system has failed, cannot be repaired and must be replaced.
3. The contractor submits the completed Record of Emergency Equipment Replacement Form within the timelines indicated in the Notification/Authorization Requirements section.

Note: In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

Notification/Authorization Requirements

To submit notification and receive authorization to proceed for an eligible emergency equipment replacement, the following steps must be followed:

Step 1: Submit for Pre-Replacement Approval

1. The contractor is required to submit a Record of Emergency Equipment Replacement Form.
2. The contractor is required to complete Sections 1 – 4 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, provide detailed photographic evidence of the existing equipment installed in the residence (clearly showing the area around the existing unit) to include nameplate information (make, model, serial number, etc) and then provide a scanned copy in .PDF format to EUCA_Processing@icfi.com.
3. Upon receipt of the completed form, ICF will provide written notification of Authorization to proceed via e-mail to the contractor within one business day (8-10 business hours).

Step 2: Receive Authorization to Proceed

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Upon Authorization to proceed the contractor may commence installation of the new HVAC and/or DHW equipment.

Step 3: Complete Emergency Replacement and Submit Final Paperwork

1. Upon completion of the installation of the new equipment the contractor shall complete Section 5 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, detailed installation invoice, and then provide a scanned copy in .PDF format to ICF (EUCA_Processing@icfi.com) within five (5) business days of the new equipment installation. If measures installed exceed the scope of written authorization given, credit will not be given for those additional measures. If the paperwork is not received within those 5 business days, the final decision to allow the credit for the installed equipment will be at the sole discretion of Program Management and will not be able to be appealed.
2. The Incentive Reservation Form must be turned into the Program within 30 calendar days of Emergency Equipment Replacement Approval. Failure to do so will result in not receiving credit for installed equipment.

While age, size and efficiency of the existing system are a factor, it shall not be the sole determining factor for selection of equipment replacement. Best practices dictate that any replacement of central heating or cooling systems require submittal of a Manual J load calculation and must take into account all existing and/or proposed energy efficiency measures that will significantly impact load and allow for correct equipment sizing.

If HVAC re-ducting is required in this emergency, the pre-retrofit building simulation model will automatically use the default vintage default tables for total duct leakage. This percentage is not able to be contested, should an appeal situation arise.

Mandatory Documentation for Emergency Space Heating Equipment Replacement

The contractor shall provide information about the existing equipment being removed utilizing the Record of Emergency Equipment Replacement Form. At a minimum, the information collected regarding the existing space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of removal
- Reason for replacement (operational failure; health and safety)
- Manufacturer's name and model number of space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)

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- Type of venting (e.g. chimney, side vent, barometric damper)

The existing space heating equipment must be replaced with equipment meeting the Advanced Package Minimum Specifications. New gas-fired furnaces must have an Annual Fuel Utilization Efficiency (AFUE) of 92% or greater to qualify under the Emergency Replacement Policy for HVAC Equipment.

The contractor shall provide a copy of the invoice for the new space heating equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed with the new equipment installation. At a minimum, the invoice for the new space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of installation
- Manufacturer's name, model and serial number of new space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)
- Type of venting (e.g. chimney, side vent, barometric damper)

While replacing the space heating equipment, this may be an opportunity to also replace the central air conditioner with a higher efficiency model. The existing equipment must be replaced with equipment meeting the requirements listed in the Advanced Package Minimum Specifications. Contractor will need to supply the following information about both the new and existing air conditioning unit:

- Contractor's business name, address and phone number
- Date of installation
- Reason for replacement (operational failure; health and safety; Other, please explain)
- Manufacturer's name and model number of cooling equipment
- Type of system (central air, heat pump)
- Rated efficiency (SEER, HSPF), unit size, and cooling output from the nameplate

Mandatory Documentation for Domestic Hot Water Equipment Replacement

The existing domestic hot water system must be replaced with equipment meeting Advanced Package Minimum Specifications. In addition, new domestic hot water heaters must have an Energy Factor (EF) of 0.62 or greater, and new domestic tankless hot water heaters must have an Energy Factor (EF) of 0.82 or greater to qualify under the Emergency Equipment Replacement Policy.

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The contractor shall provide a copy of the invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed with the new equipment installation. At a minimum, the invoice for the new domestic hot water equipment shall include the following:

- Manufacturer's name and model number of domestic hot water equipment
- Type of system (gas, electric)
- Rated efficiency (energy factor)
- Unit size (gallons)
- Input from the nameplate (Btu's)

Mandatory Requirements for Emergency Equipment Replacement Approval

Once administrative approval and written authorization to proceed is granted, the contractor may immediately install the individual measures if the following conditions are met:

1. Provide photographic evidence of the existing system installed in the residence clearly showing the area around the existing unit and detailed pictures of the existing equipment to include nameplate information (make, model, serial number, etc.).
2. The contractor shall provide a copy of the Invoice for the new space heating and/or cooling equipment and the completed Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).
3. The contractor shall provide a copy of the Invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).

In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

b. Streamlined High Performing Contractor Protocol

Contractors who have completed 10 Basic or 10 Advanced projects and have completed all of their field mentoring and online learning center modules with a passing score can be eligible for their projects to be sampled instead of being selected for 100% pre and post on-site inspection.

4. SoCalGas

a. Streamlined Emergency Replacement Protocol

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Southern California Gas Emergency Equipment Replacement Policy for HVAC/DHW System

Due to the climate of Southern California, during the first few months of summer and winter there is a rise in the volume of HVAC emergency replacements driven by homeowners re-engaging their HVAC systems after periods of non-use. Participating Contractors will be involved in these replacements and they have the opportunity to inform homeowners of the additional benefits of the Program. The Emergency Equipment Replacement Policy for HVAC/DHW Systems allows homeowners to take credit for energy savings from emergency equipment replacement provided **all of the following conditions are met.**

Eligibility

1. The homeowner meets all mandatory *Advanced Path* program requirements as described in the Advanced Package Minimum Specifications and this Emergency Equipment Replacement Policy for HVAC/DHW Systems.
2. The space heating and/or domestic hot water system must have been 'red tagged' or deemed unsafe by the utility, service technician or building inspector; or the system has failed, cannot be repaired and must be replaced.
3. The contractor submits the completed Record of Emergency Equipment Replacement Form within the timelines indicated in the Notification/Authorization Requirements section.

Note: In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

Notification/Authorization Requirements

To submit notification and receive authorization to proceed for an eligible emergency equipment replacement, the following steps must be followed:

Step 1: Submit for Pre-Replacement Approval

1. The contractor is required to submit a Record of Emergency Equipment Replacement Form.
2. The contractor is required to complete Sections 1 – 4 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, provide detailed photographic evidence of the existing equipment installed in the residence (clearly showing the area around the existing unit) to include nameplate information (make, model, serial number, etc) and then provide a scanned copy in .PDF format to EUCA_Processing@icfi.com.
3. Upon receipt of the completed form, ICF will provide written notification of Authorization to proceed via e-mail to the contractor within one business day (8-10 business hours).

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Step 2: Receive Authorization to Proceed

Upon Authorization to proceed the contractor may commence installation of the new HVAC and/or DHW equipment.

Step 3: Complete Emergency Replacement and Submit Final Paperwork

1. Upon completion of the installation of the new equipment the contractor shall complete Section 5 of the Record of Emergency Equipment Replacement Form, sign and date the customer/contractor signature section, detailed installation invoice, and then provide a scanned copy in .PDF format to ICF (EUCA_Processing@icfi.com) within five (5) business days of the new equipment installation. If measures installed exceed the scope of written authorization given, credit will not be given for those additional measures. If the paperwork is not received within those 5 business days, the final decision to allow the credit for the installed equipment will be at the sole discretion of Program Management and will not be able to be appealed.
2. The Incentive Reservation Form must be turned into the Program within 30 calendar days of Emergency Equipment Replacement Approval. Failure to do so will result in not receiving credit for installed equipment.

While age, size and efficiency of the existing system are a factor, it shall not be the sole determining factor for selection of equipment replacement. Best practices dictate that any replacement of central heating or cooling systems require submittal of a Manual J load calculation and must take into account all existing and/or proposed energy efficiency measures that will significantly impact load and allow for correct equipment sizing.

If HVAC re-ducting is required in this emergency, the pre-retrofit building simulation model will automatically use the default vintage default tables for total duct leakage. This percentage is not able to be contested, should an appeal situation arise.

Mandatory Documentation for Emergency Space Heating Equipment Replacement

The contractor shall provide information about the existing equipment being removed utilizing the Record of Emergency Equipment Replacement Form. At a minimum, the information collected regarding the existing space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of removal
- Reason for replacement (operational failure; health and safety)
- Manufacturer's name and model number of space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)
- Type of venting (e.g. chimney, side vent, barometric damper)

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The existing space heating equipment must be replaced with equipment meeting the Advanced Package Minimum Specifications. New gas-fired furnaces must have an Annual Fuel Utilization Efficiency (AFUE) of 92% or greater to qualify under the Emergency Replacement Policy for HVAC Equipment.

The contractor shall provide a copy of the invoice for the new space heating equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed with the new equipment installation. At a minimum, the invoice for the new space heating equipment shall include the following:

- Contractor's business name, address and phone number
- Date of installation
- Manufacturer's name, model and serial number of new space heating equipment
- Rated efficiency, output, input from the nameplate
- Fuel type (natural gas, electric)
- Type of system (forced air, hydronic/radiant or combo)
- Type of venting (e.g. chimney, side vent, barometric damper)

While replacing the space heating equipment, this may be an opportunity to also replace the central air conditioner with a higher efficiency model. The existing equipment must be replaced with equipment meeting the requirements listed in the Advanced Package Minimum Specifications. Contractor will need to supply the following information about both the new and existing air conditioning unit:

- Contractor's business name, address and phone number
- Date of installation
- Reason for replacement (operational failure; health and safety; Other, please explain)
- Manufacturer's name and model number of cooling equipment
- Type of system (central air, heat pump)
- Rated efficiency (SEER, HSPF), unit size, and cooling output from the nameplate

Mandatory Documentation for Domestic Hot Water Equipment Replacement

The existing domestic hot water system must be replaced with equipment meeting Advanced Package Minimum Specifications. In addition, new domestic hot water heaters must have an Energy Factor (EF) of 0.62 or greater, and new domestic tankless hot water heaters must have an Energy Factor (EF) of 0.82 or greater to qualify under the Emergency Equipment Replacement Policy.

The contractor shall provide a copy of the invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of written authorization to proceed

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with the new equipment installation. At a minimum, the invoice for the new domestic hot water equipment shall include the following:

- Manufacturer's name and model number of domestic hot water equipment
- Type of system (gas, electric)
- Rated efficiency (energy factor)
- Unit size (gallons)
- Input from the nameplate (Btu's)

Mandatory Requirements for Emergency Equipment Replacement Approval

Once administrative approval and written authorization to proceed is granted, the contractor may immediately install the individual measures if the following conditions are met:

1. Provide photographic evidence of the existing system installed in the residence clearly showing the area around the existing unit and detailed pictures of the existing equipment to include nameplate information (make, model, serial number, etc.).
2. The contractor shall provide a copy of the Invoice for the new space heating and/or cooling equipment and the completed Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).
3. The contractor shall provide a copy of the Invoice for the new domestic hot water equipment and the Record of Emergency Equipment Replacement Form to their dedicated account manager within 5 business days of the installation of the new equipment (if applicable).

In the event the customer/contractor fail to meet the timelines indicated the project runs the risk of not being able to include the energy savings from the installation of the new equipment in the energy simulation (Energy Pro) model.

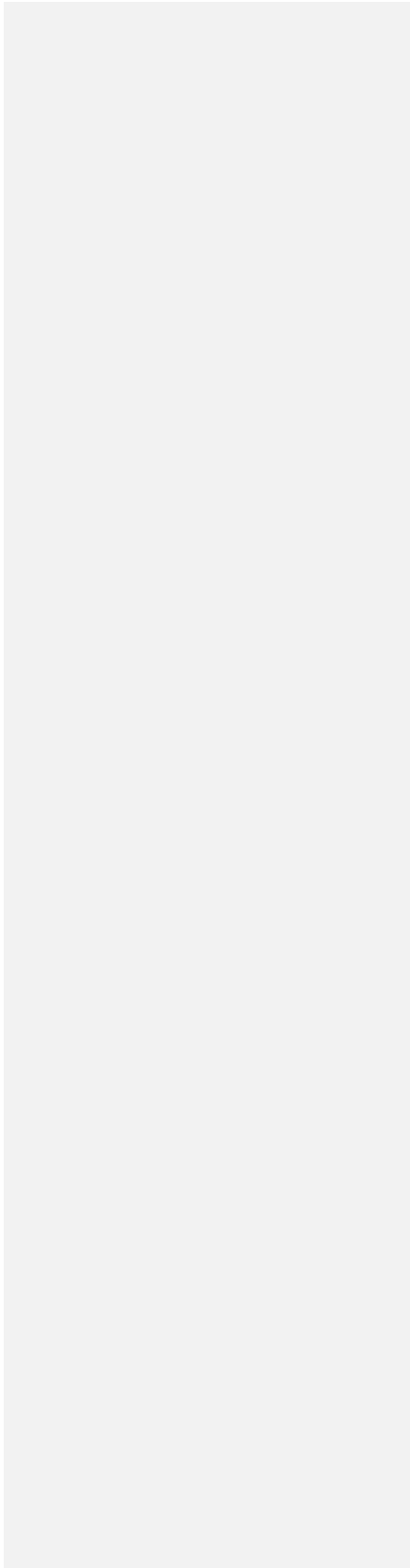
b. Streamlined High Performing Contractor Protocol

SoCalGas follows the Home Performance with ENERGY STAR® guidelines for QA/QC protocols. Since the implementation of the SoCalGas EUC Program, SoCalGas has established an adjustable onsite inspection rate for contractors based on job experience and performance.

SoCalGas conducts onsite inspections, at set inspection rates, of the work of all participating contractors. This inspection rate is reduced as the contractor gains experience in the program and as onsite inspections show the contractor is performing at a satisfactory level per program requirements. See chart below

- a. Tier 1 Contractor- 60% onsite inspection of first five project
- b. Tier 2 Contractor- 27% onsite inspection of next 15 projects
- c. Tier 3 Contractor- 5% onsite inspection after 20th project

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ATTACHMENT 1

Program Non-Energy Objectives

Table 3 provides targets per approved PPM's for single family homes. Additional PPM's for multifamily may be developed as program develops.

Table 3. Quantitative Program Targets (PPMs)
[Table 3 to be provided as an Excel Attachment to this PIP]

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**HVAC PIP
Residential HVAC Program**

- 1. Program Name: Residential HVAC**
Program I.D.: SCG 3706
Program Type: Statewide Core Program
- 2. Projected Program Budget Table**
Table 1 - reference the CalSPREE for budget details
- 3. Projected Program Gross Impacts Table – by calendar year**
Table 2 - reference the CalSPREE for projected savings details

4. Program Description

a) Program name

~~Residential HVAC Subprogram~~

~~Residential Quality Maintenance and Residential Quality Installation will be a program promoted externally to customers and contractors as the AC Quality Care Program. The HVAC Industry Task Force is named the Western HVAC Performance Alliance.~~

b) Describe Program

The Residential HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.

The IOUs propose building towards this vision for HVAC by implementing a comprehensive set of downstream and midstream strategies that builds on existing program, education, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality driven market. Through this Statewide HVAC Program and a Statewide HVAC Industry Leadership Task Force (Western HVAC Performance Alliance), we will gain a better understanding of the market response to our programs, as well as the behavioral implications of the various market participants, and then actively revise/update strategies and programs accordingly, as guided by the California Long-term Energy Efficiency Strategic Plan (Strategic Plan).

The IOUs cross-sector collaborative activities and information-sharing tools that have been developed through the 2010-2012 Statewide HVAC programs will be discontinued.

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These programs were distributed in the Residential, Commercial, WE&T and Emerging Technologies Statewide programs. The Quality Maintenance, Quality Installation Development, and HVAC Core (Western HVAC Performance Alliance) programs will be implemented under this Residential HVAC Subprogram.

Market transformation and direct energy savings and demand reductions will be achieved through a series of sub-programs that are described in detail and summarized below:

Residential HVAC Quality Maintenance

Residential HVAC Quality Maintenance program represents one of the more creative aspects of the HVAC “Big Bold Energy Efficiency Strategy.” It is based on the assumption that there are energy and demand savings achievable through the regular application of quality maintenance (QM) procedures applied to existing residential HVAC equipment. This program intends to (1) quantify those potential savings and (2) develop and implement a residential maintenance program. This program will be focused on comprehensive, continuously improving O&M activities that capture energy savings and provide a high value to the end-user thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

Residential HVAC Quality Installation Development

Residential Quality Installation Development is applicable to quality installation (QI) of split or packaged HVAC systems, with a rated capacity up to 65,000 BTU/H. This Residential sub-program element is based on the assumption that energy and demand savings are achievable through the application of QI in accordance with appropriate industry standards (e.g., ACCA, SMACNA and ASHRAE) applied to new HVAC equipment.

This sub-program intends to:

- Collaborate with EM&V efforts to quantify those potential savings;
- Develop and implement a sub-program focused on comprehensive, continuously improving installation activities that capture those savings and provide a high return on investment to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan;
- IOU’s will continue to development in 2013. The sub-program will be developed in collaboration through stakeholder input from the HVAC industry.

For SDG&E the Quality Maintenance and Quality Installation program may be implemented by a third party through a competitive bid process for the purpose of soliciting innovative ideas and proposals for improved portfolio performance.

e)b) List of Measures

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To achieve the market transformation desired by the Strategic Plan, a variety of appropriate financial and non-financial incentives is required to influence specific market actions. Incentives will be targeted to services including Quality Maintenance and Quality Installation Development.

Residential HVAC Quality Maintenance

In support of both the market transformation and the energy resource savings goals of the program, rebates are available for specific measures. The intention of these rebates is to help offset the extra cost of providing a higher quality comprehensive service performed in accordance with the ACCA 4 industry standard for Quality Maintenance.

Additionally, in coordination with the Emerging Technologies Program, the Residential HVAC QM program will continue to consider higher initial incentives for any HVAC emerging technologies that may be newly introduced to the market place via this program. Once the new products have taken hold in the market place, such incentives would be adjusted to reflect market conditions. The current set of measures is as follows:

Table A – List of Residential Quality Maintenance Measures

Measure	Prerequisite	Measure Requirements	Range
QM-Standard Basic Assessment	No prerequisite measures.	Must cover all the steps included in the Assessment Process, including a conversation with customer about their goals and concerns.	\$ 50-00
	All measures must be performed by a participating contractor's qualified technician.	Must include a report with a written estimate for work required to meet standard.	
Advanced Air Flow Correction	Completion of the Assessment	Must address any deficiencies in air flow per the standards identified in the Assessment process.	\$ 250-00
Blower Motor Retrofit	Completion of the Assessment	The installed motor model must be a direct drive, permanent magnet, and constant speed motor.	\$ 150-00
Refrigerant System Service	Completion of the Assessment and Air Flow Correction	Work must meet the protocols covered in training and is expected to be incorporated into a software tool.	\$50 to \$100
		Must be done when weather conditions will support accurate results.	
		Must be done within eight months of completion of Air Flow Correction work (the delay is allow time for proper weather conditions to resume).	

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QM-Standard Preventive Maintenance Agreement	Completion of the Assessment • Completion of either Air Flow Correction or Blower Motor Retrofit	The optional standard service agreement must include the provided Service Agreement QM Addendum. • The optional agreement must cover at least one year of service with two seasonal visits.	\$ 50.00
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Residential HVAC Quality Installation Development

At this point, providing a list of measures and incentive levels is premature, as a valid quality installation based sub-program must be well planned and vetted through the Western HVAC Performance Alliance (WHPA). This sub-program will be designed during 2012 and 2013 for the 2013-2014 program cycle and therefore will not be providing incentives, at least not initially.

c) List Non-incentive Customer Services

Residential HVAC Quality Maintenance

- Education of the market on the value of selecting high-efficiency systems.
- Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program.
- Training for contractors on HVAC industry standards, sales and marketing of the value of those standards, and their implementation in the field.
- Education for customers on how HVAC industry standards can help them compare bids of contractor services and select those with high-road skills.
- Customer education about the benefits of establishing a long-term trust relationship with a qualified contractor, which can lead to future energy and cost savings, such as from better planning for future HVAC system replacements and the quality installation of those systems when replaced.
- Improved comfort and indoor air quality for customers.

Residential HVAC Quality Installation Development

This sub-program development process will be performed with HVAC industry involvement to ensure that:

- The measures eventually included in the program can be reasonably assured to save energy and lower peak demand;
- A clear value proposition can be demonstrated so that contractors will see the path for a profitable business opportunity based on QI and customers will understand the benefits of equipment maintained at a higher level of quality;
- An effective training program will be put in place to ensure that technicians can properly implement QI services;
- The processes employed will document that work performed in the field meets minimum program quality control standards and can be validated.

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- The initial QI efforts will focus on uncovering the root causes, rectifying design and implementation shortcomings, determine realistic energy savings estimates, and then launch program incentives.

The following non-incentive services will be offered through this sub-program:

- Active enrollment and promotion of qualified contractors
- IOU promotion of QI through the Whole-Home Upgrade subprogram and other customer marketing.
- Contractor training on quality installation practices, selling and marketing QI, service management of QI, etc.
- If incentives are offered for energy savings and the measures are cost effective, the program will comply with Senate Bill 454 on HVAC permit acquisitions with the work completed by a licensed contractor.
- The program will retain appropriate combustion safety testing and other procedures to ensure customer safety.

Western HVAC Performance Alliance Activities

The program will be active in a number of additional non-resource activities. These activities are required to ensure that the HVAC industry is fully involved in the development and implementation of the many tactics required to address the short and long-term goals of the Strategic Plan. One such non-resource activity is an Western HVAC Performance Alliance that will be initially chartered and funded by the IOUs. The Western HVAC Performance Alliance is necessary to keep the industry engaged in the Strategic Plan process and to provide guidance and support for the implementation of the various tactics required to transform the industry. Mindful that HVAC industry organizations are not traditionally structured or staffed, and have not traditionally allocated enough resources to achieve the level of involvement envisioned by the Strategic Plan, the HVAC Convener's Report concluded that: *"The agencies and utilities should work together to ensure the working group is adequately funded to meet its responsibilities."*⁴¹

It is envisioned that this Western HVAC Performance Alliance will involve high-level HVAC industry stakeholders, such as manufacturers, distributors, contractors, associations, organized labor and influential end-user customers—to coordinate industry sponsorship of and participation in HVAC strategies. Membership should also include other key players, including the CPUC, the California Energy Commission (CEC), utilities, building owners/managers, university researchers, consumers, and the Federal Government. The Western HVAC Performance Alliance will be charged with establishing and prioritizing a substantial IOU-funded response (recognizing the roles of other appropriate organizations including CEC, the publicly-owned utilities, and local governments) to the activities described in the suite of IOU-proposed HVAC Programs — both utility administered programs and third-party administered programs which focus

⁴¹ HVAC Convener's Report, Appendix B.5, Pg 10.

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on HVAC efficiency — resulting in a structured roadmap with specific actions, schedules, and the technical and financial resources identified to initiate near-term, mid-term and long-term issue resolution.

The Western HVAC Performance Alliance will provide the necessary guidance to both California and the western U.S. so that the many issues required to transform the industry can be prioritized and facilitated by the IOUs and the WCEC (as described in the HVAC Technologies and System Diagnostics Advocacy sub-program).

Some of the actions of the Western HVAC Performance Alliance may include:

- Recommending guidelines that would make it possible for IOUs to directly contract with existing HVAC industry institutions (e.g., associations, societies, conference hosts, and the trade press) through a rigorous Request For Quotation (RFQ) or similar processes to implement specific aspects of IOU-administered energy efficiency programs.
- Making recommendations for standards and qualification guidelines for trainers and educators who receive funding from the IOUs.
- Update the “HVAC Action Plan” that prioritizes specific actions required to address the Strategic Plan.
- Formally reaching out to utilities in neighboring states, including Arizona, Colorado, Nevada, New Mexico, and Utah, and energy organizations in the Pacific Northwest, to involve them in the overall planning and implementation processes.
- Identifying for inclusion in the HVAC Action Plan other HVAC technical work underway through the existing IOU programs, CEC/EPIC-BERG, LBNL, HVAC industry vendors, and others inside and outside California. Much of this work is continuing in a fragmented way. A cohesive planned and prioritized framework and action is needed.
- Channeling appropriate HVAC work through the existing IOU program framework, on a fully-planned basis, not on an *ad hoc* basis.
- Integrating all efforts as appropriate with the current and out year work plans of the WCEC.
- Integrating the suite of demand response/demand side management (DR/DSM) options that are already considered in utility DR/DSM programs as well as additional solutions that are emerging for residential and small commercial markets.
- Create a sustainable governance of the Western HVAC Performance Alliance to assist in meeting the deliverables of the CLTEESP and HVAC Action Plan.

5) Program Rationale and Expected Outcome

a) ~~a)~~ **Quantitative Baseline and Market Transformation Information**

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San

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Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Quality Maintenance Program (Resolution E-4385, Appendix A, pp 35-36):

Table 3 – Residential HVAC Quality Maintenance

Program	Metric	Metric Type
<i>Residential Quality Maintenance</i>	1. Measured progress towards specific milestones provided in the project GANTT chart indicating the development/finalization of this IOU program based on Quality Maintenance standards.	2a

Residential HVAC Quality Installation Development

Program	Metric	Metric Type
<i>Residential Quality Installation Development</i>	1. Percentage of HVAC contracting companies that are participating in statewide residential QI program as a share of the targeted market* * "Target market" defined as C20 licensed HVAC contracting companies in CA.	2a

b) Market Transformation Information

MTI Language – Based on the email received from Carmen Best on 6/19, we have updated the language for all PIPs with MTIs as follows:

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

Market Transformation metrics should neither be used for short-term analyses nor for specific program analyses; rather, should focus on broad market segments. Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a

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market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”⁴² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁴³.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴⁴. Markets are social institutions⁴⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁴⁶ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁴⁷. According to York⁴⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly

⁴² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

⁴³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁴⁴ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁴⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁴⁶ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁴⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁴⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

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for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation⁴⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory⁵⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades⁵¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects⁵². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"⁵³ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts⁵⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions⁵⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help

⁴⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

⁵⁰ Rogers (1995) *Diffusion of Innovations*, 5th Ed.

⁵¹ Example in bottom chart of this graphic from the New York Times: <http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

⁵² Sebold et al (2001) p. 6-5.

⁵³ Peters, J.S., Mast, B., Igelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

⁵⁴ CPUC (2008) Strategic Plan, p. 5.

⁵⁵ Nadel, Thorne, Sachs, Prindle & Elliot (2003).

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achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers⁵⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Historically, the nonresidential retrofit programs have had very low uptake rates on high-efficiency HVAC systems. Consequently, a first step towards market transformation is to do what it takes to achieve a high level of program participation, thereby increasing market share of high-efficiency equipment sales and quality installations. An initial increase in market share allows for increased levels of customer, installer, and distributor/manufacturer knowledge and interest in these systems, which should make further increases easier. In addition, tracking the ratio of certified HVAC technicians in the field, over time, can provide a gauge of the likelihood for quality installations and maintenance.

c) Program Design to Overcome Barriers

Residential HVAC Quality Maintenance and Residential HVAC Quality Installation Development

The program addresses the following barriers:

Recent data available from AHRI indicates that as a result of the 2006 increase in federal residential equipment efficiency standards, which increased equipment costs significantly, unitary equipment sales have dropped while repairs to existing systems (low efficiency compressor replacement) have increased nationwide by more than 25 percent and window unit sales have increased by a similar amount. A similar trend occurred in 2002 when ENERGY STAR® increased its qualifying efficiency level to Seasonal Energy Efficiency Rating (SEER) 13. Prior to the change, ENERGY STAR® Central Air Conditioner (CAC) sales had an average market share of 33 percent⁵⁷. After the change, the average market share of ENERGY STAR® units fell to 7 percent. Additionally, recent studies indicate that 30 to 50 percent of existing systems have not been installed properly. Further, Title 24 compliance rates for

⁵⁶ Pelozo & York, (1999).

⁵⁷ Itron, "California Residential Efficiency Market Share Tracking," 2006, pp.3-6.

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replacement systems are approximately 10 percent⁵⁸. The net effect of this market failure is a 20 to 30 percent increase in space energy use⁵⁹.

- **Lack of awareness:** By demonstrating the energy efficiency benefits of QI/QM, the benefits of QI/QM will be better understood by program participants. It is our goal to discover the evidence, and expected return on investment, that customers will require to authorize payment for these measures (and those premium measures that prove to outperform the QI/QM ANSI standards) when subsidies are removed.
- **Performance uncertainties:** Much research has been conducted on the energy savings achievable through HVAC system maintenance measures such as RCA and Duct Sealing, but despite all this research many performance uncertainties still exist. The implementation of this program with an increasing set of customers and the corresponding EM&V efforts shall be coordinated through the HVAC EM&V Project Coordination Group (PCG).
- **Asymmetric Information:** Delivering QI/QM training opportunities through existing industry channels (e.g., distributors, trade associations) will provide a higher level of credibility for QI/QM training rather than offering exclusively through IOUs.
- **Bounded rationality:** It is logical to assume that the HVAC industry would want to deliver quality service; however, market dynamics have not supported such logic as the industry has largely become commoditized and low price/low quality typically wins out. The program supports HVAC contractors that perform quality work. This helps to build momentum towards market transformation.
- **Hidden costs:** By promoting the concepts and value of quality maintenance at the time of system installation, the customer is assured that the energy efficiency performance benefits of their new system will continue throughout the life of their system.
- **Organizational customs:** The HVAC industry has largely become commoditized into an industry driven by low costs and quality, where quality is assumed but not understood or valued by the customer. This is a result, in part, by contractors having minimal success in communicating the value of QI/QM to consumers and consumers not understanding the linkages between comfort and energy use. The HVAC QI/QM Program demonstrates the value proposition of a high quality contracting business and educating consumers on the energy benefits of QI/QM.

⁵⁸ Quantec LLC, "Statewide Codes and Standards Market Adoption and Noncompliance Rates," pp. 4

⁵⁹ Strategic Plan, Appendix A, HVAC Convener Report, pp. 38-39

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- **Product cost:** Substantial incentives for equipment and QI will offset a substantial percentage of product costs. Customers will be encouraged to participate in the program and use one of the qualified program contractors to install their new HVAC system.
- **Lack of awareness:** Focused marketing and training on QI and code compliance for consumers, contractors, and building inspectors⁶⁰ will ensure that the importance of complying with Title 24 will be better understood by program participants. Additionally, requiring demonstrated code compliance (e.g., CF-6R) in order to qualify for program rebates will further reinforce the importance of permitted installations.
- **Information or search costs:** Active support of qualified program contractors and listing them on IOU websites will increase consumer confidence in having a reliable source of quality contractors. Moreover, satisfied customers will recommend these contractors to friends and neighbors and thus create additional momentum for using contractors with a reputation for high-quality work.
- **Transaction costs:** Potential for streamlined incentive application processes that require the same information required for Title 24 compliance (e.g., CF-6R) will reduce the difficulty of participating in the program and complying with permit requirements. Furthermore, the high incentive levels offered by the program will reduce the likelihood that customers will choose not to participate in the QI activity.
- **Hidden costs:** Promoting the concepts of QI at the time of system installation will increase the likelihood that customers will understand the energy efficiency performance benefits resulting from maintenance, and will continue such periodic maintenance over the life of their system.

Additionally, several other issues could potentially influence sub-program design, including:

- Other organizations have established processes and procedures for QI. These processes should be evaluated to determine how well they perform in comparison to minimum QI standards.
- Lack of industry consensus on QI standards and technical protocols
- Overcoming market barriers to exceeding Title 24 Standards
- Cost-effective constraints arising from limited savings for QI measures exceeding Title 24.
- Forging sustainable HVAC industry and market actor support.

⁶⁰ See the HVAC WE&T Sub-program PIP, below, for more information.

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- Addressing challenges in standard applicability across a range of commercial building types and HVAC systems.
- True energy savings measurement procedures.

d) Quantitative Program Targets

The program will achieve the following program targets:
See Table 5 above.

e) Advancing Strategic Plan goals and objectives

The Residential HVAC Quality Maintenance and Residential HVAC Quality Installation Development program helps to achieve the following near-term strategic goals as identified in Chapter 6 of the Strategic Plan:

- 2-1: Create a Statewide QI/QM Brand – In addition to promoting the industry standards for QI and QM, leveraging the program statewide Energy Upgrade California (EUC) brand for all IDSM efforts is a cost effective approach to branding QI/QM. In order to help residential consumers more clearly recognize contractors and technicians who can truly deliver QI/QM, the program also aggressively helps the HVAC industry to more firmly establish the higher value/consumer benefit of its own industry standards and credentials. This program is based on and promotes the use of ACCA Standard 4 for Quality Maintenance and examples of consensus HVAC credentials are the Industry Competency Exam (ICE), technician certification by North American Technician Excellence (NATE), a variety of union “Journeyman” designations, TABB, NEBB, AABC, NBC and STAR® certifications.
- 2-2: Launch Statewide Brand – The Energy Upgrade California IDSM umbrella brand will be expanded via the statewide ME&O program efforts and the Residential HVAC QM program will make corresponding adjustments accordingly to leverage that brand within a reasonable time during 2013-14. This branding activity will help participating contractors to promote the QI/QM effort. The program will continue to communicate information about the QI/QM branding effort to contractors, technicians and other HVAC industry stakeholders via such means as inserts in trade journals such as Indoor Comfort News, The ACHR News, and Contracting Business.
- 2-3: Provide expanded QI/QM training – The program continues to ensure that HVAC service technicians of participating contractors are fully trained on the delivery of the measures promoted by the Program. Furthermore, feedback mechanisms will be utilized to continually evaluate technician performance to ensure that they are applying the information they are being taught in the QI/QM training. As part of the program’s market transformation

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efforts and to ensure quality services are provided to customers, the program will continue to work with the HVAC industry to reduce (and wherever possible eliminate) the direct costs of this transformative training to technicians and contractors willing and able to apply their skills and new tools to delivering industry standard and energy saving Quality Maintenance services.

- 2-4: Implement contractor accreditation program – Additional consideration will be made for program efforts to promote NATE and any other certifications that the consensus of the HVAC industry determines to be appropriate.
- 3-3: Accelerate whole-building educational opportunities - Create pathways for HVAC contractors to evolve into whole building contractors by partnering with private and public community colleges and/or universities to develop the appropriate curriculum on whole building design practices.
- 4-1: Pursue regional climate-optimized equipment standards - IOU staff, in close consultation with WCEC/CEC and other appropriate parties, will continue to stay attentive to and engaged in the federal proceeding as it continues into 2011
- 4-3: Accelerate market penetration of advanced technologies - Partnering with manufacturers through activities such as the WCEC's Western Cooling Challenge will increase their dedication to developing climate-appropriate equipment that delivers energy savings and peak load reduction.
- 4-4: Adopt a progressive set of building codes that support peak-efficient equipment - Through the efforts proposed by the Statewide Codes and Standards Program, the IOUs will continue to work with the CEC to advance current building codes.
- 4-5: Develop standards for on-board diagnostic functionality – In coordination with HVAC efforts within the Emerging Technologies program, the program leverages the use of hand held and other types of systems in the field to assist in determining viable protocols for residential applications.
- 4-6: Prioritize in-field diagnostic approaches – Through coordination with the Emerging Technologies program, the program leverages the use of hand held and other types of systems in the field to assist in determining viable protocols for residential applications and contributes information to the HVAC industry that is expected to be helpful in targeting future efforts based on quantifiable energy efficiency benefits.

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6) Program Implementation

a) Statewide IOU Coordination

The IOUs will jointly participate in California's residential HVAC efforts to achieve real-market transformation. In order to accomplish this task, the IOUs will use the principles of adaptive management and follow a structured process to continuously update and enhance the program throughout the 2013-2014 Transition Period. The process will continue as follows:

IOU Program Lead – The process for adaptive management will begin with each IOU designating an HVAC Program Lead. The lead will be the conduit through which information between IOUs will flow and will investigate new innovations, special accomplishments and challenges faced by sub-program managers and the managers of cross-cutting Statewide programs within their own IOU. Where such innovations or challenges intersect HVAC and show potential for improving the HVAC program, the Program Lead will present such information to a quarterly HVAC Program Management Team meeting.

Hold Quarterly HVAC Program Management Team Meetings – At this quarterly meeting, individual innovations and accomplishments experienced in one IOU will be transmitted to all IOUs. The HVAC Program Management Team will evaluate the innovations and accomplishments of the individual IOUs, hear ideas for course corrections and overcoming challenges, measure the HVAC program's progress against Statewide metrics and goals, and prepare summations for presentation to the Western HVAC Performance Alliance at its semi-annual meeting.

Adopt Program Enhancements – Once the HVAC Program Management Team agrees that a particular idea or innovation has merit on a Statewide-level, each IOU Program Lead will distribute the information to their sub-program managers for adoption and integration as appropriate. In some cases, it may be necessary to invite the sub-program managers to the HVAC Program Management Team to get their feedback and ensure they receive the same message.

Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the HVAC Program Management Team will track the program's accomplishment of Statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The HVAC Program Management Team will determine whether future course corrections are needed, and if so, will activate a fresh start of the adaptive management cycle to generate the improvements necessary to stay on track.

All California IOUs continue to work together and jointly with the HVAC industry to lead efforts to implement and explore design enhancements for a viable residential HVAC program. Specific areas of coordination include:

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- **Program delivery mechanisms
Residential Quality Maintenance**

-The program is delivered to customers via qualified participating contractors. Training of participating contractors and management of the program includes a combination of third-party implementers and internal administrative staff. This follows the adaptive management process. The program is targeted to consumers and contractors to create a push/pull dynamic that influences the achievement over time of sustained market transformation.

Residential Quality Installation Development

The IOUs will jointly coordinate and work with industry groups to prepare a design for a statewide-consistent program design that is cost effective and meets California's market transformation objectives.

After the new program design is launched, the IOUs will manage the program through a combination of third-party programs and internal administrative staff, and will follow the adaptive management process. The program will be targeted to consumers and contractors to create a push/pull dynamic that influences sustained market changes.

Western HVAC Performance Alliance

The IOUs will deliver the program through a combination of third-party vendors and internal administrative staff. The program will be delivered in collaboration with existing industry infrastructures in order to increase its overall effectiveness. Program guidance will be provided to the CPUC/IOUs through the Western HVAC Performance Alliance as described above.

- **Incentive levels**
See Section 4.b above.

- **Marketing and outreach plans
Residential Quality Maintenance**

Program marketing includes common outreach materials shall be developed by the IOU's in partnership with HVAC industry, including feedback from HVAC contractors. This QI/QM branding shall be under the statewide Energy Upgrade California brand efforts after the expansion of that brand. The program will continue to work with industry and participating contractors for additional methods to promote the program and the value of QI. If warranted by such feedback, the program may explore providing additional point-of-purchase information on QI that would be made available for equipment dealer locations and building departments (where residential customers may be receptive to "neutral" public service messages).

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Residential Quality Installation Development

Common outreach materials will only be available to participating contractors. Additional point-of-sale information on QI will be made available for equipment dealer locations and building departments.

Western HVAC Performance Alliance

Specific outreach efforts are currently being facilitated to the industry to keep it engaged in the Strategic Plan process (both updates to and implementation of). On a macro level, this outreach is occurring through the Western HVAC Performance Alliance and any subcommittees established by this group. On a micro level, each sub-program has specific tactics in place to engage the industry in its own particular demand reduction, energy savings and market transformation objectives.

Utilities will conduct integrated as well as program-specific marketing and outreach which will be coordinated with the statewide marketing and outreach program. The utilities may use a range of tactics such as; e-mails, flyers, on-Line marketing, direct mail, bill messaging, social media, local events, ethnic media, and other channels that suit the target audience, the message, and the resources.

- **IOU program interactions**

Residential Quality Maintenance

One of the strategies outlined in the Strategic Plan HVAC chapter is to create a better linkage between the CEC's Title 24 compliance efforts with the IOUs energy efficiency programs. Previous efforts have been managed with different yet consistent purposes. The IOU's will continue the market transformation goals of the Strategic Plan; the IOUs will support CEC and CPUC efforts to develop one common effort.

Residential Quality Installation Development

In order to support the need for increased code compliance, the program will cooperate with CEC training and enforcement activities targeted at local building departments. Such activities will also be used to promote the economic and performance benefits of QI/QM. The program will also coordinate its activities with IOU local government partnerships and third-party programs, to ensure that code compliance could become integrated into these programs.

Western HVAC Performance Alliance

One of the strategies outlined in the Strategic Plan HVAC chapter is to create a better linkage between the CEC's Title 24 compliance efforts with the IOU energy efficiency programs. Previous efforts have been managed with different, yet consistent purposes. In order to achieve the market transformation goals of the Strategic Plan, the IOUs will support CEC and

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CPUC attempts to develop one common effort. Interaction with other IOU programs will be coordinated through the adaptive management process described above. Within this process, a Joint HVAC/Emerging Technologies/Codes and Standards Program Management Team (“Joint Program Management Team”) will be established to ensure that the individual program efforts are aligned and progressing towards the same near and long-term goals.

- **Similar IOU and POU programs**
Residential Quality Maintenance

As a result of increased federal equipment efficiency standards, many utilities across the country have begun to offer service-based programs that independently offer measures such as RCA and Duct Sealing. It is expected that the HVAC QM Program could stimulate a paradigm shift through its delivery of a comprehensive suite of maintenance services that comply with or exceed ACCA industry standards (premium maintenance) designed to address the full range of efficiency measures available for residential HVAC systems.

- **Residential Quality Installation Development**

The ENERGY STAR® Residential QI program was introduced in early 2008. Several utilities, including Oncor, National Grid, Nstar, and Puget Sound Energy, are either offering or planning to offer this program. Both PG&E and SCE piloted the program in 2006 and 2007 respectively, and the program continued in SCE’s territory from 2009 to 2012. SDG&E launched the program in 2010. Such program design, however, was found to be non cost ineffective, prompting a need to arrive at a new program design that can be cost effective and meet market transformation objectives at the same time. In order to promote the holistic approach proposed herein, the California IOUs propose to initiate a Statewide IOU/POU coordinating group — perhaps under the auspices of CEE or some other umbrella organization — to discuss and implement HVAC program best practices that advance the goals of the Strategic Plan throughout California.

- **Western HVAC Performance Alliance**

POUs manage many different types of HVAC programs. However, none of them seeks to accomplish the aggressive market transformation goals being proposed by the IOUs. During the 2010-2012 program cycle, the IOUs will seek to increase their interactions with the POUs to better align IOU and POU HVAC programs. This involved the creation of periodic Western HVAC Performance Alliance activities with POUs to increase awareness of the Strategic Plan and how programs could and should be designed to help meet its aggressive targets.

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b) Program delivery and coordination

The program will be coordinated with the following activities:

- **Emerging Technologies program**

Residential Quality Maintenance

The Residential HVAC QM Program is expected to interact with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment. Coordination activities will be realized through the Program ongoing statewide coordination among programs and across IOUs.

Residential Quality Installation Development

N/A (this program does not seek to influence emerging technologies).

Western HVAC Performance Alliance

The program is expected to interact with the Emerging Technologies Program to ensure the proper focus on remote and on-board diagnostic equipment. Coordination of HVAC, Codes and Standards and Emerging Technologies activities will be realized through an inter-utility program management team (consisting of the appropriate program managers from the four IOUs) that meets on a quarterly basis to discuss program integration and implementation issues.

- **Codes and Standards program**

Residential Quality Maintenance

This service-based program is not much affected or regulated by building codes, except in the possible case of a participating contractor installs 40 or more feet of new ducting as part of the Advanced Air Flow Correction measure. Program to help support proper permit compliance, the program requires the reporting of any applicable permit number in such cases or any other case that may require a permit as a result of work performed through the program. Additionally, to further support proper compliance with all permitting and licensing requirements, the program requires that both the customer and the contractor certify that all permitting and licensing requirements were followed before any program incentives would be paid.

Residential Quality Installation Development

Efforts will be coordinated to ensure that a consistent message is delivered regarding code compliance and QI. Codes and Standards will take the lead on compliance items, while the Residential Quality Installation Development will take the lead on QI efforts but will leverage similar delivery channels to increase effectiveness. Additionally, coordination

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activities will be realized through the Joint IOU Program Management Team.

Western HVAC Performance Alliance

The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This will ensure that the code-based solutions are consistent with that program's other activities. Section 6 of the Codes and Standards PIP describes the specific actions that the program will employ to address HVAC. HVAC, Codes and Standards, and Emerging Technologies activities will be coordinated through the Joint Program Management Team.

- **WE&T efforts**

Residential Quality Maintenance

Participating contractors are required to attend program-specific QM training in order to participate in the program.

Residential Quality Installation Development

Participating contractors are required to attend program-specific QI training in order to participate in the program.

Western HVAC Performance Alliance

WE&T needs for the HVAC industry are unique to the industry. Therefore, the IOUs have decided to place the responsibility of managing the effort under the Statewide IOU WE&T Program umbrella. However, the HVAC WE&T activity is coordinated with the Statewide activity to ensure that the individual efforts are complementary (e.g., HVAC training information is integrated in the WE&T web portal).

- **Program-specific marketing and outreach efforts**

Residential Quality Maintenance and Residential Quality Installation Development

Utility-branded marketing support for participating contractors is provided to advance statewide QM efforts. Such support may include exclusive promotion on IOU websites, brochures and other leave-behind materials that contractors can use to promote QM and their involvement with the program. As mentioned above, the program will continue to work with industry and participating contractors for additional methods to promote the program and the value of QM, and if warranted by such feedback, the program may explore providing additional general promotional materials such as point-of-purchase displays for equipment dealers. Additional supporting outreach will include QM and QI content on IOU websites and the statewide ME&O program, which will build general awareness and

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educate customers about energy management and provide a touch point for local marketing efforts related to QM and QI. (Specific IOU budget information for program-specific marketing activity is provided in Table 1).

Targeted campaigns use segmentation analyses, self-selection activities, and event-based knowledge of customer actions to provide residential customers and small businesses with integrated and program-specific solutions that are relevant to their needs. Additionally, program-specific marketing and outreach activities are necessary to drive participation and attain program goals.

Western HVAC Performance Alliance

Such support may include exclusive promotion on IOU websites, brochures, and other leave-behind materials that contractors can use to promote QI/QM and their involvement with the program. Additional general promotional materials such as point-of-sale displays for equipment dealers will also be developed. (Specific IOU budget information for this marketing activity is provided in Table 1, above.)

- **Non-energy activities of program**

Residential Quality Maintenance

The direct energy benefits of the program result from the quality maintenance of HVAC systems. Other activities will be required to support these energy savings goals, as well as the program's market transformation goals. These activities include significant efforts in program design, systems development, contractor training and consumer marketing. Additionally, some incentive measures within the program, such as the QM-standard Basic Assessment and QM-standard optional Preventive Maintenance Service Agreement, have been specifically designed to support market transformation. Finally, by implementing combustion appliance safety evaluation and testing, the program improves customer health and safety.

Residential Quality Installation Development

The direct energy benefits of the program result from the quality installation of central air conditioning systems. Other activities will be required to support these energy savings goals. These activities include significant efforts in contractor training and consumer marketing.

Western HVAC Performance Alliance

The direct energy benefits of the program result from the quality installation and maintenance of HVAC systems. Other activities will be required to support these energy savings goals. These activities include

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significant efforts in program design and coordination, technology evaluation and integration, contractor training and consumer marketing.

- **Non-IOU Programs**

- **Residential Quality Maintenance**

- The program interacts with the HVAC industry to continue to develop and introduce increasingly stronger QM standards that ensure systems are operating in their most efficient state.

- **Residential Quality Installation Development**

- Collaboration with local programs will synergize the program delivery.

- **Western HVAC Performance Alliance**

- The program will remain engaged with CEC, the California Air Resources Board (CARB), DOE, and other government agencies responsible for regulating various aspects of HVAC equipment, HVAC industry-driven initiatives such as NATE and the HVACR & Plumbing Instructors Workshop, and private/public partnerships such as Skills U.S.A.

- **CEC work on EPIC**

- **Residential Quality Maintenance**

- The program continues to coordinate with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment program

- **Residential Quality Installation Development**

- N/A (this program does not seek to influence emerging technologies.)

- **Western HVAC Performance Alliance**

- The program will interact with the Emerging Technologies Program to ensure the proper focus on remote and on-board diagnostic equipment. Such efforts are already underway with the EPIC Program. This activity will primarily be managed under the Technology and System Diagnostics Advocacy Program (see the sub-program PIP for more details).

- **CEC work on codes and standards**

- **Residential Quality Maintenance**

- The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This will ensure that the code-based solutions are consistent with that program's other activities.

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Section 6 of the Codes and Standards PIP describes the specific actions that the program will employ to address HVAC. HVAC, Codes and Standards, and Emerging Technologies activities will be coordinated through the Joint Program Management Team.

Residential Quality Installation Development

In a similar manner as with the Codes and Standards Program, the Residential QI Program will work in cooperation with CEC training and compliance efforts targeted at local building departments. The Codes and Standards Program will take the lead on this effort.⁶¹

Western HVAC Performance Alliance

The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This will ensure that the code-based solutions are consistent with that program's other activities. Section 6 of the Codes and Standards PIP describes the specific actions that the program will employ to address HVAC. HVAC, Codes and Standards, and Emerging Technologies activities will be coordinated through the Joint Program Management Team.

- **Non-utility market initiatives**

Residential Quality Maintenance

The tenets of QM are being actively pursued by the HVAC industry itself. ACCA has taken the lead in this national effort by developing various ANSI recognized QM standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR, Utilities). Other organizations have also developed processes designed to improve the operating efficiency of HVAC systems (e.g., NCI). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

Residential Quality Installation Development

The tenets of QI are being actively pursued through the HVAC industry. The Air Conditioning Contractors of America (ACCA) has taken the lead in this national effort by developing various ANSI recognized QI standards. These standards have been widely adopted throughout the

⁶¹ For additional information about Codes and Standards HVAC activities, see Section 6 of the Codes and Standards PIP.

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industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR®®, utilities, etc.) The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

Western HVAC Performance Alliance

The tenets of QI/QM are being actively pursued by leaders in the HVAC industry itself. ACCA has taken the lead in this national effort by developing various ANSI-recognized QI/QM standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR®®, Utilities, etc.) Other organizations have also developed processes designed to improve the operating efficiency of HVAC systems (e.g., SMACNA, NCI). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

a) Best Practices

As described in Section 5.a, the IOUs had been managing RCA and Duct Sealing programs for several years and have seen that the results they delivered were uncertain. This Program has created a new standard for HVAC service-based programs through offering a more comprehensive approach that delivers reliable energy savings. This program was developed with full industry involvement to ensure that it (1) is accepted by the industry, to ensure it meets its market transformation objectives program; (2) effectively trains service technicians to provide QM services; (3) provides the necessary quality control processes to ensure that the appropriate service measures are performed; (4) delivers reliable energy savings; and (5) demonstrates a clear value proposition for contractors and customers.

b) Innovation

The innovation of this program exists through the adoption of a comprehensive maintenance approach based on industry-accepted standards. Traditional utility programs have delivered individual service measures such as RCA and Duct Sealing. The delivery of these measures has generated questions about their energy savings. A more comprehensive maintenance effort through this Residential HVAC QM program delivers well-documented energy savings and sets the standard for HVAC efficiency programs. Furthermore, delivering this program through active partnership with the industry increases the likelihood of its success. Finally, innovation results through a continuous improvement process to evaluate the viability of offering additional incentives for services and other offerings that exceed established program standards (e.g., TABB, NEBB, and NCI).

c) Integrated/coordinated Demand Side Management

As with most HVAC oriented programs, the primary source of integration exists between energy efficiency and demand response activities. At a minimum, all marketing materials developed to support QM will cross promote DR to educate customers on the availability of IOU DR Programs. The required contractor training will be designed to include a

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discussion on DR programs and participating contractors will be required to deliver DR information as part of their customer sales efforts. The program will continue to explore closer linkages between EE and DR.

d) Integration across resource types

The program may support CARB's efforts to regulate GHGs by providing consumer information on the phase-out of existing refrigerants and the move to zero-ODP refrigerants with the customer's maintenance invoice. Such information would seek to influence the customer's adoption of newer equipment by explaining the likelihood of increased maintenance costs as existing refrigerants become less available.

e) Pilots

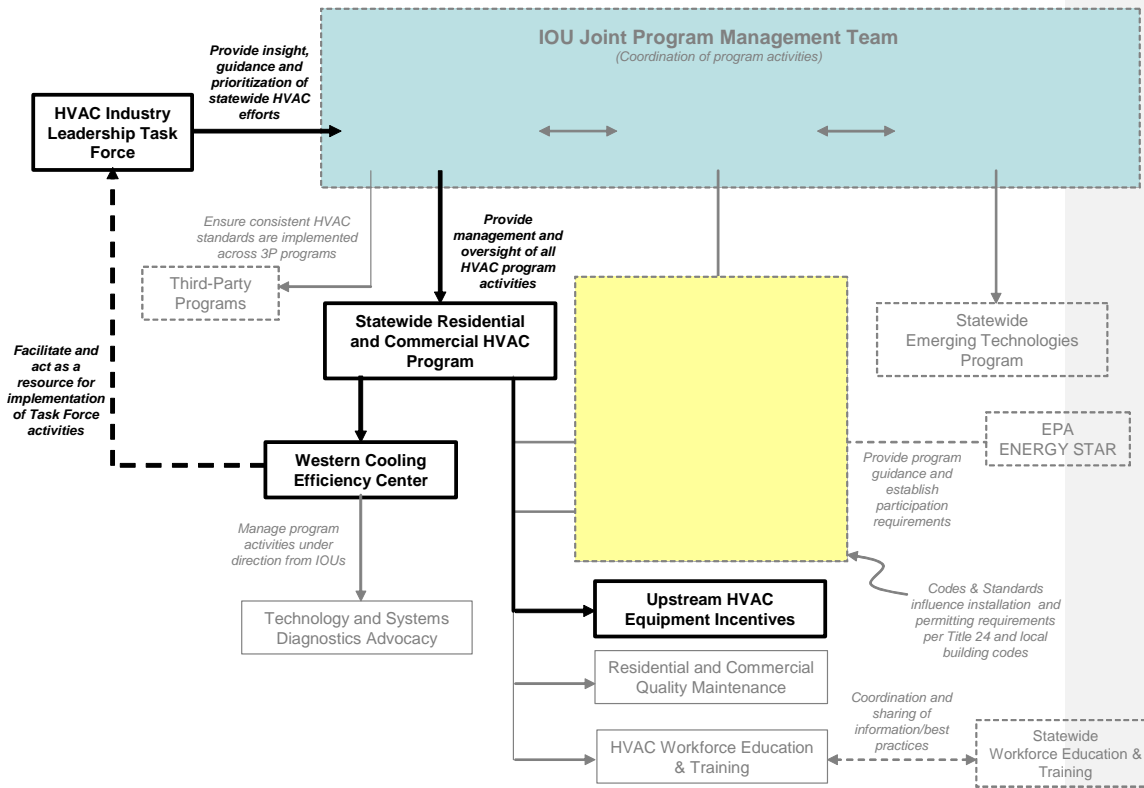
As with any good product/program design, pilots may be needed to test program enhancement concepts prior to full-scale launch of any enhancement. The HVAC QM Program may utilize pilots to test the implementation of program concepts, processes and the integration of ever increasing QM standards.

f) EM&V

EM&V for the Residential HVAC program will be managed via the EM&V program. Appropriate EM&V activities and detailed plans will be conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

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7) Diagram of Program



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8) Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs.

Market Transformation Information

a. Summary of the market transformation objectives of the program:

The Residential HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.

Description of the market, including identification of the relevant market actors and the relationships among them:

The Residential HVAC market for maintenance and installation is largely a market designed to offer these services at the lowest price to meet acute needs, rather than one with product differentiation by quality that is designed to meet the long-term needs of customers in terms of thermal comfort, indoor air quality, and thermal comfort.

The primary market actors are contractors, technicians, and property owners/managers. Contractors manage the firms that provide installation and maintenance. They set the direction for their firms in terms of what services to provide, how to provide them, and how to price them. Technicians actually provide those services. Thus the successful provision of the services depends on the technicians' skill levels as well as how they respond to the constraints imposed on them by contractors. Property owners and managers constitute the demand side of the market. They request and pay for the services provided by the contractors' firms. Renters do not tend to participate in this market.

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b. Market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies:

Property owners and managers often lack important information about the cost and value implications of their HVAC decisions, as well about the quality of the work that contractors' firms can perform. That is, there are not clear indicators of quality by which consumers can judge providers, and consumers do not have a well-defined set of goals by which to evaluate the quality of work after the fact. This facilitates a commoditization of HVAC services whereby firms compete based on price and not on quality, which can lead to a "race to the bottom" mentality in certain segments of the market. This lack of information is exacerbated by the highly technical nature of HVAC maintenance and installation that can confound the efforts of contractors and technicians who are attempting to do high quality work, leading to sub-optimal HVAC system performance in terms of thermal comfort, indoor air quality, and energy efficiency.

These barriers provide an important opportunity for energy efficiency programs to intervene in the market in a number of ways to facilitate high-quality work. The first is providing a definition of quality through the promotion of standards for installation and maintenance. Second is facilitating a business relationship between contractors and customers to promote high quality, and not just low price. Third, the program can build the skills of technicians who perform maintenance and installation so they are able to implement those services at a high level of quality.

c. Description of the proposed intervention(s) and its/their intended results, including which barriers the intervention is intended to address:

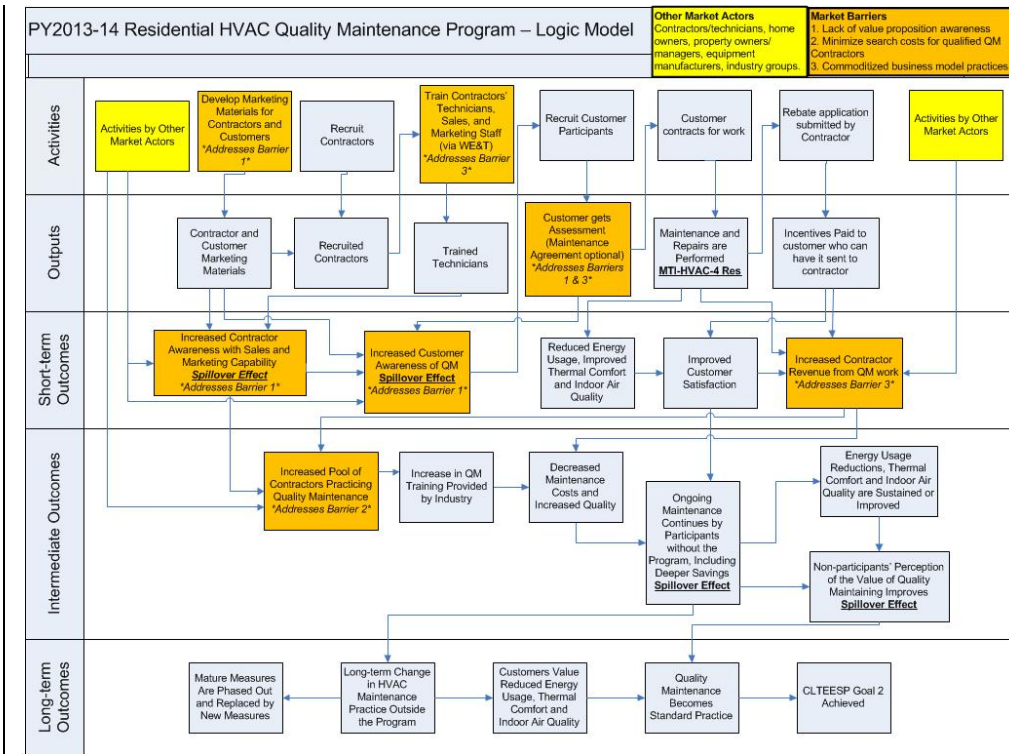
By promoting industry standards for maintenance and installation, the program helps consumers know what the characteristics of a good contractor are. For maintenance, part of this standard is leads the customer and the contractor to define performance guidelines for thermal comfort, indoor air quality, and energy efficiency, helping make clear what the level of quality of work was after the fact. For installation, the standards provide clear performance characteristics through such elements as load calculations.

The programs facilitate the creation of an ongoing business relationship between the contractor and the customer. This provides an inducement to the contractors' firms to provide a high-quality service that will bring long-term value to the customer, and thus long-term value to the contractor, rather than rely on winning bids with a lowest price under the assumption that there would be no more business dealings with a customer and so high quality would bring a low return.

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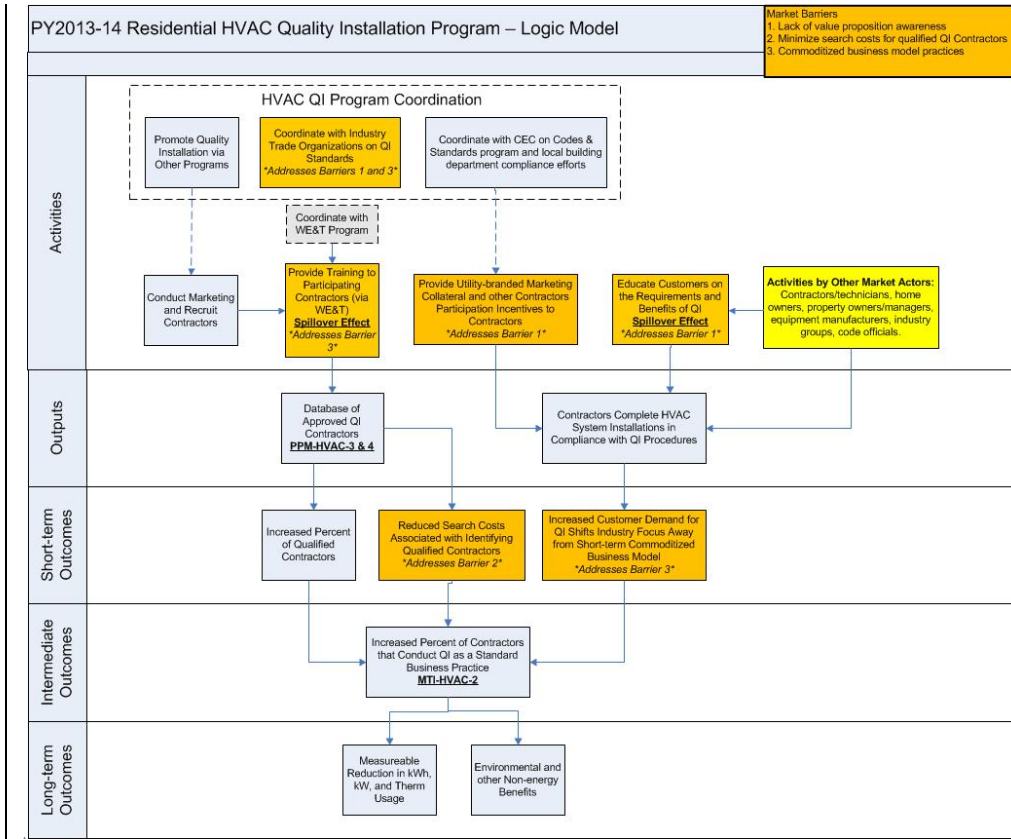
Finally, the programs build the skills of technicians. This enables continuing improvement in the quality of work over time. It also provides for spillover as those contractors and technicians can provide higher quality service to their customers even outside the program to reduce energy usage.

d. Program or market logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results:



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1. **Program Name:** Statewide Residential New Construction (RNC)
Program ID: SCG 3707
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – Reference CalSPREE program for budget details.

3. **Projected Program Gross Impacts Table – by calendar year**

Table 2 - Reference core program for projected savings detail.

4. **Program Description**

a. Describe program

CAHP is part of the statewide Residential New Construction (RNC) sub-program offering. The RNC sub-program represents one-sixth of the CalSPREE core offering. CAHP encourages single and multi-family builders of all production volumes to construct homes that exceed California's Title 24 energy efficiency standards by a minimum of 15 percent. Through this plan, multi-family and single-family projects are approached identically for program purposes except where explicitly noted. The ENERGY STAR Manufactured Homes program, offered by Sempra and Southern California Edison, addresses new factory-built housing. The structure of the relevant Residential New Construction program elements is as follows:

CalSPREE Program (Core)

1. RNC Sub-Program

2.1 Single-family/Multi-family Sub-Program (CAHP)

2.1.1 ZNE Homes Sub-Program

2.2 Manufactured Homes Sub-Program for SDG&E, SoCalGas and Southern California Edison

For the convenience of the reader, two other programs related to New Construction are also called out:

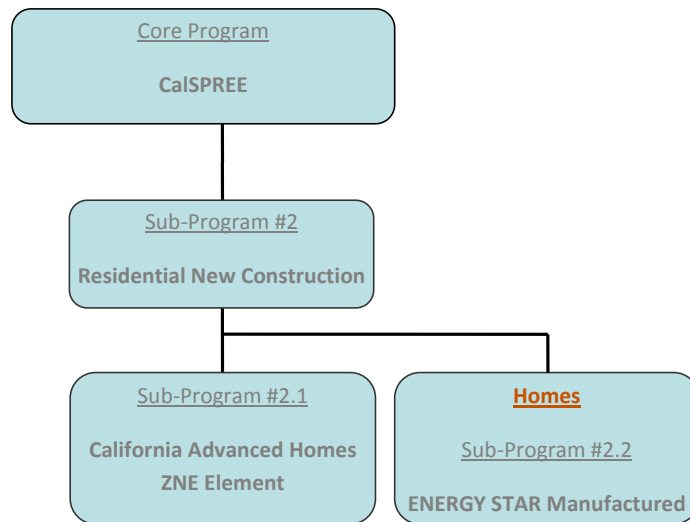
1. Sustainable Communities Program (Name/location differs by IOU) (Third party)
Covering Master-planned communities, mixed-use projects, campuses, and commercial projects pursuing advanced energy efficiency and green targets.

2. Partnership Programs (Core)

a. Strategic Planning Sub-Program (Energy Leader Partnership Strategic Support)
Trains cities and counties to procure city projects to meet energy efficiency

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standards, to identify funding sources, to share best practices, and recognize them for their achievements.



The goal of energy-efficient RNC will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the Strategic Plan), and works in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the New Solar Homes Partnership (NSHP).

As explored in greater detail below, CAHP will incorporate a ZNE sub-element to adopt the following strategies toward achieving the Strategic Plan goals. As program technologies and approaches are developed and demonstrated in ZNE, they will be incorporated into the CAHP.

- Raise plug load efficiency (ZNE)
- Promote Whole House solutions, with a particular focus on zero peak homes as an interim step toward zero net homes (CAHP)
- Encourage In-home Monitoring and visual display tools (ZNE)
- Encourage incorporation of Green Building Standards (ZNE)
- Coordinate CAHP with demand response programs (CAHP) specific strategies for achieving net zero homes will be reviewed in more detail below. Moreover, as

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outlined above, where strategies enter the market more rapidly than anticipated, they will be rolled into the core CAHP.

To further help make ZNE a reality in the residential sector, utilities will:

1. Integrate successful ZNE strategies and activities proven through program and/or pilot projects during the 2013-2014 Transition Period. The residential new construction program will absorb and enhance existing residential programmatic elements aimed at delivering ZNE best practices to the marketplace, potentially including but not limited to:
2. Project consultations that pair projects with experts capable of driving unique designs to ZNE;
3. Provide education opportunities to key architectural, engineering, and other design professionals (see WE&T plans); and
4. Explore cost effective ZNE solutions that consider the intersection of building and community energy use

b. List measures

CAHP Program measures, known savings. All IOUs⁶².

- Marketing assistance as feasible and appropriate for builders who achieve ENERGY STAR certification.
- Calculated incentives.

c. List non-incentive customer services

- Technical support to Energy Analysts and Design Teams⁶³
- Economic modeling/measure selection support to builder/construction managers
- Marketing support to builders (sales agent training, marketing materials)
- DSM coordination (PV, DR, AMI, ET) for builders

The program will coordinate with the statewide Codes & Standards team to ensure that the impacts of any code changes are incorporated into program design and implementation and will also tie into the Strategic Plan Codes and Standards strategy and support the ZNE goals.

Coordination activities include:

- Builders often set-aside a certain number of units for various income classifications to meet low and moderate income housing goals. Builders must

⁶² Savings per appliance will be consistent across all IOUs.

⁶³ There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes/workshops for design teams.

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meet state-mandated housing goals in the housing elements of local city and county strategic plans.⁶⁴

- CAHP would treat market-rate units using the standard calculated approach and claim all energy savings.

Zero Net Energy (ZNE)

The ZNE program element recognizes that critical to achieving zero net new construction is the integration of DSM approaches and truly integrated design. This can only be done when the entire suite of DSM offerings is at the table (electric transportation, demand response, energy efficiency, smart meters, and distributed generation). These will be maximally effective when they are part of a truly integrated design. To that end, ZNE will help educate the industry on how to achieve energy-efficient, green homes.

The ZNE program element will consist of projects that have used advanced modeling techniques to project total kBtu usage and demonstrates a plan to offset said usage with onsite generation over the course of 12 months. This portion of the program will provide customized financial incentives that intend to cover a portion of the verified incremental cost for a portion of the homes, at levels that may vary. This incentive will only apply to the energy efficiency measures of the home and will explicitly exclude the cost of renewable energy generation. The Emerging Technology program may also fund the purchase, installation, and monitoring of candidate technologies. The ZNE program element will also provide support in the form of soft-cost design support to help design teams meet their energy and environmental objectives. This portion of the program works closely with home builders seeking assistance in the development of sustainable design and construction, green building practices and emerging technologies.

The ZNE program element, in conjunction with WE&T programs, offers educational opportunities to builders, architects and other Residential construction stakeholders. The program encourages single and multifamily architects and builders to design and construct dwelling units that exceed California's Title 24 standards, reduce greenhouse gas emissions, and provide a healthier and less resource-intensive environment. Such non-standard design elements may include optimization for solar orientation, design for comfort without traditional HVAC, or non-vapor compression cooling systems. It also is a priority goal of this element of the program to execute candidate technologies and integrated approaches to realize zero-peak homes, even if zero-net homes (site Btu's for both therms and kWhs) prove too costly.

Design Assistance Options:

- General Team Education: Give presentations, review rating system options, determine big picture green building goals.
- Energy Efficiency/Green Building Recommendations: Project specific recommendations report highlighting ways to incorporate energy efficiency.

⁶⁴ See, <http://www.hcd.ca.gov/hpd/hrc/plan/he/>, accessed 25 Apr 08.

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healthy materials, and other green building features into the unique parameters of the project. Specific product recommendations will not be provided.

- Energy Modeling Support: Provide support and recommendations for Title 24 energy performance modeling to estimate actual building usage and give the project credit for energy efficiency measures that are difficult or uncommon to model.
- Plan and Specification Review: Provide comments on the construction documents at various stages to give feedback on clarity of green building specifications.
- Green Feature Cost Assessment: Provide cost-benefit analyses or value engineering assistance to evaluate specific green building features under consideration for inclusion in the project.

Rating System Documentation Support: Assess and identify project credit/certification goals, identify and assign rating system tasks to members of the design team, guide the team in system process and timing, assist team in understanding and/or documenting credit achievement. This aid will enhance - but not supplant - participants' efforts to pursue project specifications, designs, calculations, modeling and other necessary services.

The minimum threshold for acceptance in the ZNE program element will be a whole building performance with advanced modeling showing the total kBtu usage of the home as well as the method of generating the offsetting kBtu's.

CAHP Incentive Rationale

The program's most ambitious goal for the 2013-2014 Transition Period is to promote the early adoption of reach as well as future code elements into the builders standard practices.

Getting the market to adopt these levels of efficiency will not be easy. The IOUs expect significant pushback from the building industry due to rising costs. This argument will become even more significant in 2014 when the 2013 Title 24 energy codes take effect. The projected increase in cost to comply with these new codes may be between \$3,000 and \$5,000. The program is considering the following changes to the current incentive structure:

- In 2013 the sliding scale will stay as it is currently. The IOUs plan to eliminate the kickers from the program to help streamline and lower administration costs. After providing the kickers for the past 3 years it is the program's determination the kickers are not influencing the decisions of the builders and as such have proved not to be essential incentives.

Once the 2013 Energy code becomes effective the program will adjust the incentives in a

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way that will still cover a portion of the verified incremental cost for homes achieving high levels of efficiency above and beyond those required by code.

The program believes ENERGY STAR is an important and highly recognizable brand for energy efficiency. Focus group studies have shown that while the brand is known to be good the typical buyer does not understand the whole house can achieve the label as it is typically only associated with appliances. The program will therefore explore a marketing incentive for all homes that achieve the ENERGY STAR for Homes label.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Lighting Market Transformation Statewide Program (Resolution E-4385, Appendix. A).

<u>SW PROGRAM / Sub-Program</u>	<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
<u>NEW CONSTRUCTION</u>		
<u>California Advanced Homes Program (CAHP)</u>	<u>1. Number and percentage of committed CAHP participant homes (applied and accepted) with modeled, ex-ante savings exceeding 2008 T24 units (Single family (SF) and multifamily (MF)) by 15%-19%, by 20%-29%, 30%-39%, and 40+%.</u>	<u>2a</u>
	<u>2a. Percentage of (current year SF CAHP program paid units)/ (SF building permits within service territories from the previous year)</u>	<u>2a</u>
	<u>2b. Percentage of (current year MF CAHP program paid units)/ (MF building permits within service territories from the previous year)</u>	
	<u>3. Number and percentage of CAHP participant new homes verified* by IOUs' HERS which exceed Title 24 (T24) building standards (SF and MF) by 15%-19%, 20%-29%, 30%-39%, 40%+.</u>	<u>2b</u>
<u>* The IOUs use the existing HERS Rater infrastructure to verify HERS measures and other building characteristics as required by CA Title 24</u>		

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<u>SW PROGRAM / Sub-Program</u>	<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
	<p><u>and the CEC. The IOUs do not perform the verification inspections and do not certify HERS raters. Note: HERS inspection protocol for production builders does not require inspection of 100% of homes; there is a sampling protocol. For more information on HERS inspection please see http://www.energy.ca.gov/HERS/index.html</u></p>	

b) Market Transformation Information

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

Bullet 1) A description of the market, including identification of the relevant market actors and the relationships among them;

The MT elements described here follow guidelines and terminology explained in Rosenberg & Hoefgen’s (2009) *Market Effects and Market Transformation: Their Role in Energy Efficiency Program Design and Evaluation*.

<<paper is available here http://uc-ciee.org/downloads/mrkt_effts_wp.pdf >>

Ideally, information about a market would come from a variety of sources, including existing studies and newly-commissioned studies. Rosenberg & Hoefgen (2009) recommend that California should “Commission initial market characterization research for those products and services for which the structure of the market and the motivations of the market actors are not well understood or documented, at least in terms of their response to the product in question.” Due to a lack of time, the following market information draws heavily upon qualitative analyses made by the program managers based upon information they have obtained through experience in implementing the program. We look forward to an opportunity to develop a better understanding of these markets through future commissioned studies, in conjunction with ED and other market transformation stakeholders.

The RNC market consists of several key players including builders, designers, sub-contractors, HERS raters, local cities, manufacturers, real estate agents, financing agencies, and home buyers. The RNC sub-program is located upstream, targeting builders and subcontractors early in the design stage of the production process. Upstream of the IOU’s RNC influence are local cities’ permitting rules and associated costs. Downstream of the RNC sub-program are real estate agents, financing agencies, and home buyers. The RNC sub-program works directly with builders, designers, subcontractors, HERS raters,

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builder sales staffs, and manufacturers via equipment recommendations at the design stage.

Bullet 2) Identification of the key barriers and opportunities to advancing demand-side management technologies and strategies;

The key barriers and opportunities to be addressed through a market transformation initiative would ideally draw upon a market characterization study. Due to lack of planning time, the following market barriers and opportunities are drawn from qualitative analyses made by the program managers.

Key RNC market barriers include A) entrenched builder and subcontractor habits, B) a lack of buyer knowledge, interest, and demand, and C) an ensuing disconnect between the price buyers are willing to pay and the related increased builder costs of incorporating DSM technologies, energy efficient equipment, and advanced building practices. Opportunities to address these barriers include education and outreach to builders, subcontractors, and buyers to increase demand and alter builder habits; design assistance to improve builder knowledge and maximally cost-effective strategies; and incentives to bridge the gap of builder costs and buyer demand.

Bullet 3) A description of the proposed intervention(s) and its/their intended results, and specify which barriers each intervention is intended to address;

To address Barrier A, the following intervention is proposed:

Builders and sub-contractors will be offered training and design assistance to facilitate the acceptance and incorporation of new technologies and building practices including DSM.

To address Barrier B, the following intervention is proposed:

Builder sales staffs will be provided training and marketing support on the advantages of EE homes that incorporate DSM technologies. Financing mechanisms will be explored to reduce buyer costs and increase demand.

To address Barrier C, the following intervention is proposed:

Incentives will target a reduction in the cost to builders of incorporating EE measures and DSM technologies.

Market transformation interventions can be expected to take 2, 5 or even 10 yrs before effects can be quantified. We propose the following that these would be the results that can be seen in the market at various time intervals:

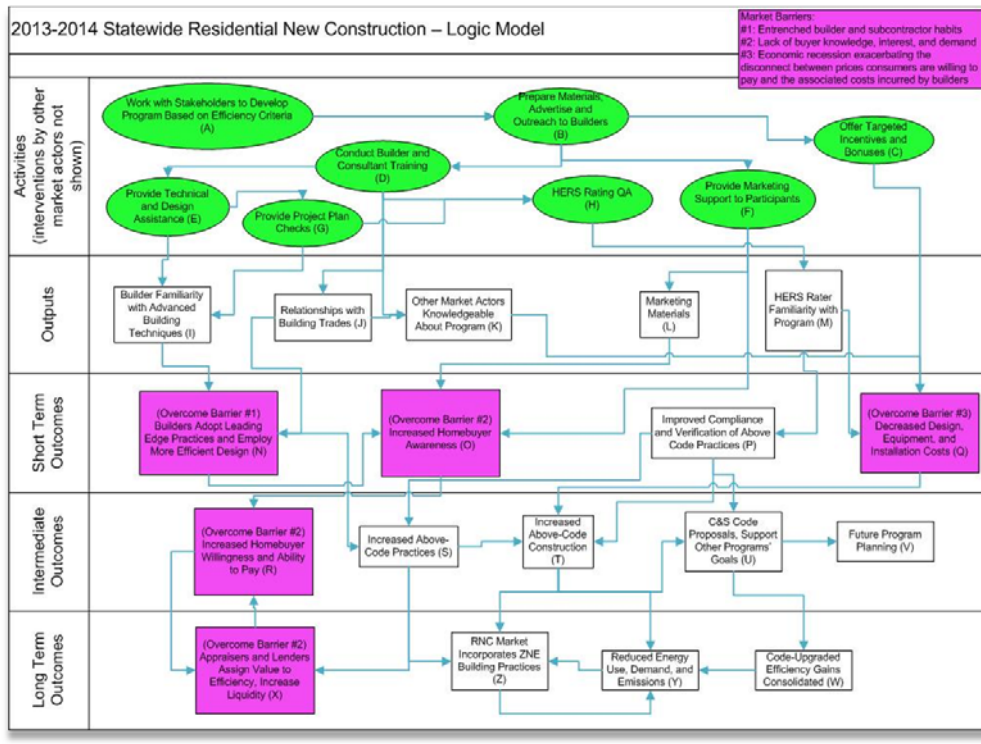
After 2 years of implementation builders and subcontractors should feel significantly more confident in accepting new technologies and advanced building practices. By this time they should be familiar with IOU design assistance procedures and how to maximize the incentives and minimize the increased costs. Sales staffs should be well-versed in the advantages of participant homes.

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After 5 years, builders and subcontractors should be very confident in advanced EE technologies, building practices, and DSM. At this time the market should be nearing ZNE building practices. Financing mechanisms should be in place to improve buyer demand.

After 10 years, the RNC market should be exclusively building ZNE developments. At this point the program focus will be devoted to education and outreach, helping the industry competes with the less efficient existing market. Financing mechanisms will continue to play a role.

Bullet 4) A coherent program, or “market,” logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results; and
In this example below, “Portfolio Program Elements” are the market transformation interventions that are specifically directed to the market barriers. “Outcomes” are the outputs of the MT interventions, which are the market effects and reductions in market barriers than can be seen in the short-, mid-, and long-term. Please note that the long term outcomes are “sustainable,” which is what the market should look like after the market intervention has ended.



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Bullet 5) Appropriate evaluation plans and corresponding Market Transformation Indicators and PPMs based on the program logic model. (The IOUs should be prepared to start tracking proposed Market Transformation Indicators immediately in order to establish a baseline, and in cases where the logic model calls for metrics to be differentiated in terms of the sequence and timeframe in which they are expected to be relevant – i.e., leading vs. intermediate vs. lagging indicators of change – each metric should be identified as such).

Due to the need to comply with the Decision’s timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section “18.1. Evaluation Budget” in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation - Market Effects

The market transformation program’s theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program’s scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program “spillover” and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

Formative evaluation: The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program’s direct outputs.

Program Performance Metrics: Please see Section 5, Table 3, above.

Market Transformation Indicators: Market transformation indicator results shall be reported, as available, by Energy Division or the IOUs, depending upon who conducts the necessary market studies. (Res. 4385, 12/2/10)

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasizes that attribution of market effects to programs bears further research. Others (R&H, 2009; Keating & Prahl (MT Workshop)

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suggest that declaring the program’s strategic intent through the market transformation initiative’s theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

In lieu of the above results and recommendations, the RNC sub-program will carry forward the PPMs and MTIs that were in place during the 2010-2012 cycle.

c) Program Design to Overcome Barriers

Priority Barrier: Building Industry

Effective January 1, 2014, California’s Title 24 standards will be revised and updated. Overall, Residential baseline energy performance requirements for heating, cooling, and hot water will be increased by approximately 25 to 30 percent, which implies marked increase in production costs for builders at a time when the industry and the economy at large are experiencing significant challenges.

Priority Barrier: Homebuyers

The energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile. In fact, 16% of U.S. greenhouse gas emissions result from the generation of energy used in houses nationwide (U.S. EPA). However, there is little consumer awareness of the impact that homes have on the environment. CAHP is working with IOU marketing efforts, statewide partners, ENERGY STAR campaigns, and builders’ own messaging to increase consumer awareness of this idea. Moreover, there is scant evidence that energy efficiency drives decision- making among homebuyers whose access to capital is more difficult in a constrained capital market.

Overcoming Market Failure: CAHP

In a buyer’s market, builders are looking to differentiate themselves from competition. This presents an opportunity for CAHP to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state’s and IOUs’ goals for the reduction of greenhouse gas emissions and utility source demand.

The RNC market without IOU intervention is a lost opportunity for long-term energy savings. However, with IOU intervention in the form of incentives and design support,

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the new construction market is well placed to demonstrate innovative approaches and cost-effective energy savings technologies.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

California Advanced Homes	Program Target 2013	Program Target 2014	Total
Single Family Units Paid	TBD	TBD	TBD
Multi-family Units Paid	TBD	TBD	TBD

e) Advancing Strategic Plan goals and objectives

Since its inception in 2002, CAHP has had a substantial impact on the homebuilding market. There is a significant opportunity to continue to influence builders, architects and other players in the RNC industry.

The RNC program is designed to enable the achievement of several goals and strategies identified in the Strategic Plan. The Strategic Plan envisions a transformation of the core Residential sector to ultra-high levels of energy efficiency, resulting in ZNE new construction standards by 2020. It spells out several goals and strategies to address energy reduction in RNC.

Goal #1: RNC will deliver ZNE performance for all new single and multi family homes by 2020. By 2011, 50% of New Homes will exceed 2005 Title 24 energy efficiency standards by 35%; 10% will surpass 2005 Title 24 standards by 55% (Strategy 1-1)

Goal #2: Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities

Goal #3: Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy-efficient products.

The goal of energy-efficient RNC will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the Strategic Plan, and works in close coordination with the ZNE sub-element. Together these programs seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP.

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The ZNE program element is designed primarily with the focus of accelerating the achievement of the ZNE goals envisioned by the Strategic Plan. The purpose of the ZNE element is to examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Each being distinctive, the case studies will be positioned to highlight the underutilized potential of sustainability in RNC, in a range of market segments and climate zones. The utilities will seek to integrate R&D ideas from Emerging Technologies, EPIC, LBNL and other agencies to further assist the projects in advancing sustainability and achieving very high levels of energy efficiency.

Financial incentives and marketing support offered for the ZNE projects will be higher than those offered under the standard CAHP model. By providing strong encouragement for builders to move up on the energy efficiency scale with financial and non-financial incentives, the ZNE program element is uniquely positioned to support the Strategic Plan goal of ZNE by 2020.

CAHP will work closely with builders who seek assistance in the development of sustainable design and construction, green building practices and emerging technologies through the ZNE program element. ZNE is the place to demonstrate innovative technologies and to help drive the market for energy efficiency through the adoption and marketing of green standards. IOUs have already initiated preliminary research on policies and programs supporting residential ZNE programs in other states for potential new and innovative program design approaches to increase homeowner demand and marketplace change, consulting with relevant experts in this area. This research reveals a lack of other utility programs serving this market. Rather, ZNE currently exists in a piecemeal fashion throughout the country without a consolidated approach. IOUs will continue research in this area and report more complete findings by April 1, 2013.

6. Program Implementation

a. Statewide IOU coordination

Given the success of the collaborative process that led to the production of this PIP, the statewide RNC team plans to continue meeting on at least a quarterly basis going forward, in order to review progress toward the goals and make corrections needed to help achieve them.

i. Program Name

RNC falling under Title 24 is covered by the California Advanced Homes Program. Factory-built housing will be covered by the ENERGY STAR Manufactured Homes Program, where offered.

ii. Program delivery mechanisms

CAHP and ESMH are delivered via online program materials and dedicated account executives, supported by a dedicated team of program management staff.

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Differences in Program Implementation

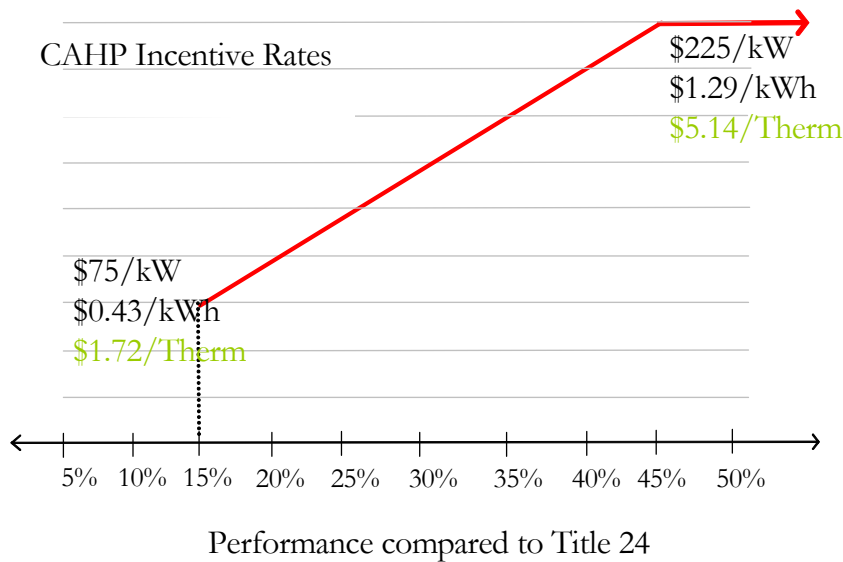
This section highlights the major areas where individual IOUs implementation of the program will differ from that of the others. While the incentive structure and other elements of the program will remain synchronized with the statewide nature of the program, each IOUs will leverage its unique strengths and structural differences to enhance the effectiveness of execution. This section highlights some of those differences.

iii. Incentive levels

Incentive Structure

The pay-for-performance incentive structure for the 2013 - 2014 CAHP will continue to be refined as the state approached implementation of the 2013 Title 24 code changes (see CAHP Incentive Rationale section above for additional detail).

The 2013-2014 calculated approach will be similar to the method used from 2010-2012:



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This approach rewards builders for achieving higher levels of energy efficiency and avoids the “clustering” problem in tiered programs. A tiered approach discourages builders from achieving incremental performance if they are unable to reach the next higher tier. In line with the elements of the strategic plan, the approach rewards builders for undertaking whole house solutions where the entire structure can be considered as an integrated system.

Moreover, executing a net zero home remains a financial and technical challenge, the program will have customized incentives for homes that achieve ZNE.

Confidence that incentives will move the market

The statewide team has a high degree of confidence that the revised program design is sufficient to realize substantial market movement. As discussed above, incentives alone are not enough to move the market. While more dollars are always preferred by any target industry, it has been the experience of the Southern California utilities that while incentives get one to the table with decision makers, it is the design, technical, and marketing support that makes the sale.

It is the belief of the IOUs that the proposed combination of performance-based incentives, increased incentives for targeted ZNE, marketing support, sales agent training, technical support, coordinated delivery through trade allies and ongoing cultivation of builder relationships provide an integrated solution to the priority market barriers builders face in delivering more efficient homes.

The IOUs support adjusting program incentive levels in conjunction with the more stringent Title 24 code taking effect in 2014. More efficient incentives will be critical in helping builders defray additional compliance costs associated with the stronger code. However, the IOUs believe there is a need to explore the deadline for incentive adjustments. A date after March 2013 may be appropriate for a number of reasons, including:

- Changing incentive levels before the new code takes effect may provide an added incentive for builders to rush to beat the code. Ideally, the incentive adjustments would be timed to coincide with the implementation of the new code so as to incentivize building under a more stringent Title 24. A fast turnaround would prevent the IOUs from determining the ideal incentive structure. Given uncertainty about the market’s response to the unprecedented updates to Title 24, extra care should be taken in calibrating incentive levels to their optimal value.

The IOUs will comply with the March 1, 2013 deadline for adjusting incentive levels, but propose January 1, 2014 as a preferred date.

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How CAHP supports CEC's NSHP, Tier II

CAHP supports the revised NSHP Tier II (30% < T24 2008) and the goals of the CEC.

1. The IOUs are committed to partnering with the NSHP to streamline the solar application process and to make referrals between NSHP and CAHP. Indeed, the goals of ZNE appear impossible without the significant presence of solar.
2. The IOUs will leverage CEC NSHP material, marketing, and event support for opening events for those projects that commit to the platinum level: 100% penetration at the Tier II EE performance (30%).
3. The design of the graduated, performance-based incentive will tend to drive projects to the higher end of the performance curve, consistent with CEC goals.
4. The threshold efficiency (15%) is consistent with the Tier I minimum, and the top end (45%) was selected to support the CEC's desire to project out three code-cycles (Tier III) into the future.

The IOUs support the goals of the NSHP and the marketing synergies of PV and EE remain one of our best strategies for moving the market. Nevertheless, the IOUs position is that if 30% < T24 is very good, 31% is better, and 32% more so.

iv. Marketing and outreach plans

CAHP offers financial incentives, training opportunities, technical support, and marketing resources to single-family and multi-family Residential builders who construct homes that exceed California's energy efficiency standards for new construction. All types of Residential builders are welcome to participate.⁶⁵ For the multi-family segment of the program, qualifying homes include condominiums, townhomes, apartment buildings, and mixed-use projects.

There will be closer coordination of marketing efforts to synergize wherever possible. While each utility would like to leverage on their strengths and existing relationships within their service territories, certain marketing elements can be launched on a common localized platform. The common website will be maintained to provide builder information that will be commonly disseminated.

To reduce costs and increase participation, the IOUs plan to be actively engaged in the development and implementation of joint marketing, education and training efforts as described in detail in the common section of this PIP.

In 2013-2014, the program will expand its builder/contractor education and training certification courses to increase overall awareness and understanding of the CAHP and service offerings. The IOUs will continue to strengthen delivery channels of

⁶⁵ As discussed above, manufactured housing is not subject to Title 24 and uses the national HUD baseline.

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information by providing relevant information and support materials, reaching target audiences in key decision-making phases. The IOUs' innovative communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the Internet.

Additionally, CAHP will leverage its stellar relationships in partnering with trade organizations and other groups actively promoting the benefits of green, sustainable building practices. Such organizations include:

- California Energy Commission (CEC)
- National Association of Home Builders (NAHB)
- California Building Industry Association (CBIA)
- Green Building Consultants (that is, Build it Green, California Green Builder, Global Green)
- United States Green Building Council (USGBC)
- ULI
- LABC
- California Manufactured Housing Institute
- IES
- AEE
- IHACHI
- PHCC, and
- Others

Through an innovative, coordinated approach, we will maximize outreach opportunities that keep energy efficiency and CAHP's program benefits top-of-mind and maximize program participation.

Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

CAHP marketing efforts will be enhanced by leveraging IOU market studies and builder focus groups identifying consumers' decision triggers and the effect of GHG labeling on purchase decisions. The IOUs will pursue additional sources of research to determine the most cost-effective ways builders can meet program requirements; the results will be incorporated into marketing materials and/or communicated to builders as part of the design assistance recommendations.

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Given consumers' interest in going green and the market's deficiency in driving energy efficiency sales, marketing the green features (one of which is EE) is the best way to increase consumer demand for more efficient homes. To that end, CAHP will help educate the industry on how to achieve energy-efficient, green homes. To increase participation in programs and the general understanding of sustainability, greater emphasis will be placed on education and outreach.

The precipitous decline in the building industry offers a great opportunity to improve education and training. Through their Education & Training programs offered at SoCalGas' Energy Resource Center, SDG&E's Energy Innovation Center, SCE's Energy Education Center, and PG&E's Pacific Energy Center, the statewide new construction team will work to expand course offerings, web cast seminars, and cost-benefit effectiveness training classes, thermal by-pass checklists compliance training, cost comparison of alternative measures, etc. In order to meet or exceed increased energy savings goals in an extremely difficult Residential construction market, the IOUs will utilize a broad range of marketing tactics and communications tools working in concert to expand program awareness and participation.

The IOUs will diligently explore other means of encouraging builder participation in the CAHP program:

- Developing a list of resources and contractors that could be used by builders
- Providing information on comparative costs and energy savings of alternative measures
- Exploring financing arrangements (green mortgages, energy-efficient mortgages, etc.), in consultation with the other IOUs and financial institutions
- Expedited permitting for high efficiency buildings
- Working with Municipalities to develop educational channels for codes and standards.

v. IOU program interactions

The plan addresses above, in the CAHP Incentive Rationale section, the ways CAHP is responding to current code changes and how it anticipates a leading role in code modifications requiring demand performance, in-home displays, on-site generation, square footage reductions, and green elements.

CAHP is particularly interested in promoting integrated thermal hot water system designs to displace therm demand with on-site renewable sources. In addition to cold water savings from embedded energy and the energy to heat water, longer term there may be GHG reductions that accrue either to the builder, the homeowner, or the utility associated with each demand side reduction as a result of AB 32 and

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pending national CO₂ legislation. SoCalGas works closely with builders to appropriately evaluate their options.

CAHP prides itself on its established close relationships and memberships with other groups involved with the building industry. These relationships make it possible to provide comprehensive services to our customers. CAHP will continue to seek out and coordinate synergies with, but not limited to, the following groups:

- California Energy Commission (CEC)
- Flex Your Power (FYP)
- National Association of Home Builders (NAHB)
- California Building Industry Association (CBIA)
- Green Building Consultants (e.g., Build it Green, California Green Builder, Global Green)
- National Association of Homebuilders (BIASC)
- United States Green Building Council (USGBC)
- Urban Land Institute (ULI)
- Los Angeles Business Council (LABC)
- California Manufactured Housing Institute
- Illuminating Engineering Society (IES)
- Association of Energy Engineers (AEE)
- Institute of Heating and Air Conditioning Industries (IHACHI)
- Plumbing-Heating-Cooling Contractors Association (PHCC)

The California Building Industry Association and the CEC continue to seek out partnerships and opportunities with the utilities to help educate builders and other industry participants in order to promote energy efficiency in new construction.

CAHP will continue its commitment to the EPA's ENERGY STAR program and will strive to support, partner and contribute to the success of the ENERGY STAR Homes label and branding. Numerous surveys and studies continue to show the ENERGY STAR label represents greater value to consumers and the environmental stewardship it represents.

Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR New Homes and has won ENERGY STAR Achievement awards for the last five consecutive years. In 2011 SCG was rewarded for "Sustained Excellence in Energy Efficiency Program Delivery."

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency and green measures into new construction projects including Title 24 code training and ENERGY STAR requirements.

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In response to builder requests, CAHP will offer a new training workshop for 2013 - 2014 designed for builders' sales agents. Sales agents have direct contact with the homebuyer and have the greatest impact on selling homes. In order to help promote ENERGY STAR developments, CAHP will teach sales agents about energy efficiency. Topics will include what qualifies as an ENERGY STAR home and what is 'green'.

Other CAHP activities will include attendance at building industry trade conferences, outreach events and any necessary contractor/builder field visits. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals.

Each IOU may pursue partnership efforts with local government entities to display leadership in the carbon arena by expediting plan check, waiving permit fees, or allowing builders to pay impact fees on the back end (instead of up-front) in exchange for higher levels of home performance documented by our CAHP program.

Similar IOU and POU programs

The statewide CAHP team will reach out to leading POU programs, such as those at SMUD to learn from their experience how best to deliver energy-efficient homes. In addition, the IOUs will work closely with the existing home remodeling programs (Home Performance with ENERGY STAR and the Comprehensive Mobile Home Program) to maintain a two-way communication of best practices and lessons learned between the new and existing sectors.

b. Program delivery and coordination

i. Emerging Technologies (ET) program

Coordination with Emerging Technologies will chiefly be handled within the ZNE sub-element of CAHP. The IOUs are looking to partner with our ET and EPIC-funded Testing Facilities to pilot zero-net energy approaches. The proposed incentive approach allows the IOUs the flexibility to include both deemed and calculated energy savings from new technologies as they become market ready.

The utilities will seek to integrate R&D ideas from Emerging Technologies, EPIC, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

ii. Codes and Standards program

Codes and Standards is looking to draft pre-approved "drop-in" legislation that can be used by local municipalities looking to create reach codes. Such activities would all be eligible for utility incentives since IOUs are playing

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such a critical role in drafting the language. See Codes and Standards PIP for more information.

iii. WE&T efforts

The RNC team is seeking ongoing support from the three energy and training centers for classes relevant to the building industry and training the next generation of trade allies, builders, contractors, and the like.

Specific workforce development efforts supporting RNC include training on topics including, but not limited to the following:

- Energy Pro
- Title-24
- Micropas

SoCalGas will explore voluntary incentive-based approaches to encourage contractors and other industry professionals to complete the full bundle of RNC workforce development training. For professionals who complete the pre-requisite courses and pass a high-road skill standards test, such approaches may include (as applicable):

- Allowing marketing or advertising differentiation;
- An incentive bonus; and/or
- Providing preference to these professionals during bid evaluation process.

RNC workforce development training will be coordinated with the statewide IOU WE&T program. In addition to the trainings described above, SW IOU WE&T programs will continue to offer building-block courses that educate professionals on the concepts that form the foundation of Residential New Construction programs. Those concepts include:

- Green building techniques;
- Codes and standards;
- Lighting and HVAC technologies;
- Energy cost management; and
- Food service equipment.

Contractor recruitment efforts will be conducted primarily by SW WE&T program implementers through:

- The network of contractors already participating in Residential EE programs;

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- -Direct outreach through industry organizations with locally active memberships (e.g. IHACI, USGBC, IFMA, AIA, BOMA, etc.);
- Workforce development departments (to target unemployed general contractors); and
- Community Based Organizations with a proven track-record of effective outreach to the hard-to-reach workforce.

iv. Program-specific marketing and outreach efforts

In 2013-2014, the program will expand its builder/contractor education and training materials to increase awareness of the CAHP and better communicate the advantages of participation. The IOUs will continue to strengthen delivery channels through improved information and support materials. The IOUs' communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internet.

v. Non-energy activities of program

SoCalGas will continue to develop collaborative working relationships with the LADWP and other municipal utilities to offer comprehensive incentive packages to participating builders in territories served by SoCalGas and the municipalities. Where applicable, the ZNE program element will seek to identify new types of water savings technologies opportunities.

vi. Non-IOU programs

There may also be opportunities to partner with local AQMDs and County Integrated Waste Management Boards to encourage material recycling in ZNE and green programs.

vii. CEC work on codes and standards

The IOUs will continue to support code development work with the CEC and to test candidate technologies in the new construction programs.

viii. Non-utility market initiatives

The homebuilding industry is facing some of the worst times in its history⁶⁶. In fact, new Residential single-family housing permits declined by 37.1% relative from 2006 and multi-family permits have declined by 21.2 percent⁶⁷. As a result, builders are building fewer homes and releasing them more slowly to the market. The significant costs associated with carrying inventory coupled with declining prices of houses has created additional resistance in a building industry already

⁶⁶ Alan N. Nevin, CBIA Chief Economist and Principal, Market Pointe Realty Advisors, California Builder Magazine, January/February 2008

⁶⁷ California Industry Research Board (CIRB) Report, January 24, 2008

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averse to additional construction costs. In addition, the industry is consolidating operations and eliminating staff to reduce overhead costs and avoid bankruptcy. Homebuilding in California may be just beginning to show signs of revival, although growth in activity is likely to remain considerably slow.

The industry faces the burden of stringent California Title 24 building code standards. Each code is approximately 15% more stringent than the last, increasing costs and requiring additional efforts on the part of the builder. In California, homes built to current Title 24 standards are 35% more energy-efficient⁶⁸ than homes built to the federal government's standards. In addition, reducing greenhouse gas emissions will become mandatory, due to the adoption of AB 32 (Global Warming Solutions Act). Builders confirm that growing consumer awareness of "green" concerns will lead to greater demand for these advanced homes and builders will adapt to meet these demands at the least possible cost.

As alluded to above, buyers are increasingly asking for green and energy efficiency and may pay more (up to \$11,000) for such features.⁶⁹ For the first time, a majority of respondents in the National Association of Home Builders' survey are asking for efficiency first, likely in response to rising energy prices economy-wide. A majority of the same respondents also requested higher ceilings, more square footage, and were willing to trade a larger home for a longer commute, reflecting a "soft" commitment to green.

Energy Savings Assistance (ESA) Program

CAHP is working with the ESA program to coordinate energy efficient new construction with low income housing development.

- For housing units designated by builders for low-income occupants, SoCalGas' ESA program will pay the full incremental cost of installing energy-efficient equipment, such as high SEER (Seasonal Energy Efficiency Rating) AC systems, and refrigerators. ESA will claim the savings from the measures funded by that program.
- CAHP will pay the standard calculated incentives for all other measures in low-income units (e.g. improved duct work and windows). CAHP will claim the energy savings resulting from EE measures other than high SEER A/C and refrigerators.
- CAHP would treat market-rate units using the standard calculated approach and claim all energy savings.

This collaboration will:

⁶⁸ Ray Becker, Chairman, CBIA, Southern California Builder Magazine Vol. 25. CAHP's internal research has shown typical 2005 T24 performance is 20% above IECC 2006

⁶⁹ Jan Dimeo, Builder. <http://www.builderonline.com/business/surveys-reveal-home-buyer-wishes-for-energy-efficiency-and-beyond.aspx>. Accessed 14 Mar 08

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- Encourage the development of more below market rate low income units by developers,
- Increase participate in the RNC sub-program based on the combined higher incentives, and
- Benefit low income occupants over the life of the installed equipment.

The partnerships program will assist in gathering information to ensure that the units actually are occupied by low income qualified customers. Local governments typically track this information in order to show compliance with state mandates.

CAHP will be implemented by direct contact with the market actors: builders, architects, civil and mechanical engineers, energy analysts, HERS providers, HERS raters and other participants. Through design assistance and coordination with the builders and their consultants and contractors, projects will be evaluated for optimal approaches to increase energy savings and demonstrate green building concepts.

The program will target the Residential design and construction teams, architects, energy analysts, HERS raters, trade contractors, and builders. The target segment is low-rise and high-rise RNC with participation being open to all RNC including custom homes, single-family production housing, condominiums, town homes and rental apartments.

Builders may qualify to participate under one of the two sub-program categories: CAHP or ZNE. Through financial incentives, design assistance, education and training, the IOUs will aggressively support high performance single family and multifamily building designs that exceed Title 24 standards in an overall performance design of 15% or greater. Energy savings and incentives will be based upon a sliding scale from 15% to 45% reduction in energy usage from Title 24 budget. Program focus will be on increasing the participation to a 30% threshold.

c. Best Practices

The RNC team has gathered information and gained experience in successful low energy and ZNE projects to evaluate best practices. Thus far the research shows that while ZNE practices exist in piecemeal fashion throughout the state and nation, there are no other utility incentive programs specifically targeting ZNE. RNC will continue to conduct further research and will disseminate its finding by April of 2013 in accordance with the program guidance. This information will be used to develop pilot projects that will demonstrate low energy homes and include home performance monitoring.

Processes

- Improve marketing materials and improve participant recognition: Marketing materials and other collaterals will continue to be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

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- RNC has undertaken substantial marketing material revisions in the 2010-12 cycle, and will continue to improve the materials to enhance customer communication.

Program Services: Training

- Taking advantage of the slowdown in the industry, the utilities intend to ramp up the training for builders and other industry participants. Training is an area where significant synergies can be extracted and the IOUs will participate in developing and implementing common training modules and web based training tools. Training will focus particularly on cost / benefit evaluation of energy efficiency improvements and thermal bypass checklist compliance.

Program Services: Information, Communication and resources

- A web-based incentive calculation tool will be evaluated by the IOUs. This tool is intended to assist builders in comparing costs and energy savings of alternative measures and arriving at the most optimal approach for the builder.
- Currently, the technical staff provides preliminary evaluation, engineering review and recommendations for builders to move up on the efficiency scale. It is expected that builders will utilize the services of qualified Energy Analysts and designers in arriving at the final set of measures that should be included. The program will continue to work closely with these companies to promote continued improvement and a commitment to integrated design.
- The IOUs will explore the implementation of an enhanced set of communication tools that will serve to educate builders and enhance participation. As explained earlier, our communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns; all materials and communications will be made available in electronic file formats.

d. Innovation

SoCalGas' RNC program has gone through significant evolution over the years, constantly adopting innovative approaches and eliminating non-working elements. The current incentive design is based on a whole building performance. It appropriately rewards higher levels of building performance and is likely to motivate home builders to move towards higher efficiency buildings. This approach offers the builder adequate flexibility to choose the optimal combination of design features. It also enables the utilities to work together and support new construction projects with fuel neutrality.

By focusing on efficiencies beyond 35% better than Title 24, and encouraging ZNE projects, the IOUs hope to generate sufficient enthusiasm in the market place for very high efficiency homes. Wherever possible, the California utilities will continue to extract

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synergies in marketing and program design by developing a truly statewide program with common features and coordinated efforts.

As a gas-only utility, SoCalGas has been consistently seeking innovative approaches in program implementation to enhance the cost effectiveness of CAHP. During the 2010-12 cycle, SoCalGas executed energy sharing agreements with SCE and PG&E to effectively address the program needs of builders in joint service territories. These agreements have enabled the utilities to offer the program benefits with a single point of contact for the builder, while reimbursing each other (incentives offered on the type of energy not provided by that utility) after completion of the projects.

e. Integrated / coordinated Demand Side Management

The ZNE element offers a great opportunity for savvy builders to demonstrate their commitment towards a truly integrated approach to DSM options. With design assistance, custom home builders are uniquely positioned to leverage the various tools available at their disposal. The program management teams will educate and strongly advocate these builders to serve as model designers and be recognized and rewarded in the builder community. ZNE homes offer an excellent opportunity for builders to install not just energy saving measures, but also renewable energy, in-home display, solar roofs, innovative water saving technologies and other state-of-the art appliances to demonstrate how sustainable design can be achieved.

f. Integration across resource types

As discussed above, the program is looking to partner with relevant stakeholders to identify water, air quality, and waste-diversion opportunities.

g. Pilots

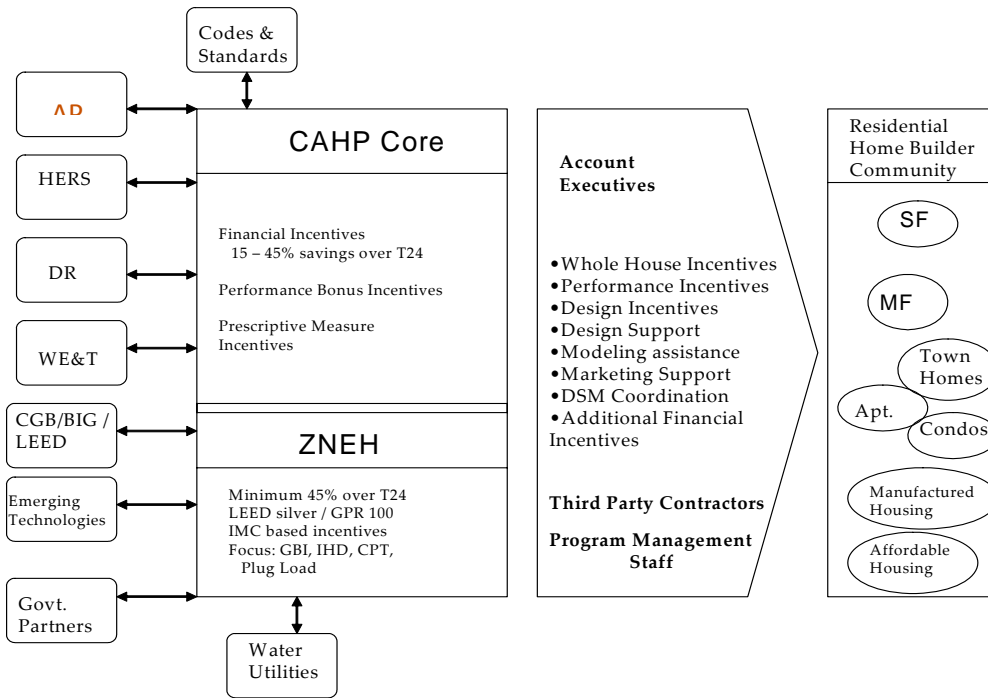
During the course of the program cycle the IOUs may encounter the need to run pilot programs before an idea is introduced to the core program offerings. At that time the utility will submit the plans for such pilots.

h. EM&V

The utilities are proposing to develop and submit a comprehensive EM&V plan for 2013-2014 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

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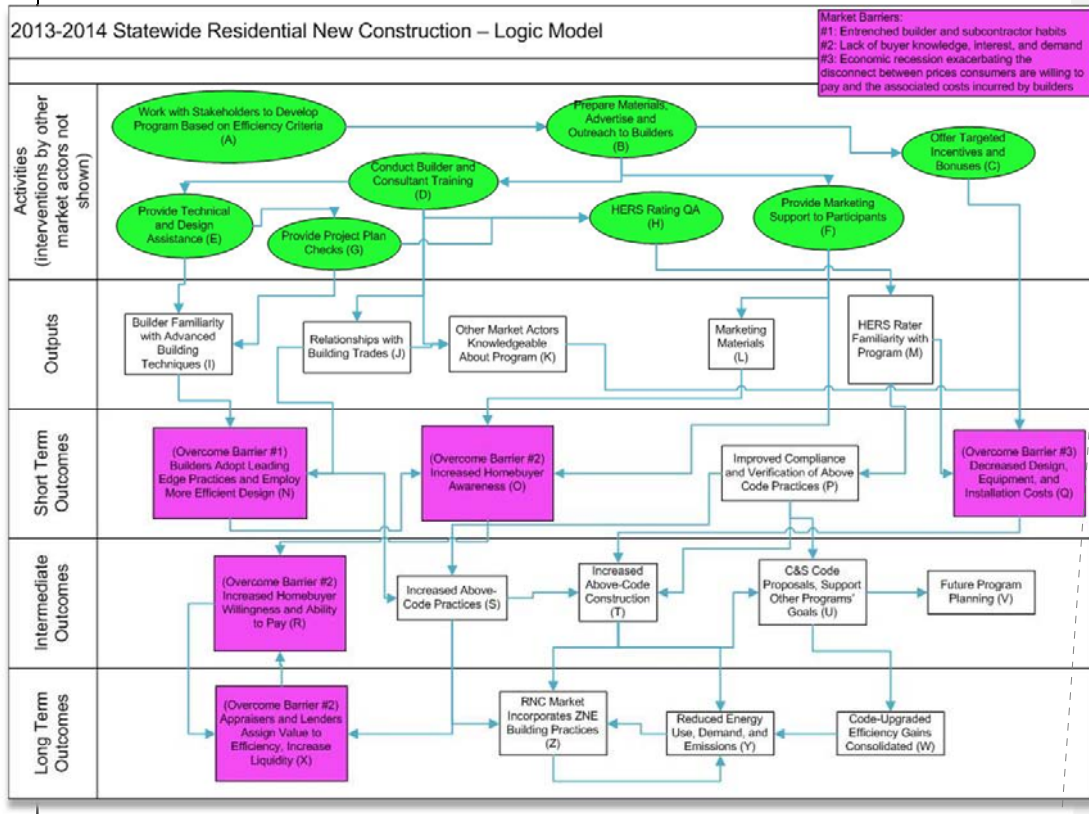
Diagram of Program



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Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the CAHP and ZNE.



ESMH PIP

1. Program Name: ENERGY STAR® Manufactured Homes Program
Program Type: Core

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2. Projected Program Budget Table

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Table 1— See core program for budget details

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3. Projected Program Cross Impacts Table

Table 2— See core program for projected gross impacts detail.

4. Program Description

Describe program

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ENERGY STAR® Manufactured Homes Program (ESMH)

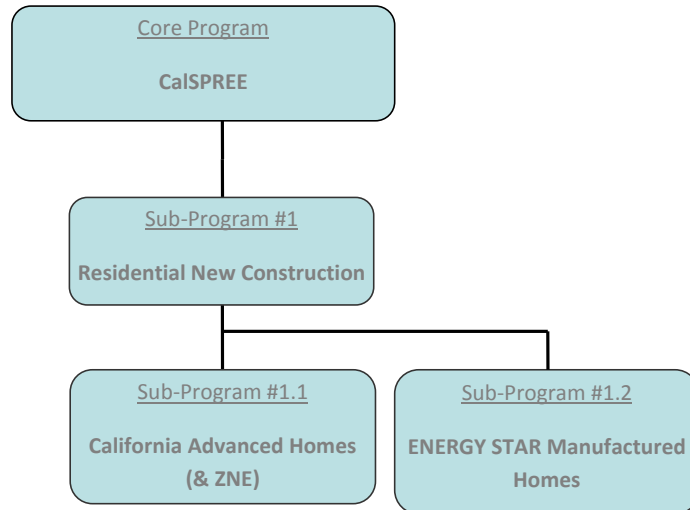
The ENERGY STAR® Manufactured Homes Program is part of the statewide RNC program offering. The RNC program is itself one sixth of the CalSPREE core offering. ESMH addresses new factory-built housing, offered by SDG&E, SoCalGas and SCE. The structure of the relevant New Construction program elements is as follows:

CalSPREE Program (Core)

1. Residential New Construction Sub-Program
 - 2.3 Single family/Multifamily Sub-Program (CAHP)
 - 2.3.1 ZNE Sub-Program
 - 2.4 Manufactured Homes Sub-Program for SoCalGas, SDG&E and SCE

For the convenience of the reader, two other programs relevant to New Construction are also called out:

1. Sustainable Communities Program (Name / location differs by IOU)
Covering Master-planned communities, mixed-use projects, campuses, and commercial projects pursuing advanced energy efficiency and green targets.
2. Partnership Programs (Core)
Strategic Planning Sub-Program (Energy Leader Partnership Strategic Support) - Trains cities and counties to procure city projects to meet energy efficiency standards, to identify funding sources, to share best practices, and recognizes them for their achievements.



The goal of energy-efficient RNC will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP and ESMH support the ambitious goals of the Strategic Plan, and work in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP.

As explored in greater detail below, CAHP and ESMH will work closely together with the ZNE sub-element to adopt the following strategies toward achieving the Strategic Plan goals. As program technologies and approaches are developed and demonstrated in ZNE, they will be incorporated into the CAHP. The lead program is listed in parentheses after each strategy.

- Raise plug load efficiency (ZNE)
- Promote whole house solutions, with a particular focus on zero peak homes as an interim step toward zero net homes (CAHP / ESMH)
- Encourage in-home monitoring and visual display tools (ZNE)
- Encourage incorporation of Green Building Standards (ZNE)
- Coordinate CAHP with demand response programs (CAHP)

Specific strategies for achieving net zero homes will be reviewed in more detail below. Moreover, as outlined above, where strategies enter the market more rapidly than anticipated, they will be rolled into the core CAHP.

a) List measures

- \$500 per gas heated home
- \$500 per electric heated home

b) List non-incentive customer services

- Technical support to Energy Analysts and Design Teams⁷⁰
- Economic modeling/measure selection support to builder/construction managers
- Marketing support to builders (sales agent training, marketing materials)
- DSM coordination (PV, DR, AMI, ET) for builders to maximize demand-side reductions.

ENERGY STAR® Manufactured Homes

In addition to the performance approach cited above, RNC will retain a deemed prescriptive approach for the manufactured home market segment. Homes will have the flexibility to include the entire ENERGY STAR® package for manufactured housing or to incorporate elements within those standards, such as improved windows.

The ENERGY STAR® Manufactured Homes sub-program is designed to promote the construction of new manufactured homes in SoCalGas’ service territory that comply with ENERGY STAR® energy efficiency standards. The program targets manufacturers, retailers, and homebuyers of new manufactured homes. The current baseline for manufactured homes is the HUD standard specification. The program encourages manufacturers to install “right-size” HVAC, install high-efficiency HVAC equipment, and evaluate homes on a whole-building basis covering windows, insulation levels, and quality installation inspections. The program works in coordination with the ZNE program element.

The program is a logical fit in the RNC portfolio of programs and will serve another market segment within CAHP, alongside single family and multi-family dwellings. Likewise, the ZNE element will also look to leverage consumer interest in green building in promoting zero peak homes and market transformation.

The objectives of the program are:

- To capture cost effective energy savings and demand reduction opportunities
- To move the industry toward coordinated demand side management (c-DSM), including self-generation and SCE’s AMI (SmartConnect™)
- To move the industry toward zero-net energy as identified in the BBES and advanced in the Strategic Plan
- To move the market segment from HUD compliant to ENERGY STAR® and provide savings for customers purchasing energy-efficient, manufactured homes

The program encourages manufacturers to:

⁷⁰ There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes for design teams.

- Install “right-size” HVAC equipment
- Install high-efficiency HVAC equipment
- Evaluate homes on a whole-building basis covering windows, insulation levels, and quality installation inspections

The program will also include an education and outreach component as a means to promote awareness of energy-efficient practices in the construction of ENERGY STAR® manufactured homes. All segments related to the sale and construction of a manufactured home, including retailers, customers and manufacturers will be engaged. The marketing plan will also target new retailers to inform them of the program benefits and encourage their participation in the program.

Market-actors include manufacturers, retailers and homebuyers. As the primary focus is on retailers, the program is considered a midstream program. Incentives are offered to help induce retailers to promote ENERGY STAR® qualified manufactured homes.

<u>Program Criterion</u>	<u>Incentive</u>
<u>Prescriptive elements, e.g. windows, add'l insulation</u>	<u>TBD, deemed rather than calculated per CZ</u>
<u>ENERGY STAR® Manufactured Home – Gas Heat</u>	<u>\$500/Home (total of prescriptive elements)</u>
<u>ENERGY STAR® Manufactured Home – Electric Heat</u>	<u>\$500/Home (total of prescriptive elements)</u>
<u>Zero-peak Home</u>	<u>\$75 for each peak kW reduction due to on-site photovoltaic system</u>

Financial incentives will take the form of fixed rebates (deemed) or may be calculated on a project by project basis.

RNC will pursue zero-peak homes as a reasonable milestone on the way to achieving the Strategic Plan’s ZNE homes. The potential addition of a zero- peak photovoltaic kicker is part of the effort toward achieving zero-peak homes.

As part of the effort to address plug loads, ESMH is exploring such technologies as master plug shut-off switches (smart outlets that shut off when they detect only parasitic loads). Additionally, and as part of the integrated demand side management (DSM) approach recommended by the Strategic Plan, ESMH will reward builders for installing demand response offerings such as PCTs and A/C Cycling controllers. ESMH will deliver demand response measures paid for by the demand response programs, to reward builders for these items based on a deemed amount rather than a performance-based incentive. CAHP will work with their AMI metering infrastructure teams to test and develop in-home displays to both drive plug load usage down and give customers both financial and social reasons to conserve energy⁷¹. In addition to financial savings, the rationale is that customers

⁷¹ To the extent possible, CAHP intends to leverage AMI funding to incent IHDs in new construction projects. However, AMI has its own schedule and its own priorities for research projects. If DR/AMI is not ready for AMI-integrated IHDs, the ZNE program through its demonstration projects, working in concert with ET, seeks to demonstrate simpler IHD technologies perhaps

will gain social status and personal satisfaction by being the most conserving, much as Prius current owners compete to outperform each other and the EPA's expected miles per gallon.

Marketing efforts will target manufactured home retailers as well as customers.

Desired program outcomes are:

- To achieve short and long term energy savings and demand reduction in the most cost effective manner possible.
- To increase the penetration of ENERGY STAR® manufactured homes within California, and to make ENERGY STAR® the customer's preferred choice.
- To transform the marketplace by promoting ENERGY STAR® qualified manufactured homes the new standard choice instead of homes that merely meet the existing HUD standards.
- To establish a strong working relationship with manufactured home retailers.

A finished project is defined as the completion and assembly of a manufactured home. The process of purchasing and installing an ENERGY STAR® qualified home can be lengthy, so projects need to be monitored closely throughout the program cycle.

The program will include a quality assurance plan with a field inspection component to verify that the manufactured home(s) meets ENERGY STAR® and program's requirements. The program will also have a mechanism to verify that the assembly of the home is in accordance with these standards. This will include ducting work and installation of end-use equipment (for example, HVAC). Many ENERGY STAR® components are assembled on-site and the compliance must be verified once assembled.

Customer information will be captured once a project is complete to allow the utility to integrate delivery of other program offerings to these customers as well as tracking any possible double-dipping. Information on parties receiving incentives will be tracked and reported.

without the full capabilities of an AMI-integrated device. As these technologies mature into the marketplace, the statewide IOUs will consider adopt them as additional measures into the core CAHP.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Lighting Market Transformation Statewide Program (Resolution E-4385, Appendix A):

<u>SW PROGRAM / Sub-Program</u>	<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
<u>Residential ENERGY STAR[®] Manufactured Housing</u>	<u>1. Number of manufactured housing units sold in IOU service territories (via retailers and/or manufacturers) participating in program</u>	<u>2a</u>
	<u>2. Number and percentage of participating projects utilizing: (a) whole house incentive for gas heat; (b) whole house incentive for electric heat</u>	<u>2a</u>

b) Market Transformation Information

Resolution E-4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.

c) Program Design to Overcome Barriers (Priority Barrier: Homebuyers)

The energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile. In fact, 16% of U.S. greenhouse gas emissions result from the generation of energy used in houses nationwide (U.S. EPA). However, there is little consumer awareness of the impact their homes have on the environment. CAHP is working with IOU marketing efforts, statewide partners (e.g. Flex Your Power), ENERGY STAR[®] campaigns, and builder’s own messaging to increase consumer awareness of this idea. Moreover, there is scant evidence that energy efficiency drives

decision- making among homebuyers, whose access to capital is more difficult in a constrained capital market.

Manufactured Housing: a potential opportunity

The current decline in the housing industry, the high cost of Residential housing, and increasing customer awareness of energy efficiency all make this a good time to address this underserved market segment. The manufactured housing industry is somewhat counter-cyclical to the site-built home market. As buyers are priced out of site-built homes, manufactured housing has become an affordable alternative.

Historically, manufactured housing has been considered a lost opportunity. Manufacturers recognize that ENERGY STAR® manufactured homes address both the high cost of purchasing a traditional new home and the high cost of energy bills. However, without IOU intervention in the market, retailers are not pushing ENERGY STAR® homes and there is not enough demand for manufacturers to justify building them.

Overcoming Market Failure: CAHP

In a buyer's market, builders are looking to differentiate themselves from competition. This presents a opportunity for ESMH to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to help meet the state's and IOUs' goals for the reduction of greenhouse gas emissions and utility source demand.

The RNC market without IOU intervention is a lost opportunity for long-term energy savings. However, with IOU intervention in the form of incentives and design support, the new construction market is well placed to demonstrate innovative approaches and cost-effective energy savings technologies.

Overcoming Market Failure: Manufactured Housing

The program provides an incentive to manufactured home retailers when they sell a manufactured home that meets or exceeds the current ENERGY STAR® standards. These standards extend to the ducting and installation guidelines for heating/cooling equipment, be tracked and reported.

ENERGY STAR® qualified manufactured homes will generate energy savings and demand reduction. In addition to leveraging retailers of manufactured homes, the program will leverage the Partnerships Program to reach out to local governments where the homes will be built.

Manufactured homes have a higher potential for market transformation than the site-built industry due to factory standardization, and the fact that recent research indicates that eight manufacturers control approximately 98%⁷² of the manufactured housing market.

Current Program Baseline: Manufactured Housing:

Prior to IOUs' intervention in the market, there was no ENERGY STAR® qualified manufactured homes sold in our service territory. The construction of manufactured homes

⁷² "Synopsis of manufacturer market share and status," Manufactured Research Association, communication, October 2007.

that meet ENERGY STAR® program standards, as opposed to the less stringent HUD standards, will result in demand reduction, energy savings, and the reduction of greenhouse gas emissions.

The energy savings will result from a combination of improved envelope efficiency (thermal and air tightness), use of high efficiency equipment, and the proper sizing (downsizing) of the cooling equipment. This program is statewide among the IOUs, to provide continuity and better service to the builder at reduced costs.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

<u>ENERGY STAR® Manufactured Homes</u>	<u>Program Target 2013</u>	<u>Program Target 2014</u>
<u>Units Paid</u>	<u>TBD</u>	<u>TBD</u>

e) Advancing Strategic Plan goals and objectives

Since its inception in 2002, CAHP has had a substantial impact on the homebuilding market. There is a significant opportunity to continue to influence builders, architects and other players in the Residential New Construction industry.

The RNC sub-program is designed to enable the achievement of several goals and strategies identified in the Strategic Plan. The Strategic Plan envisions a transformation of the core Residential sector to ultra-high levels of energy efficiency, resulting in ZNE new construction standards by 2020. It spells out several goals and strategies to address energy reduction in Residential New Construction.

Goal #1: New Construction will deliver “ZNE” performance for all new single and multi family homes by 2020.

- By 2012, 50% of New Homes will exceed 2008 Title 24 energy efficiency standards by 20%; 10% will surpass 2008 Title 24 standards by 40% (Strategy 1-1)⁷³

Goal #2: Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities

Goal #3: Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy-efficient products.

The goal of energy-efficient Residential New Construction will be achieved through a combination of incentives, technical education, design assistance, and verification.

⁷³ As modified in D.09-09-047

CAHP supports the ambitious goals of the Strategic Plan, and works in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP. In fully aligning itself with the Strategic Plan, the CAHP targets an interim goal of 50% of RNC to Tier II (2005) by 2011, 10 per cent of RNC to 55% by 2011, and a final goal of 100% of Residential New Construction to be net zero by 2020. In fully aligning itself with the Strategic Plan, as modified by Decision 09-09-047, the CAHP targets an interim goal of 50 percent of RNC to be 20% better than the 2008 Title 24 Standards by 2012, and 10% of RNC to be 40% better than the 2008 Title 24 Standards by 2012, and a final goal of 100 percent of residential new construction to be net zero by 2020.

6) Program Implementation IOU-specific elements

a) Statewide IOU coordination

Given the success of the collaborative process that led to the production of this PIP, the statewide RNC team plans to meet on at least a quarterly basis going forward in order to review progress toward the goals and make corrections need to achieve them.

i. Program name

The single-family and multi-family programs will be implemented under the common name of CAHP. The zero peak pilots will be referred to as ZNE Homes, although the details differ somewhat by utility. Factory-built housing will be referred to as ENERGY STAR Manufactured Homes.

ii. Program delivery mechanisms

SoCalGas delivers the program primarily through in-house account executives with some outside technical support for specific analyses. SCE leverages third-party implementers and in-house account executives. For the 2013-2014 program period, SoCalGas and SCE will continue implementation of ESMH, as their service territories overlap significantly. This will ensure cost effective implementation as well as a consistent program delivery to the applicable customer base.

iii. Incentive levels

The IOUs have agreed upon a common incentive methodology that will be implemented throughout the service territories. The incentive levels are as indicated earlier.

iv. Marketing and outreach plans

ESMH will ensure closer coordination of marketing efforts to synergize wherever possible. While each utility would like to leverage on their strengths and existing relationships within their service territories, certain marketing elements can be launched on a common platform. A common website will be created to provide builder information that will be commonly disseminated. Training and education is an area where pooling of resources is possible to reduce cost and increase participation.

The participating IOUs plan to be actively engaged in the development and implementation of joint marketing, education and training efforts as described in detail in the common section of this PIP.

In 2013-2014, the program will expand its builder/contractor education and training certification courses to increase overall awareness and understanding of CAHP and service offerings. We will continue to strengthen our delivery channels of information by providing relevant information and support materials, reaching target audiences in key decision-making phases. The IOUs' innovative communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, e-mail blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the Internet. Additionally, CAHP will leverage its excellent relationships in partnering with trade organizations and other groups actively promoting the benefits of green, sustainable building practices. Such organizations include: CEC, FYP, AIA, USGBC, ULI, California Manufactured Housing Institute, Build It Green, IES, AEE, IHACHI, PHCC and others. Through an innovative, coordinated approach, we will maximize outreach opportunities that keep energy efficiency and program benefits top-of-mind and maximize program participation.

Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

v. IOU program interactions

The plan addresses above, in the Incentive Rationale section, the ways CAHP is encouraging demand performance, in-home displays, on-site generation, square footage reductions and green elements.

CAHP is particularly interested in promoting integrated thermal hot water system designs to displace therm demand with on-site renewable sources. In addition to cold water savings from embedded energy and the energy to heat water, longer term there may be GHG reductions that accrue either to the builder, the homeowner, or the utility associated with each demand side reduction as a result of AB 32 and pending national CO₂ legislation.

CAHP prides itself on its established close relationships and memberships with other groups involved with the building industry. These relationships make it possible to provide comprehensive services to our customers. Thus, CAHP will continue to seek out and coordinate synergies with, but not limited to, the following groups:

- NSHP

- EPA
- California IOUs
- Green Building Consultants (i.e. Build it Green, California Green Builder, Global Green)
- Rater Organizations (e.g. ResNet, CalCerts, CHEERS)

CAHP will continue its commitment to the EPA’s ENERGY STAR program and will strive to support, partner and contribute to the success of the ENERGY STAR homes label and branding. Numerous surveys and studies continue to show the ENERGY STAR label represents greater value to consumers and the environmental stewardship it represents.

Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR New Homes and has won ENERGY STAR achievement awards for the last seven consecutive years. In 2011 SCE was rewarded for “Sustained Excellence in Energy Efficiency Program Delivery”.

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency and green measures into new construction projects including Title 24 code training and ENERGY STAR requirements. In response to builder requests, CAHP will offer a new training workshop during 2013 - 2014 designed for builders’ sales agents. Sales agents have direct contact with the homebuyer and have the greatest impact on selling homes. In order to help promote ENERGY STAR developments, CAHP will teach sales agents about energy efficiency. Topics will include what qualifies as an ENERGY STAR home and what is 'green'. Other activities will include attendance at building industry trade conferences/ outreach events and any necessary contractor/builder field visits. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals. IOUs may pursue partnership efforts with local government entities who are looking to display leadership in the carbon arena by expediting plan check, waiving permit fees, or allowing builders to pay impact fees on the back end (instead of up-front) in exchange for higher levels of home performance documented by our program.

vi. Similar IOU and POU programs

The statewide team will reach out to leading POU programs, such as those at SMUD to learn from their experience how best to deliver energy-efficient homes.

In addition, the IOUs will work closely with the existing home remodeling programs (Home Performance with ENERGY STAR and the Comprehensive Mobile Home Program) to maintain a two-way communication of best practices and lessons learned between the new and existing sectors.

b) Program delivery and coordination

i. Emerging Technologies (ET) program

Emerging technologies will chiefly be handled within the ZNE program. The IOUs are looking to partner with our ET and EPIC-funded Testing Facilities to pilot zero-

net energy approaches, particularly in the manufactured home/prefabricated segment. However, the proposed incentive approach allows the IOUs the flexibility to include both deemed and calculated energy savings from new technologies as they become market ready.

The utilities will seek to integrate R&D ideas from Emerging Technologies, EPIC, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

ii. Codes and Standards program

As mentioned above, manufactured housing is not subject to Title 24, although there are national efforts to improve the HUD code.

iii. WE&T efforts

The RNC team is seeking ongoing support from the three energy and training centers for classes relevant to the building industry and training the next generation of trade allies, builders, contractors, and the like.

iv. Program-specific marketing and outreach efforts

In 2013-2014, the program will expand its manufacturer and retailer outreach to increase overall awareness and understanding of ESMH. We will continue to strengthen our information and support materials, focusing on the value to the retailer of making the sale to the homebuyer. The IOUs' communication tools will include: account representative meetings/presentations, targeted customer mailings, trade organization affiliations, and builder award recognition. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internet.

v. Non-IOU Programs

There may also be opportunities to partner with local AQMDs and County Integrated Waste Management Boards to encourage material recycling in ZNE and green programs.

vi. CEC work on C&S

The IOUs will continue to support Codes and Standards development work with the CEC and to test candidate technologies in the new construction programs.

c) Best Practices

The Residential New Construction team will gather information and past experience in successful low energy and ZNE existing projects to evaluate best practices. This information will be used to develop pilot projects that will demonstrate low energy homes and include home performance monitoring.

d) -Integrated/coordinated Demand Side Management

The statewide RNC team is committed to a full integration of all resource types. A first step has been taken by way of a recent joint agreement between SoCalGas and SCE,

which allows the two utilities to buy back therms and kWh. Water saving technologies and CO₂ reduction are strongly emphasized and tracked in ZNE projects. As these technologies get accepted and recognized, they will become integrated into the base CAHP projects.

e) Integration across resource types (energy, water, air quality, etc)

As discussed above, RNC is looking to partner with relevant stakeholders to identify water, air quality, and waste-diversion opportunities.

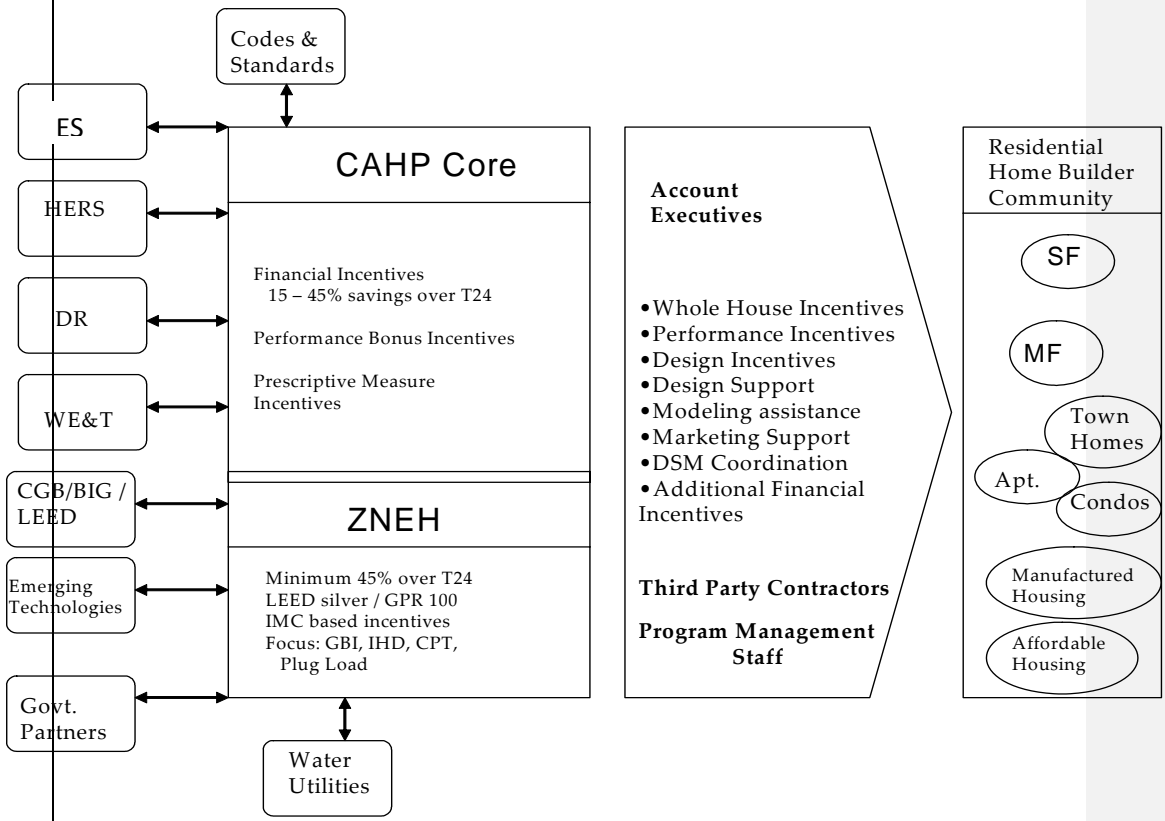
f) Pilots

As discussed above, The IOUs may in the future need to create a pilot program to test the viability of an offering.

g) EM&V

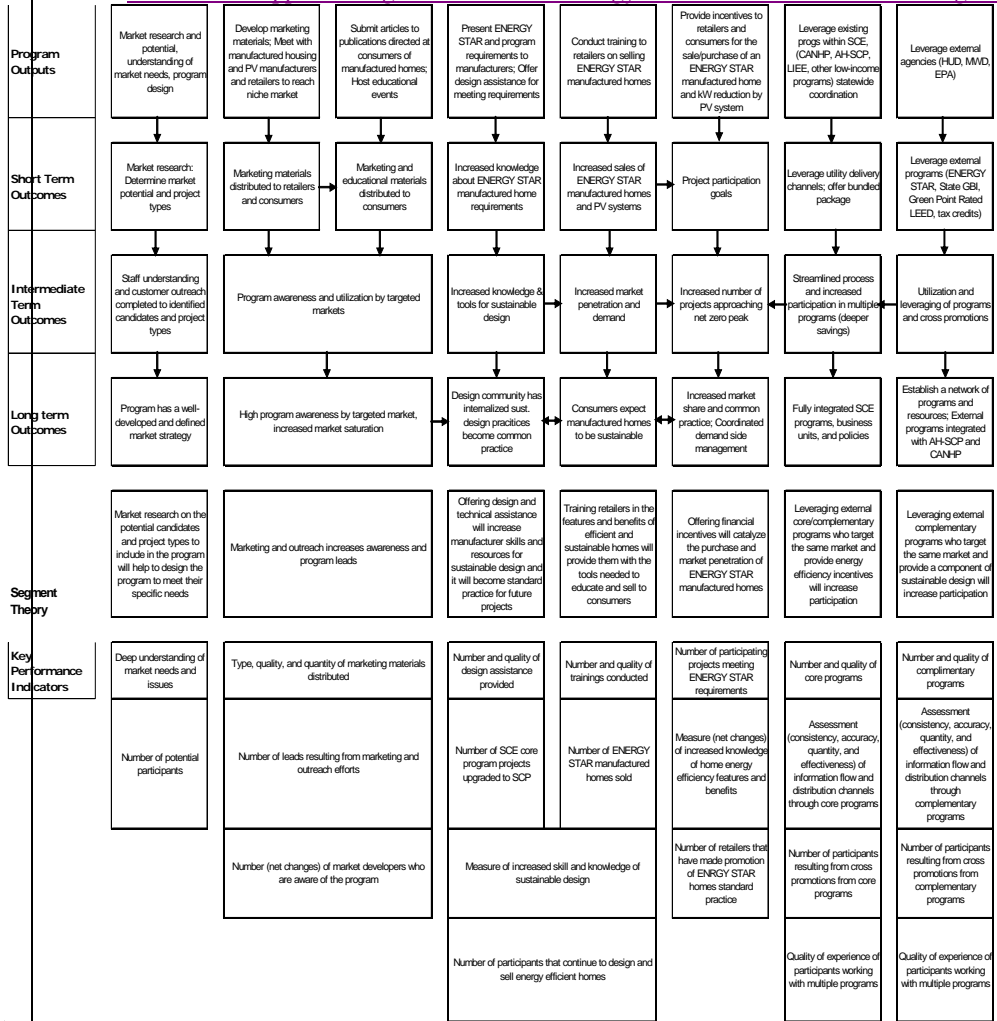
The utilities are proposing to develop and submit a comprehensive EM&V plan for 2013-2014 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

7. -Diagram of Program



8. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Energy Star Manufactured Homes Program.



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~~Residential New Construction PIP~~

~~1. Program Name: RNC CA California Advanced Homes Program (Manufactured Housing) CAHP~~

~~Program ID#:~~

~~Program Type: This is a core statewide program. Statewide Core~~

~~2. Projected Program Budget Table~~

Table 1⁷⁴

⁷⁴~~Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here~~

~~Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).~~

~~Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.~~

~~Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.~~

~~Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.~~

~~Total Budget is the sum of all other columns presented here~~

~~Definition of Sub Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.~~

<u>Program #</u>	<u>Main Program Name/ Sub-Programs</u>	<u>Total Administrative Cost (Actual)</u>	<u>Total Marketing & Outreach (Actual)</u>	<u>TOTAL Direct Implementation</u>	<u>Integration Budget Allocated to Other Programs (if Applicable)</u>	<u>Total Budget By Program (Actual)</u>
<u>Market Sector Programs</u>		-				
-	<u>Core Program #1</u>	-	-	-	-	-
-	<u>Sub-Program #1</u>	-	-	-	-	-
-	<u>Sub-Program #2</u>	-	-	-	-	-
-	<u>Sub-Program #3</u>	-	-	-	-	-
-	<u>Sub-Program #4</u>	-	-	-	-	-
-	<u>Etc.</u>	-	-	-	-	-
=	<u>TOTAL:</u>	-	-	-	-	-

3. Table 1 — Reference core program for budget details.

3. Projected Program Gross Impacts Table⁷⁵ by calendar year

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Table 2

Program #	Program Name / Sub-Programs	2010–2012	2010–2012	2010–2012
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
Market Sector Programs				
-	Core Program #1			
-	Sub-Program #1			
-	Sub-Program #2			
-	Sub-Program #3			
-	Sub-Program #4			
-	Etc.			
=	TOTAL:			

4. Table 2 – Reference core program for projected gross impacts detail.

4. Program Description

a. Describe program

The California Advanced Homes Program (CAHP) is part of the statewide Residential New Construction (RNC) sub-program offering. The RNC sub-program is itself represents one half sixth of the New Construction CalSPREE core offering. CAHP encourages single and multi-family builders of all production volumes to construct homes that exceed California’s Title 24 energy efficiency standards by a minimum of 15

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⁷⁵ For all electric IOUs, the therm column should include interactive effects.

percent. Through this plan, multi-family and single-family projects are approached identically for program purposes except where explicitly noted. The ENERGY STAR® Manufactured Homes program, offered by Sempra and Southern California Edison, addresses new factory-built housing. The structure of the relevant Residential New Construction program elements is as follows:

New Construction CalSPREE Program (Core)

— Non-residential New Construction Sub Program (Savings by Design)

1. Residential New Construction Sub Program

2.1 Single-family/Multi-family Sub Program (California Advanced Homes CAHP)

a. — Zero Net Energy ZNE Homes Sub Program

2.2 Manufactured Homes Sub Program for Sempra and Southern California Edison

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For the convenience of the reader, two other programs relevant related to New Construction are also called out:

— Sustainable Communities Program (Name / Location differs by IOU) (Third-party)

- — Covering Master-planned communities, mixed-use projects, campuses, and commercial projects pursuing advanced energy efficiency and green targets.

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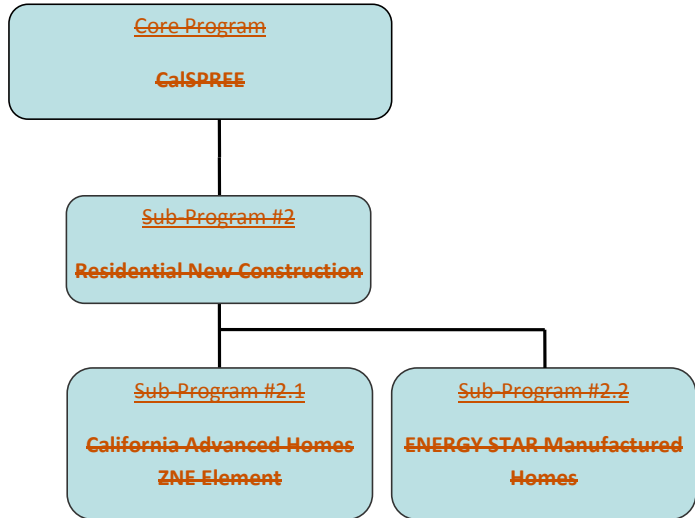
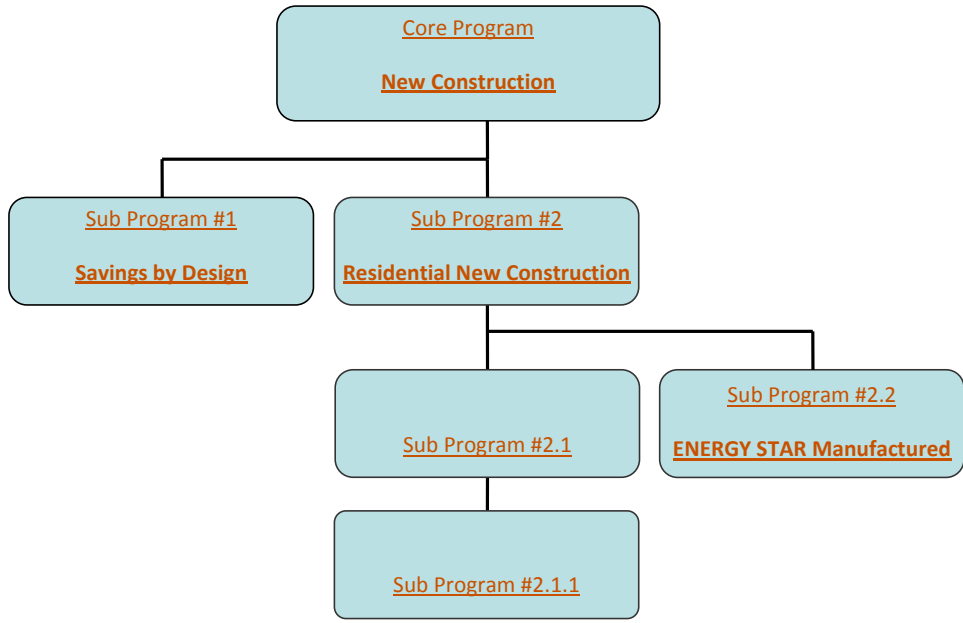
• Partnership Programs (Core)

— Strategic Planning Sub Program (ICLEI ILG LGC)
Covering

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• Strategic Planning Sub Program (Energy Leader Partnership Strategic Support)

Trains cities and counties to procure city projects to meet energy efficiency standards, to identify funding sources, to share best practices, and recognize them for their achievements.



The goal of energy-efficient Residential New Construction (RNC) will be achieved through a combination of incentives, technical education, design assistance, and

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verification. CAHP supports the ambitious goals of the California Long Term Energy Efficiency Strategic Plan (CLTEESP), and works in close coordination with the Zero Net Energy Homes ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the New Solar Homes Partnership. In fully aligning itself with the CEESP, as modified by Decision 09-09-047, the CAHP targets an interim goal of 50 percent of RNC to be 20% better than the 2008 Title 24 Standards by 2011, and 10% of RNC to be 40% better than the 2008 Title 24 Standards by 2011, and a final goal of 100 percent of residential new construction to be net zero by 2020. (NSHP).

As explored in greater detail below, CAHP will work closely together with the Zero Net Energy Homes (ZNEH) incorporate a ZNE sub-element to adopt the following strategies toward achieving CLTEESP the Strategic Plan goals. As program technologies and approaches are developed and demonstrated in ZNEHZNE, they will be incorporated into the California Advanced Homes Program. The lead program is listed in parentheses after each strategy CAHP.

7. Raise plug load efficiency. (ZNEH (ZNE))
8. Promote Whole House solutions, with a particular focus on zero peak homes as an interim step toward zero net homes. (CAHP)
9. Encourage In-home Monitoring and visual display tools. (ZNEH (ZNE))
10. Encourage incorporation of Green Building Standards (ZNEHZNE)
—Coordinate CAHP with demand response programs. (CAHP)

-specific

11. Specific strategies for achieving net zero homes will be reviewed in more detail below. Moreover, as outlined above, where strategies enter the market more rapidly than anticipated, they will be rolled into the core CAHP.

- a) To further help make ZNE a reality in the residential sector, utilities will:
- b)
- e) Integrate successful ZNE strategies and activities proven through program and/or pilot projects during the 2013-2014 Transition Period. The residential new construction program will absorb and enhance existing residential programmatic elements aimed at delivering ZNE best practices to the marketplace, potentially including but not limited to:
- d) Project consultations that pair projects with experts capable of driving unique designs to ZNE;
- e) Provide education opportunities to key architectural, engineering, and other design professionals (see WE&T plans); and

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f) Explore cost-effective ZNE solutions that consider the intersection of building and community energy use

g) _____

i. List measures

CAHP Program measures, known savings. All IOUs.^{76,77}

- Whole House Incentive
- Dishwashers
- Aerators/Showerheads
- Clothes washers (Water agency Partnership)⁷⁸
- Dryers
- Interior Lighting
- Refrigerators

Pending Program Measures, savings/incentive TBD. IOU dependent⁷⁹

- Programmable Communicating Thermostat (deemed, delivers DR measure)
- Refrigerant Charge Adjustment (deemed, delivers Comp HVAC measure)⁸⁰
- In-Home Display (deemed, delivers AMI measure)
 - Specifications, incentive levels, TBD
- Whole House Fan (savings TBD)
- Demand Re-circulation DHW systems (savings TBD)
 - Increase in electric pumping, decrease in heating therms, water usage
- IOU team will evaluate future emerging technologies for inclusion
- Marketing assistance as they become market ready.

Incentive Structure

⁷⁶ Savings per appliance will be consistent across all IOUs.

⁷⁷ Savings per appliance will be consistent across all IOUs.

⁷⁸ Program intent (with regulatory approval) is to maintain IOU funding for appliances regardless of water agency contribution. Since incentive dollars are coming from different sources, there is no double dipping. However, customer's cost will decrease in IMC calculation. Nevertheless, even in worst case if IMC goes negative, which seems unlikely, clothes washers are small budget and savings measure relative to total RNC program and will have minimal impact on TRC. Future water energy pilot results may also provide additional cold water savings to augment therm savings.

⁷⁹ Since funding is coming from other sources (AMI, Comp HVAC, DR), incentives in this group will be deemed rather than calculated. The intent however, is to maintain consistency in deemed amount across IOUs. Other measures, such as whole house fans and demand recirculation systems need additional research to determine savings.

⁸⁰ T24 requires CIL or RCA in prescriptive path. If used for compliance, measure ineligible

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i. ~~The pay for performance incentive structure for the 2010–12 CAHP will change from the current deemed structure of three tiers (15 percent, 20 percent, and 35 percent). Under the current deemed program, feasible and appropriate for builders receive the same incentive regardless of how much energy the project saves. By definition, a deemed incentive rewards the same, so overcompensates those who save the least, and under rewards those who save the most. Since the deemed amount is an average across a wide variety of climate zones, those in the mildest zones are paid more per kWh than those in hotter areas. This effectively shortchanges those whose homes have the highest performance. It also tends to discourage participation in hotter areas (for example, climate zone 15, Palm Springs) where costs are in fact higher for achieving the same level of energy performance to achieve ENERGY STAR® certification.~~

h) ~~Calculated incentives:~~

i)

ii. ~~List non-incentive customer services~~

• ~~Technical support to Energy Analysts and Design Teams⁸⁴~~

• ~~Economic modeling/measure selection support to builder/construction managers~~

• ~~Marketing support to builders (sales agent training, marketing materials)~~

• ~~DSM coordination (PV, DR, AMI, ET) for builders~~

~~The proposed approach is closely modeled on the calculated whole building approach used by the Savings By Design program. In this approach, the incentive rate per unit of energy (\$/kW, \$/kWh or \$/Therm) is a function of the percentage by which the project exceeds code.~~

~~Therefore, a kWh at 15% better than code is worth only \$0.43, but a kWh at 35% better than code is worth \$1.00 to the builder. Multiply this increase in rate by the absolute increase in units of energy saved as performance margins increase, and the result is an arithmetic progression.~~

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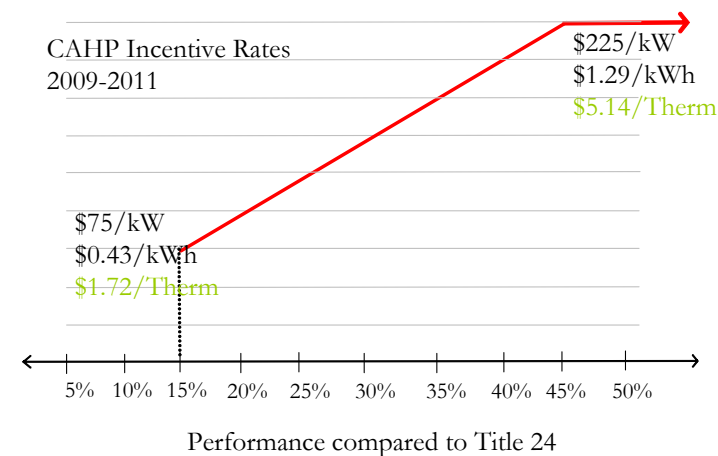
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⁸⁴ There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes/workshops for design teams.

The 2010–2012 calculated approach will be as follows:



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The peak demand incentive rate is also variable, rising from \$75/kW at 15% to \$225/kW at 45%.

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Moreover, because of the challenges faced by builders in adopting the new energy code requirements, the statewide IOU team has adopted the 10% rate to ease the transition to the new code for builders and to compensate for the abandonment of stand-alone prescriptive measures, discussed in more detail below. The IOUs assert that the special rate shall only be offered for a limited time, the five months from August 1, 2009 until December 31, 2010 for those projects subject to the 2008 Title 24 code. It will not be available after January 1, 2010.⁸²

This approach rewards builders for achieving higher levels of energy efficiency and avoids the “clustering” problem in tiered programs. A tiered approach discourages builders from achieving incremental performance if they are unable to reach the next higher tier. In line with the elements of the strategic plan, the new approach rewards builders for undertaking whole house solutions where the entire structure can be considered as an integrated system.

⁸² Because of the anticipated delay of the launch of the full 2010–2012 CAHP until 1 Jan 2010, an accommodation for projects reaching 10% < 2008 T24 will be made within the existing 2006–2008 deemed approach. The amount for this and the timing is TBD by the statewide team.

Moreover, while executing a net zero home remains a financial and technical challenge, a zero peak home is well within the reach of existing technologies and is particularly appealing to a utility with summer capacity issues. To that end, CAHP has elected to focus on zero peak homes as a bridging strategy to net zero homes, which is another reason to include in its calculated approach a substantial incentive for peak kW reduction.

Analysis leading to calculated approach

While the need to move to a calculated approach was clear, setting the rates requires additional analysis. Efforts are currently under way to make appropriate software modifications to support incentive calculations over the range of efficiency improvements and climate zones. The goal of the incentives is to cover approximately 50% or more of project IMC at 20% better than 2008 Title 24, although it is difficult to set one set of rates that works perfectly for all climate zones and building designs, which will be aligned with the IOUs' overall push to drive projects to higher levels of code performance.

Confidence that incentives will move the market

The statewide team has a high degree of confidence that the revised program design is sufficient to realize substantial market movement toward the 50% penetration goal. As discussed above, incentives alone are not enough to move the market. While more dollars are always preferred by any target industry, it has been the experience of the Southern California utilities that while incentives get one to the table with decision makers, it is the design, technical, and marketing support that makes the sale.

It is the belief of the IOUs that the proposed combination of performance based incentives, marketing kickers for targeted zero net energy, renewable, and marketing elements, sales agent training, technical support, coordinated delivery through trade allies and ongoing cultivation of builder relationships provide an integrated solution to the priority market barriers (discussed below) builders face in delivering more efficient homes.

Regarding the goal to achieve 50% penetration in the entire California market to '35% below 2005 T24' by 2011, the IOUs make the following assumptions:

- 2008 code is 15% more stringent than 2005 code
- 2011 code will be implemented in 2011.
- 2011 code will be 15% more stringent than 2008 code.

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The goal of 50% of market to 35% < T24 is essentially an area function where A (area)= penetration (50% of market) x performance (35% < T24). That is, getting 25% of the market to 70% <T24 represents an equivalent amount of savings.

Code compliance is at 70%.

IOUs will claim the full 30% delta between standard practice and code, in addition to the traditional above code performance achieved by participating builders.

IOUs use 70% compliance in 2005 as benchmark against which to demonstrate results.

In the following analysis, the 70% compliance rate is unimproved over time [c], and similarly, IOU participant penetration holds steady at 10% [g]. Both are likely to increase as a result of planned activities in CAHP or in codes and standards; in fact statewide penetration rates for CAHP are closer to 12% and are increasing. Similarly, project marginal performance [h] remains at 15%, although the entire incentive design is intended to increase marginal performance.

Code	Rate > 2005 [b]	Compliance [c]	BMrk Performance [b*c=d]	Non-Participant Penetration [e]	NP Performance [d*e=f]	Participant Penetration [g]	Participant %<T24 [h]	Partic. Performance [(h+b-c)*g+d*g=i]	Total [i+f]
Title 24 2005	100%	70%	70.0%	90%	63.0%	10%	15%	11.5%	74.5%
Title 24 2008	115%	70%	80.5%	90%	72.5%	10%	15%	14.1%	86.5%
Title 24 2011	130%	70%	91.0%	90%	81.9%	10%	15%	16.6%	98.5%
CLTEESP 50%	135%	70%	92.8%						
CLTEESP 100%	135%	70%	94.5%						

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In this simplified analysis, it is assumed that non-participants are building only code minimum homes. At 70% compliance, the CLTEESP target at 35% better than 2005 code has a benchmark performance target [d] of 92.8% of minimal T24 2005 compliance. Put another way, with 70% compliance as the baseline, improving compliance to 7.2% worse than 2005 code is equivalent to getting half the homes to 35% better than 2005 code. Getting 100% of new construction to 35% better is equivalent to performance of 94.5% of 2005 code, or 5.5% worse than a 2005 minimum.

When the 2011 code goes into effect, the IOUs will exceed the equivalent industry wide performance of 100% of homes to 35% better than 2005 code benchmark [d] of 94.5% with a

total industry wide [i+f] performance (participant and non-participant) of 98.5% compliance with 2005 code.

Without the 2011 code change occurring in 2011, a market penetration rate of 21% is required to achieve the target industry wide performance of 94.5% of 2005 code.

If 2011 code does not go into effect in 2011, and the utilities are not allowed to claim for purposes of reaching the 50% target using the compliance rate (whatever it may be), the goal of 50% of homes to 35% < T24 2005 would require a penetration rate of 50% to a performance level of 20% better than 2008 code, which is outside the experience and reasonable expectation of the statewide IOUs.

How program supports CEC's New Solar Homes Partnership, Tier II

CAHP supports the revised NSHP Tier II (30% < T24 2008) and the goals of the CEC in six ways:

The IOUs are committed to partnering with the NSHP to streamline the solar application process and to make referrals between NSHP and CAHP. Indeed, the goals of zero peak and ZENH appear impossible without the significant presence of solar.

The IOUs will leverage CEC NSHP material, marketing, and event support for opening events for those projects that commit to the platinum level: 100% penetration at the Tier II EE performance (30%).

The design of the graduated, performance based incentive will tend to drive projects to the higher end of the performance curve, consistent with CEC goals.

The kicker for peak kW reduction by solar equipment, will also reward projects that pursue efficiency before adding solar, and rather than a pass fail approach, provide the greatest reward to those who achieve the highest efficiency.

The threshold efficiency (15%) is consistent with the Tier I minimum, and the top end (45%) was selected to support the CEC's desire to project out three code cycles (Tier III) into the future.

The IOUs will provide a \$1,000 per single family unit and \$200 per multi family unit for projects that meet the NSHP Tier II requirement AND participate in the NSHP to entice builders to reach for Tier II.

However, the fact remains that the program design does not provide anything "special" for projects that get to 30%. This is consistent with the CEC's incentive design, which provides no more PV incentive for a home that gets to 30% < T24 than to 15%. The IOUs support the goals of the NSHP and the marketing synergies of PV and EE remain one of our best strategies for moving the market. Nevertheless, the IOUs position is that if 30% < T24 is very good, 31% is better, and 32% more so.

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Prescriptive Measures

For those prescriptive measures that the current performance software cannot model (e.g. appliances, lighting, etc.), the builder will be paid at the same rate as the overall home achieves on the incentive scale. As an example, a typical qualifying refrigerator saves 58 kWh, and 0.0099 kW. If the home reached performance of 35 percent, that refrigerator is worth \$59.73. However, should the home only achieve the 10 percent performance level, that dishwasher is worth only \$17.32.

Incentive per refrigerator

<u>% < T24</u>	<u>kWh</u>	<u>\$/kWh</u>	<u>kW</u>	<u>\$/kW</u>	<u>Total</u>
<u>35%</u>	<u>58</u>	<u>\$1.00</u>	<u>0.0099</u>	<u>\$ 175</u>	<u>\$ 59.73</u>
<u>10%</u>	<u>58</u>	<u>\$0.29</u>	<u>0.0099</u>	<u>\$ 50</u>	<u>\$ 17.32</u>

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See complete list under 4 Program Description, b) List measures, above.

N.B. prescriptive measures may not be used to improve the marginal performance of the home as a whole.

The statewide team has elected to eliminate prescriptive incentives (lighting, appliances) as stand alone measures separate from overall building performance. This is to encourage more builders to adopt a whole building approach, and to provide the right price signals to builders to encourage higher levels of performance. However, prescriptive measures such as refrigerant charge and airflow (RCA) and programmable communicating thermostats (PCTs), and In Home Displays (IHDs) will continue to be paid at the deemed rates of their originating program, in large part because the funding for these items is coming from another program's budget.

As part of the effort to address plug loads, ZNEH is exploring such technologies as master plug shut off switches (smart outlets that shut off when they detect only parasitic loads). Additionally, and as part of the coordinated demand side management (DSM) approach recommended by the CLTEESP, CAHP will reward builders for installing demand response offerings such as PCTs and A/C Cycling controllers. CAHP will deliver demand response

~~measures paid for by the demand response programs. CAHP intends to reward builders for these items based on a deemed amount rather than a performance based incentive.~~

~~CAHP will work with their AMI metering infrastructure teams to test and develop in-home displays to both drive plug load usage down and give customers both financial and social reasons to conserve energy.⁸³ In addition to financial savings, the rationale is that customers will gain social status and personal satisfaction by being the most conserving, much as Prius current owners compete to outperform each other and the EPA's expected miles per gallon.~~

~~Energy savings will be modeled based on the entire package of optimized energy efficiency solutions and will influence the project at the design stage when changes to specifications are most cost effective.~~

~~In addition to the direct energy savings incentives, builders will be eligible for Performance Bonus Incentives when they use any of the program elements listed in the following table. Each Performance Bonus is discrete and independent of the other program elements.~~

<u>Program Criterion</u>	<u>Percentage Added to Overall Incentive</u>
— ENERGY STAR® Home	10 percent (fixed)
— Green Home	Independent, third party, transparent verification provider will be retained to verify green building elements have been installed (similar to HERS registry function). The IOUs will establish a

⁸³ ~~To the extent possible, CAHP intends to leverage AMI funding to incent IHDs in new construction projects. However, AMI has its own schedule and its own priorities for research projects. If DR/AMI is not ready for AMI integrated IHDs, the ZNEH program through its demonstration projects, working in concert with ET, seeks to demonstrate simpler IHD technologies perhaps without the full capabilities of an AMI integrated device. As these technologies mature into the marketplace, the statewide IOUs will consider adopt them as additional measures into the core CAHP.~~

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<u>Program Criterion</u>	<u>Percentage Added to Overall Incentive</u>
	<u>minimum threshold for participation and set an incentive equal to 5% of the total, rising proportionally for higher levels of green performance.</u>
<u>— Compact Home</u>	<u>Percentage by which home < Climate Zone Sq Ft Average for new construction, by building type. Minimum threshold of 10% < CZ average, updated annually. There will be separate baselines for SF and MF homes.</u>
<u>— kW Reduction (Zero Peak Home)</u>	<u>The same \$/kW rate for each peak kW reduction due to on-site photovoltaic system</u>

~~The program will coordinate with the statewide Codes & Standards team to ensure that the impacts of any code changes are incorporated into program design and implementation and will also tie into the CLTEESP Strategic Plan Codes and Standards Strategy strategy and support the zero net energy ZNE goals.~~

~~The California IOUs are working with the local water districts on water energy pilots promoting water conservation in joint territory with water agencies. If the pilot is able to demonstrate meaningful embodied energy savings from water efficiency, CAHP will consider providing additional incentives for water efficiency. These incentives and our coordinated efforts with the water agencies reflect our commitment to an integrated approach both within and between different utilities.~~

~~IOUs are working with their Low Income Energy Efficiency (LIEE) programs to coordinate energy efficient new construction with low income housing development. Coordination activities include: (review with LIEE staff)~~

~~• Builders often set aside a certain number of units for various income classifications to meet low and moderate income housing goals. Builders often set aside a certain number of units for various income classifications to meet low and moderate income housing goals. Builders must meet state mandated housing goals in the housing elements of local city and county strategic plans.⁸⁴~~

~~— CAHP would treat market rate units using the standard calculated approach and claim all energy savings. For those units designated by the builder for low income occupants,~~

⁸⁴ See <http://www.hcd.ca.gov/hpd/hrc/plan/hc/>, accessed 25 Apr 08.

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SDG&E's LIEE program will pay the full incremental cost of installing higher efficiency equipment (high Seasonal Energy Efficiency Rating (SEER) A/C systems and refrigerators). LIEE will claim the energy savings from measures they funded.

CAHP will pay the standard calculated incentives for all other measures in low income units (e.g. improved duct work and windows). CAHP will claim the energy savings resulting from EE measures other than high SEER A/C and refrigerators.

CAHP would treat market rate units using the standard calculated approach and claim all energy savings.

This collaboration will encourage the development of more below market rate low income units by developers, will increase participate in the New Construction program based on the combined higher incentives, and will benefit low income occupants over the life of the installed equipment.

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The partnerships program will assist in gathering information to ensure that the units actually are occupied by low income qualified customers. Local governments typically track this information in order to show compliance with state mandates.

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Zero Net Energy Homes (ZNEH(ZNE)

The ZNEH sub ZNE program element recognizes that critical to achieving zero net new construction is the integration of DSM approaches and truly integrated design. This can only be done when the entire suite of DSM offerings is at the table (electric transportation, demand response, energy efficiency, smart meters, and distributed generation). These will be maximally effective when they are part of a truly integrated design.

To that end, ZNEHZNE will help educate the industry on how to achieve energy efficient, green homes. To avoid inter program competition, ZNEH will claim no energy savings of its own but will add value to the builder and the homebuyer. Pending future measurement and evaluation efforts to disaggregate its effects, all ZNEH projects will be routed through CAHP for incentives and energy and demand savings claims. More about the incentives for green elements is below. efficient, green homes.

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The ZNEH sub ZNE program element will consist of a series of pilot projects, typically custom homes with motivated owners willing to pick up a substantial projects that have used advanced modeling techniques to project total kBtu usage and demonstrates a plan to offset said usage with onsite generation over the course of 12 months. This portion of the program will provide customized financial incentives that intend to cover a portion of the verified incremental cost for a portion of the homes, at levels that may vary. This incentive will only apply to the energy efficiency measures of the home and will explicitly exclude the cost of renewable energy generation. The Emerging Technology program may also fund the purchase, installation, and monitoring of candidate technologies. additional features. The sub program may, at its discretion, provide direct financial incentives over and above the standard CAHP offer, but only on a case by case basis. The Emerging Technology program may also fund the purchase, installation, and monitoring of candidate technologies. The ZNEH sub ZNE program element

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will also provide its support in the form of soft-cost design support to help design teams meet their energy and environmental objectives. The sub This portion of the program works closely with home builders seeking assistance in the development of sustainable design and construction, green building practices and emerging technologies.

The ZNEH sub ZNE program element, in conjunction with WE&T programs, offers educational opportunities to builders, architects and other residential Residential construction stakeholders seeking knowledge about emerging technologies and new home design. The program encourages single and multi-family architects and builders to design and construct dwelling units that exceed California's Title 24 standards, reduce greenhouse gas emissions, and provide a healthier and less resource-intensive environment. Such non-standard design elements may include optimization for solar orientation, design for comfort without traditional HVAC, or non-vapor-compression cooling systems. It also is a priority goal of this element of the sub program to execute candidate technologies and integrated approaches to realize zero-peak homes, even if zero-net homes (site BTUs for both therms and kWhs) prove too costly.

• Design Assistance Options:

- i. General Team Education: Give presentations, review rating system options, determine big-picture green building goals.
- ii. Energy Efficiency/Green Building Recommendations: Project-specific recommendations report highlighting ways to incorporate energy efficiency, healthy materials, and other green building features into the unique parameters of the project. Specific product recommendations will not be provided.
- iii. Energy Modeling Support: Provide support and recommendations for Title 24 energy performance modeling to estimate actual building usage and give the project credit for energy efficiency measures that are difficult or uncommon to model.
- iv. Plan and Specification Review: Provide comments on the construction documents at various stages to give feedback on clarity of green building specifications.
- v. Green Feature Cost Assessment: Provide cost-benefit analyses or value engineering assistance to evaluate specific green building features under consideration for inclusion in the project.

• Rating System Documentation Support: Assess and identify project credit/certification goals, identify and assign rating system tasks to members of the design team, guide the team in system process and timing, assist team in understanding and/or documenting credit achievement. This aid will enhance but not supplant participants' efforts to pursue project specifications, designs, calculations, modeling and other necessary services.

The minimum threshold for acceptance in the ZNEH sub ZNE program element will be a whole building performance of at least 45% over Title 24 standards. Projects must meet LEED for Homes (Silver) equivalent and/or qualify for a minimum of 100 points from Build It Green's

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Green Point Rated system. Energy savings will be evaluated based on with advanced modeling showing the diversity total kBTU usage of measures and the overall energy performance. The life cycle CO2 reductions and water savings will also be tracked.

ENERGY STAR Manufactured Homes

In addition to the performance approach cited above, CAHP will retain a deemed prescriptive approach for the manufactured home market segment. Homes will have the flexibility to include the entire ENERGY STAR package for manufactured housing or to incorporate elements within those standards, such home as improved windows.

The ENERGY STAR Manufactured Homes Sub-program is designed to promote the construction of new manufactured homes in SDG&E's service territory that comply with ENERGY STAR® energy efficiency standards. The program targets manufacturers, retailers, and homebuyers of new manufactured homes. The current baseline for manufactured homes is the Housing and Urban Development (HUD) standard specification. The program encourages manufacturers to install "right size" heating, cooling, and ventilation equipment (HVAC), install high efficiency HVAC equipment, and evaluate homes on a whole building basis covering windows, insulation levels, and quality installation inspections. The program works in coordination with the ZNEH sub-program.

The program is a logical fit in SDG&E's Residential New Construction portfolio of programs and will be another market segment within the California New Homes Program (CAHP), alongside single family and multi family dwellings. Likewise, the ZNEH element will also look to leverage consumer interest in green building in promoting zero peak homes and market transformation.

The objectives of the program are:

- To capture cost effective energy savings and demand reduction opportunities
- To move the industry toward coordinated demand side management (e DSM), including self-generation
- To move the industry toward zero net energy well as identified in the BBEES and advanced in method of generating the CLTEESP
- To move the market segment from HUD compliant to ENERGY STAR and provide savings for customers purchasing energy efficient, manufactured homes

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The program encourages manufacturers to:

- Install “right size” heating, cooling, and ventilation equipment (HVAC)
- Install high efficiency HVAC equipment
- Evaluate homes on a whole building basis covering windows, insulation levels, and quality installation inspections

The program will also include an education and outreach component as a means to promote awareness of energy efficient practices in the construction of ENERGY STAR manufactured homes. All segments related to the sale and construction of a manufactured home, including retailers, customers, and manufacturers will be engaged. The marketing plan will also target new retailers to inform them of the program benefits and encourage their participation in the program.

Market actors include manufacturers, retailers and homebuyers. As the primary focus is on retailers, the program is considered a midstream program. Incentives will influence retailers and customers to promote ENERGY STAR qualified manufactured homes.

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<u>Program Criterion</u>	<u>Incentive</u>
<u>— Prescriptive elements, e.g. windows, additional insulation</u>	<u>TBD, deemed rather than calculated per CZ</u>
<u>— ENERGY STAR Manufactured Home — Gas Heat</u>	<u>\$300/Home (total of prescriptive elements)</u>
<u>— ENERGY STAR Manufactured Home — Electric Heat</u>	<u>\$600/Home (total of prescriptive elements)</u>
<u>— Zero peak Home</u>	<u>\$75 for each peak kW reduction due to on-site photovoltaic system</u>

Financial incentives will take the form of fixed rebates (deemed) or may be calculated on a project by project basis.

As in CAHP, SDG&E will pursue zero peak homes as a reasonable milestone on the way to achieving the CLTEESP’s zero net energy homes. The addition of a zero peak photovoltaic kicker is part of the effort toward achieving zero peak homes.

~~Marketing efforts will target manufactured home retailers as well as customers.~~

~~Desired program outcomes are:~~

- ~~• To achieve short and long term energy savings and demand reduction in the most cost effective manner possible.~~
- ~~• To increase the penetration of ENERGY STAR manufactured homes within California, and to make ENERGY STAR the customer's preferred choice.~~
- ~~• To transform the marketplace by promoting ENERGY STAR qualified manufactured homes the new standard choice instead of homes that meet the existing HUD standards.~~
- ~~• To establish a strong working relationship with manufactured home retailers.~~

~~A finished project is defined as the completion and assembly of a manufactured home. The process of purchasing and installing an ENERGY STAR qualified home can be lengthy, so projects need to be monitored closely throughout the program cycle.~~

~~The program will include a quality assurance plan with a field inspection component to verify that the manufactured home(s) meets ENERGY STAR and program's requirements. The program will also have a mechanism to verify that the assembly of the home is in accordance with these standards. This will include ducting work and installation of end use equipment (e.g., HVAC). Many ENERGY STAR components are assembled on-site and the compliance must be verified once assembled.~~

~~Customer information will be captured once a project is complete to allow SDG&E to integrate delivery of other program offerings to these customers as well as tracking any possible double-dipping. Information on parties receiving incentives will be tracked and reported offsetting kBTUs.~~

~~CAHP Incentive Rationale~~

~~The program's most ambitious goal for the 2010-12 program cycle 2013-2014 Transition Period is to have 50 percent promote the early adoption of the residential new construction market to 20% better than the 2008 Title 24 Standards by 2011 (interim goal).~~

~~Getting half of the market to 20 percent better than code exceeds the IOUs historical expectations for RNC. There are five new program incentive elements to move the industry toward this important goal. The new elements are as follows:~~

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— The first program element is to lower the program’s incentive cost per home in order to bring the program’s cost effectiveness into closer alignment with the portfolio at large, to budget for incentives necessary to reach 50 percent of the market, and to do so in ways that do not threaten the overall portfolio’s total resource cost. The available project funding has increased, but additional performance is required to earn it. By paying for performance, the program rewards higher performing projects, pushing more savings among participants. By combining technical expertise with marketing support, successful participants will outsell non participants, driving deeper market penetration as well as non participants get on board.

— The second program element is to identify interim features of zero net energy homes. To that end, utilities will pursue zero peak homes as a reasonable milestone on the way to net zero homes. The addition of a peak kW incentive and a zero peak photovoltaic kicker are both efforts toward zero peak.

- The third program element is the recognition that the typical homebuyer is more interested in green features than energy efficiency per se. By tying energy efficiency specifically to green measures, the IOUs will effect deeper penetration into the market. Similarly, to the extent that CAHP can influence future code elements into the builders to design smaller homes, there are energy savings from reduced cooling volume, reduced lighting and likely, reduced plug load standard practices.

— The fourth program element is to encourage, wherever possible, the implementation of in-home displays or other devices that give homeowners the information and price signals they need to modify their behavior consistent with the needs of the utility and the state.

Finally, times are particularly difficult in the building industry and expedited action is expected from the building community and other partners. Our intention in offering a short term reduction in entry performance from 15 percent to 10 percent above code compliance is to allow first time participants to test the waters at reduced risk.

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13) List non incentive customer services

- Technical support to Energy Analysts and Design Teams⁸⁵
- Economic modeling/measure selection support to builder/construction managers
- Marketing support to builders (sales agent training, marketing materials)
- DSM coordination (PV, DR, AMI, ET) for builders to maximize demand side reductions.

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5:

Getting the market to adopt these levels of efficiency will not be easy. The IOUs expect significant pushback from the building industry due to rising costs. This argument will

⁸⁵ There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes/workshops for design teams.

become even more significant in 2014 when the 2013 Title 24 energy codes take effect. The projected increase in cost to comply with these new codes may be between \$3,000 and \$5,000. The program is considering the following changes to the current incentive structure:

- In 2013 the sliding scale will stay as it is currently. The IOUs plan to eliminate the kickers from the program to help streamline and lower administration costs. After providing the kickers for the past 3 years it is the program's determination the kickers are not influencing the decisions of the builders and as such have proved not to be essential incentives. Once the 2013 Energy code becomes effective the program will adjust the incentives in a way that will still cover a portion of the verified incremental cost for homes achieving high levels of efficiency above and beyond those required by code. The program believes ENERGY STAR® is an important and highly recognizable brand for energy efficiency. Focus group studies have shown that while the brand is known to be good the typical buyer does not understand the whole house can achieve the label as it is typically only associated with appliances. The program will therefore explore a marketing incentive for all homes that achieve the ENERGY STAR® for Homes label.

5. ~~Program Rationale and Expected Outcome~~⁸⁶

~~a)~~

10. a) ~~Quantitative Baseline and Market Transformation Information:~~

Refer to the overarching PIP section

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The

⁸⁶ To be provided for each program and sub-program in PIP.

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Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Lighting Market Transformation Statewide Program (Resolution E 4385, Appendix A):

Table 3

SW PROGRAM/ Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
NEW CONSTRUCTION		
California Advanced Homes Program (CAHP)	1. Number and percentage of committed CAHP participant homes (applied and accepted) with modeled, ex ante savings exceeding 2008 T24 units (Single family (SF) and multi family (MF)) by 15%–19%, by 20%–29%, 30%–39%, and 40+%.	2a
	2a. Percentage of (current year SF CAHP program paid units)/(SF building permits within service territories from the previous year)	2a
	2b. Percentage of (current year MF CAHP program paid units)/(MF building permits within service territories from the previous year)	
	3. Number and percentage of CAHP participant new homes verified* by IOUs' HERS which exceed Title 24 (T24) building standards (SF and MF) by 15%–19%, 20%–29%, 30%–39%, 40%+.	2b
* The IOUs use the existing HERS Rater infrastructure to verify HERS measures and other building characteristics as required by CA Title 24 and the CEC. The IOUs do not perform the verification inspections and do not certify HERS raters. Note: HERS inspection protocol for production builders does not require inspection of 100% of homes; there		

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
	is a sampling protocol. For more information on HERS inspection please see http://www.energy.ca.gov/HERS/index.html	

2. Market Transformation Information

Refer to the overarching PIP section

Resolution E 4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.

Bullet 1) A description of the market, including identification of the relevant market actors and the relationships among them;

The MT elements described here follow guidelines and terminology explained in Rosenberg & Hoefgen's (2009) *Market Effects and Market Transformation: Their Role in Energy Efficiency Program Design and Evaluation*.

<<paper is available here http://uc-ciee.org/downloads/mrkt_effts_wp.pdf>>

Ideally, information about a market would come from a variety of sources, including existing studies and newly commissioned studies. Rosenberg & Hoefgen (2009) recommend that California should "Commission initial market characterization research for those products and services for which the structure of the market and the motivations of the market actors are not well understood or documented, at least in terms of their response to the product in question." Due to a lack of time, the following market information draws heavily upon qualitative analyses made by the program managers based upon information they have

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obtained through experience in implementing the program. We look forward to an opportunity to develop a better understanding of these markets through future commissioned studies, in conjunction with ED and other market transformation stakeholders.

The Residential New Construction market consists of several key players including builders, designers, subcontractors, HERS raters, local cities, manufacturers, real estate agents, financing agencies, and home buyers. The RNC sub program is located upstream, targeting builders and subcontractors early in the design stage of the production process. Upstream of the IOU's RNC influence are local cities' permitting rules and associated costs. Downstream of the RNC sub program are real estate agents, financing agencies, and home buyers. The RNC sub program works directly with builders, designers, subcontractors, HERS raters, builder sales staffs, and manufacturers via equipment recommendations at the design stage.

Bullet 2) Identification of the key barriers and opportunities to advancing demand-side management technologies and strategies;

The key barriers and opportunities to be addressed through a market transformation initiative would ideally draw upon a market characterization study. Due to lack of planning time, the following market barriers and opportunities are drawn from qualitative analyses made by the program managers:

Key RNC market barriers include A) entrenched builder and subcontractor habits, B) a lack of buyer knowledge, interest, and demand, and C) an ensuing disconnect between the price buyers are willing to pay and the related increased builder costs of incorporating DSM technologies, energy efficient equipment, and advanced building practices. Opportunities to address these barriers include education and outreach to builders, subcontractors, and buyers to increase demand and alter builder habits; design assistance to improve builder knowledge and maximally cost effective strategies; and incentives to bridge the gap of builder costs and buyer demand.

Bullet 3) A description of the proposed intervention(s) and its/their intended results, and specify which barriers each intervention is intended to address;

To address Barrier A, the following intervention is proposed:

Builders and subcontractors will be offered training and design assistance to facilitate the acceptance and incorporation of new technologies and building practices including DSM.

To address Barrier B, the following intervention is proposed:

Builder sales staffs will be provided training and marketing support on the advantages of EE homes that incorporate DSM technologies. Financing mechanisms will be explored to reduce buyer costs and increase demand.

To address Barrier C, the following intervention is proposed:

Incentives will target a reduction in the cost to builders of incorporating EE measures and DSM technologies.

Market transformation interventions can be expected to take 2, 5 or even 10 yrs before effects can be quantified. We propose the following that these would be the results that can be seen in the market at various time intervals:

After 2 years of implementation builders and subcontractors should feel significantly more confident in accepting new technologies and advanced building practices. By this time they should be familiar with IOU design assistance procedures and how to maximize the incentives and minimize the increased costs. Sales staffs should be well versed in the advantages of participant homes.

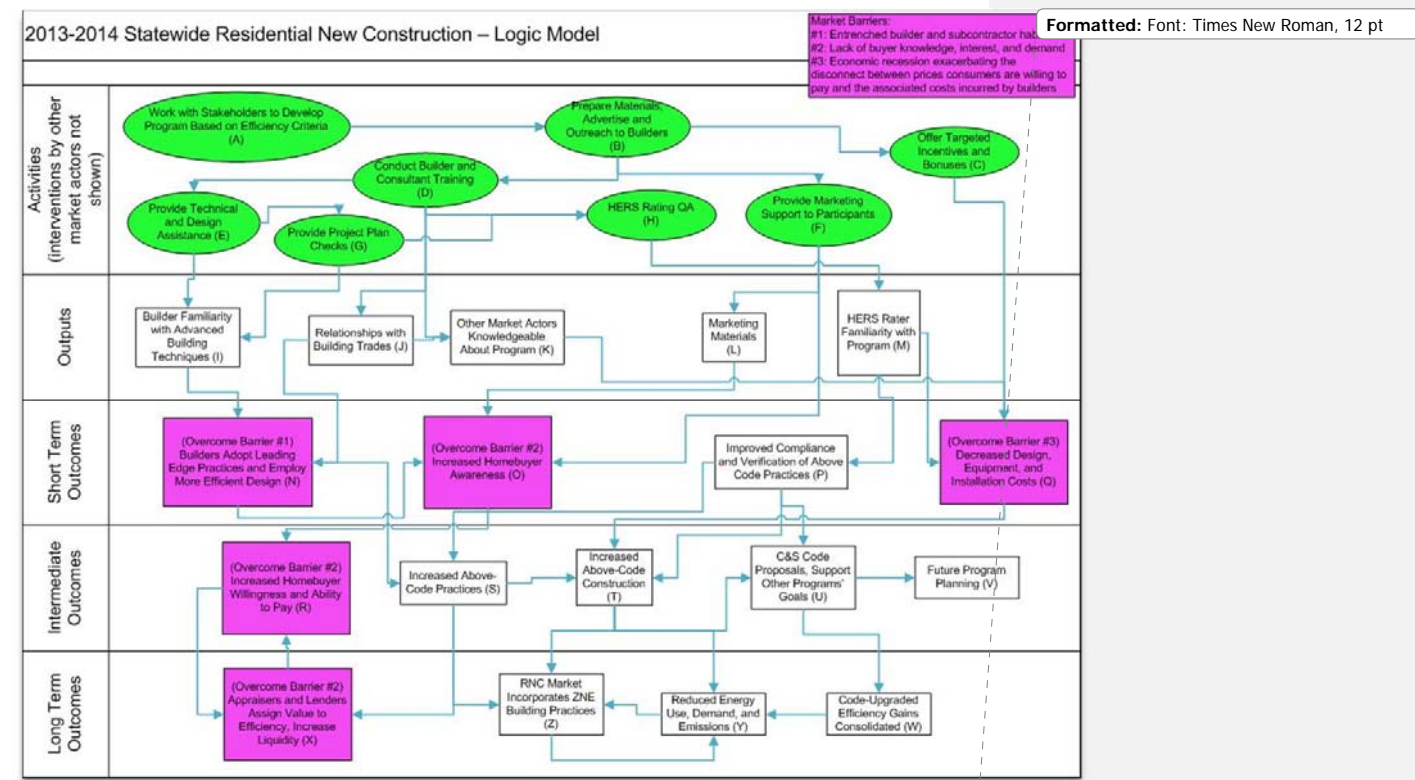
After 5 years, builders and subcontractors should be very confident in advanced EE technologies, building practices, and DSM. At this time the market should be nearing ZNE building practices. Financing mechanisms should be in place to improve buyer demand.

After 10 years, the RNC market should be exclusively building ZNE developments. At this point the program focus will be devoted to education and outreach, helping the industry competes with the less efficient existing market. Financing mechanisms will continue to play a role.

Bullet 4) A coherent program, or “market,” logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results; and

In this example below, “Portfolio Program Elements” are the market transformation

interventions that are specifically directed to the market barriers. “Outcomes” are the outputs of the MT interventions, which are the market effects and reductions in market barriers than can be seen in the short-, mid-, and long-term. Please note that the long-term outcomes are “sustainable,” which is what the market should look like after the market intervention has ended.



Bullet 5) Appropriate evaluation plans and corresponding Market Transformation Indicators and PPMs based on the program logic model. (The IOUs should be prepared to start tracking proposed Market Transformation Indicators immediately in order to establish a baseline, and in cases where the logic model calls for metrics to be differentiated in terms of the sequence and timeframe in which they are expected to be relevant—i.e., leading vs. intermediate vs. lagging indicators of change—each metric should be identified as such).

Due to the need to comply with the Decision's timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section "18.1. Evaluation Budget" in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation – Market Effects

The market transformation program's theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program's scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program "spillover" and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

Formative evaluation: The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program's direct outputs.

Program Performance Metrics: Please see Section 5, Table 3, above.

Market Transformation Indicators: Market transformation indicator results shall be reported, as available, by Energy Division or the IOUs, depending upon who conducts the necessary market studies. (Res. 4385, 12/2/10)

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold

et al., 2001) emphasizes that attribution of market effects to programs bears further research. Others (R&H, 2009; Keating & Pahl (MT Workshop) suggest that declaring the program's strategic intent through the market transformation initiative's theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a "preponderance of evidence" approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a "Shared Mission" of meeting the CPUC's very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

In lieu of the above results and recommendations, the RNC sub program will carry forward the PPMs and MTIs that were in place during the 2010-2012 cycle.

3. Program Design to Overcome Barriers:

Priority Barrier: Building Industry

Effective ~~July~~ January 1, 2009/2014, California's Title 24 standards will be revised and updated. Overall, residential Residential baseline energy performance requirements for heating, cooling, and hot water will be increased by approximately ~~15~~ 25 to 30 percent, which implies marked increase in production costs for builders at a time when the industry and the economy at large are experiencing significant challenges.

Priority Barrier: Homebuyers

The energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile. In fact, 16 percent% of U.S. greenhouse gas emissions result from the generation of energy used in houses nationwide (U.S. EPA). However, there is little consumer awareness of the impact ~~their~~ that homes have on the environment. CAHP is working with IOU marketing efforts, statewide partners (e.g. Flex Your Power), ENERGY STAR® campaigns, and builder'builders' own messaging to increase consumer awareness of this idea. Moreover, there is scant evidence that energy efficiency drives decision-making among homebuyers, whose access to capital is more difficult in a constrained capital market.

Manufactured Housing: Overcoming Market Failure: CAHP

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In a potential buyer's market, builders are looking to differentiate themselves from competition. This presents an opportunity

The current decline for CAHP to assist builders in the housing industry, the high overcoming cost of residential housing barriers, minimizing lost opportunities, and increasing customer awareness of energy efficiency all make this a good time to address this underserved market segment. The manufactured housing industry is somewhat counter cyclical to the site built home market. As buyers are priced out of site built homes, manufactured housing has become an affordable alternative.

Historically, manufactured housing has been considered a lost opportunity. However, as SCE found in the 2006-08 IDEEA program, there is significant interest among manufacturers in promoting the ENERGY STAR brand. Manufacturers recognize that ENERGY STAR manufactured homes address both the high cost of purchasing a traditional new home and the high cost of energy bills. However, without IOU intervention in the market, retailers are not pushing ENERGY STAR homes and there is not enough demand for manufacturers working collaboratively to justify building them.

Overcoming Market Failure: CAHP

In a buyer's market, builders are looking to differentiate themselves from competition. This presents a opportunity for CAHP to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state's and Investor-owned Utilities' IOUs' goals for the reduction of green house greenhouse gas emissions and utility source demand.

The residential new construction Residential New Construction market without IOU intervention is a lost opportunity for long term energy savings. However, with IOU intervention in the form of incentives and design support, the new construction market is well placed to demonstrate innovative approaches and cost effective energy savings technologies.

Overcoming Market Failure: Manufactured Housing

The program provides an incentive to manufactured home retailers when they sell a manufactured home that meets or exceeds the current ENERGY STAR standards. These standards extend to the ducting and installation guidelines for heating/cooling equipment, water heating technologies, water saving devices, and home appliances. Customers may also receive incentives for purchasing an ENERGY STAR manufactured home. The incentives may be paid directly to the customer after successful construction, assembly, and inspection of the home site.

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Manufactured homes have a higher potential for market transformation than the site-built industry, due to factory standardization, and the fact that eight manufacturers control 98%⁸⁷ of the manufactured housing market

Current Program Baseline: Manufactured Housing:

The construction of manufactured homes that meet ENERGY STAR program standards, as opposed to the less stringent HUD standards, will result in demand reduction, energy savings, and the reduction of greenhouse gas emissions.

The energy savings will result from a combination of improved envelope efficiency (thermal and air tightness), use of high efficiency equipment, and the proper sizing (downsizing) of the cooling equipment. Production of every ENERGY STAR manufactured home built in each IOU territory will be tracked and reported.

Participating ENERGY STAR qualified manufactured homes will generate energy savings and demand reduction. In addition to leveraging retailers of manufactured homes, the program will leverage the partnership program to reach out to local governments where the homes will be built.

This program is a statewide program among all the IOUs. In doing so, the joint program has the potential to provide better service to the builder at reduced cost.

4. Quantitative Program Targets:

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5 (Goals and # of Homes are specific to each IOU)

<u>Program Name</u>	<u>Program Target by 2010</u>	<u>Program Target by 2011</u>	<u>Program Target by 2012</u>

⁸⁷ "Synopsis of manufacturer market share and status", Manufactured Research Association, communication, October 2007

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	<u>TBD</u>		

* To be determined by IOU's after acceptance of program

<u>b) California Advanced Homes</u>	<u>e) Program Target 2013</u>	<u>d) Program Target 2014</u>	<u>e) Total</u>
<u>f) Single Family Units Paid</u>	<u>g) TBD</u>	<u>h) TBD</u>	<u>i) —</u>
<u>j) Multi family Units Paid</u>	<u>k) TBD</u>	<u>l) TBD</u>	<u>m) —</u>

n) —

5. Advancing Strategic Plan goals and objectives:

Since its inception in 2002, CAHP has had a substantial impact on the homebuilding market. There is a significant opportunity to continue to influence builders, architects and other players in the residential new construction Residential New Construction industry.

The New Construction Program is designed to enable the achievement of several goals and strategies identified in the CEESP Strategic Plan. The Strategic Plan envisions a transformation of the core residential Residential sector to ultra-high levels of energy efficiency, resulting in Zero Net Energy (ZNE) new construction standards by 2020. It spells out several goals and strategies to address energy reduction in residential new construction Residential New Construction.

Goal #1: New Construction will deliver “zero net energy” (ZNE) performance for all new single and multi family homes by 2020.

2. By 2011, 50% of New Homes will exceed 2008/2005 Title 24 energy efficiency standards by 2035%; 10% will surpass 2008/2005 Title 24 standards by 40/55% (Strategy 1.1, as modified by Decision 09-09-047)

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~~3.Goal #2: Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities~~

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~~4.Goal #3: Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy-efficient products.~~

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~~The goal of energy-efficient Residential New Construction will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of CEESPthe Strategic Plan, and works in close coordination with the Zero Net Energy HomesZNE sub-element. Together these elementsprograms seek to raise plug load efficiency, focus on whole house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the New Solar Homes Partnership. In fully aligning itself with the CEESP, as modified by Decision 09-09-047, the CAHP targets an interim goal of 50 percent of RNC to be 20% better than the 2008 Title 24 Standards by 2011, and 10% of RNC to be 40% better than the 2008 Title 24 Standards by 2011, and a final goal of 100 percent of residential new construction to be net zero by 2020.NSHP.~~

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~~The ZNEH Sub ProgramZNE program element is designed primarily with the focus of accelerating the achievement of the ZNE goals envisioned by the Strategic Plan. The purpose of ZNEH Case Studiessthe ZNE element is to examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Each being distinctive, the case studies will be positioned to highlight the underutilized potential of sustainability in residential new constructionResidential New Construction, in a range of market segments and climate zones. The utilities will seek to integrate R&D ideas from Emerging Technologies, PIEREPIC, LBNL and other agencies to further assist the projects in advancing sustainability and achieving very high levels of energy efficiency.~~

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~~The minimum threshold for acceptance in the ZNEH Case Study program will be a whole building performance of at least 45% over Title 24 standards. Projects must meet LEED for Homes (Silver) equivalent and/or qualify for a minimum of 100 points from Build It Green's Green Point Rated system.~~

~~Financial incentives and marketing support offered for the case studyZNE projects will be significantly higher than those offered under the standard CAHP model. By providing strong encouragement for builders to move up on the energy efficiency scale with financial and non-financial incentives, the ZNEH Sub ProgramZNE program element is uniquely positioned to support the CEESPStrategic Plan goal of Zero Net EnergyZNE by 2020.~~

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CAHP will work closely with builders who seek assistance in the development of sustainable design and construction, green building practices and emerging technologies through the Zero Net Energy Homes Program (ZNEH). The ZNEH Program ZNE program element. ZNE is the place to demonstrate innovative technologies and to help drive the market for energy efficiency through the adoption and marketing of green standards. Given consumer's interest in green, and the market's failure to drive energy efficiency sales, marketing the green features (one of which is EE) is the best way to increase consumer demand for more efficient homes. Moreover, the 15% threshold for participation aligns well with existing green building certification programs such as ConSol's California Green Builder and Build it Green's GreenPont Rated Programs IOUs have already initiated preliminary research on policies and programs supporting residential ZNE programs in other states for potential new and innovative program design approaches to increase homeowner demand and marketplace change, consulting with relevant experts in this area. This research reveals a lack of other utility programs serving this market. Rather, ZNE currently exists in a piecemeal fashion throughout the country without a consolidated approach. IOUs will continue research in this area and report more complete findings by April 1, 2013.

Program Implementation:

Statewide IOU Coordination: coordination

Given the success of the collaborative process that led to the production of this PIP, the statewide RNC team plans to meet on at least a quarterly basis going forward, in order to review progress toward the goals and make any corrections needneeded to help achieve them.

i. Program name: The single family and multi family program will be implementedName

*** Residential New Construction falling under Title 24 is covered by the common name of California Advanced HomeHomes Program. The zero peak pilots will be referred to as Zero Net Energy Homes, although the details differ somewhat by utility. Factory built housing will be referred to as covered by the ENERGY STAR@ Manufactured Homes Program, where offered.**

1. Program delivery mechanisms: Sempra and PG&E deliver the program primarily through in-house Account Executives with some outside technical support for specific analysis or niche markets (cf. PG&E, multi family). SDG&E leverages third party implementers and in-house account executives.

CAHP and ESMH are delivered via online program materials and dedicated account executives.

Differences in Program Implementation

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This section highlights the major areas where individual IOUs implementation of the program will differ from that of the others. While the incentive structure and other elements of the program will remain synchronized with the statewide nature of the program, each IOUs will leverage its unique strengths and structural differences to enhance the effectiveness of execution. This section highlights some of those differences.

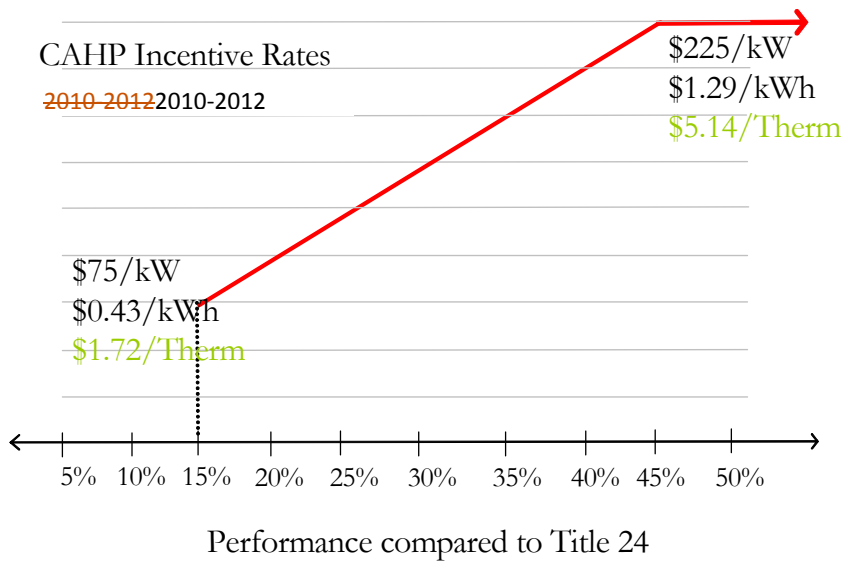
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2. Incentive levels

Incentive Structure

The pay for performance incentive structure for the 2013–2014 CAHP will continue to be refined as the state approached implementation of the 2013 Title 24 code changes (see CAHP Incentive Rationale section above for additional detail).

The 2013–2014 calculated approach will be similar to the method used from 2010–2012:



This approach rewards builders for achieving higher levels of energy efficiency and avoids the “clustering” problem in tiered programs. A tiered approach discourages builders from achieving incremental performance if they are unable to reach the next higher tier. In line with the elements of the strategic plan, the approach rewards builders for undertaking whole house solutions where the entire structure can be considered as an integrated system.

Moreover, executing a net zero home remains a financial and technical challenge, the program will have customized incentives for homes that achieve ZNE.

Confidence that incentives will move the market

The statewide team has a high degree of confidence that the revised program design is sufficient to realize substantial market movement. As discussed above, incentives alone are not enough to move the market. While more dollars are always preferred by any target industry, it has been the experience of the Southern California utilities that while incentives get one to the table with decision makers, it is the design, technical, and marketing support that makes the sale.

It is the belief of the IOUs that the proposed combination of performance-based incentives, increased incentives for targeted ZNE, marketing support, sales agent training, technical support, coordinated delivery through trade allies and ongoing cultivation of builder relationships provide an integrated solution to the priority market barriers builders face in delivering more efficient homes. —

The IOUs support adjusting program incentive levels in conjunction with the more stringent Title 24 code taking effect in 2014. More efficient incentives will be critical in helping builders defray additional compliance costs associated with the stronger code. However, the IOUs believe there is a need to explore the deadline for incentive adjustments. A date after March 2013 may be appropriate for a number of reasons, including:

- Changing incentive levels *before* the new code takes effect may provide an added incentive for builders to rush to beat the code. Ideally, the incentive adjustments would be timed to coincide with the implementation of the new code so as to incentivize building under a more stringent Title 24. A fast turnaround would prevent the IOUs from determining the ideal incentive structure. Given uncertainty about the market’s response to the unprecedented

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updates to Title 24, extra care should be taken in calibrating incentive levels to their optimal value.

The IOUs will comply with the March 1, 2013 deadline for adjusting incentive levels, but propose January 1, 2014 as a preferred date.

How CAHP program supports CEC's NSHP, Tier II

CAHP supports the revised NSHP Tier II (30% < T24 2008) and the goals of the CEC.

1. The IOUs are committed to partnering with the NSHP to streamline the solar application process and to make referrals between NSHP and CAHP. Indeed, the goals of ZNE appear impossible without the significant presence of solar.
2. The IOUs will leverage CEC NSHP material, marketing, and event support for opening events for those projects that commit to the platinum level: 100% penetration at the Tier II EE performance (30%).
3. The design of the graduated, performance-based incentive will tend to drive projects to the higher end of the performance curve, consistent with CEC goals.
4. The threshold efficiency (15%) is consistent with the Tier I minimum, and the top end (45%) was selected to support the CEC's desire to project out three code cycles (Tier III) into the future.

The IOUs support the goals of the NSHP and the marketing synergies of PV and EE remain one of our best strategies for moving the market.

Incentive levels: The IOUs have agreed upon a common incentive methodology that will be implemented throughout the service territories. Nevertheless, the IOUs position is that if 30% < T24 is very good, 31% is better, and 32% more so.

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~~i. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms.~~

~~CAHP offers financial incentives, training opportunities, technical support, and marketing resources to single family and multi family residential builders who construct homes that exceed California's energy efficiency standards for new construction. All types of residential builders are welcome to participate.⁸⁸ For the multi family segment of the program, qualifying homes include condominiums, town homes, apartment buildings, and mixed use projects.~~

~~There will be closer coordination of marketing efforts to synergize wherever possible.~~

~~There will be closer coordination of marketing efforts to synergize wherever possible. While each utility would like to leverage on their strengths and existing relationships within their service territories, certain marketing elements can be launched on a common platform. A common web site will be created. While each utility would like to leverage on their strengths and existing relationships within their service territories, certain marketing elements can be launched on a common localized platform. The common website will be maintained to provide builder information that will be commonly disseminated. Training and education is an area where pooling of resources is possible to~~

~~To reduce costs and increase participation:~~

~~The, the IOUs plan to be actively engaged in the development and implementation of joint marketing, education and training efforts as described in detail in the common section of this PIP.~~

~~In 2010-2012-2013-2014, the program will expand its builder/contractor education and training certification courses to increase overall awareness and understanding of the California Advanced Home Program CAHP and service offerings. We The IOUs will continue to strengthen our delivery channels of information by providing relevant information and support materials, reaching target audiences in key decision making phases. The IOUs' innovative communication tools will include: trade advertising,~~

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⁸⁸ As discussed above, manufactured housing is not subject to Title 24 and uses the national HUD baseline.

~~account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internetInternet.~~

~~Additionally, CAHP will leverage its stellar relationships in partnering with trade organizations and other groups actively promoting the benefits of green, sustainable building practices. Such organizations include:~~

~~Additionally, CAHP will leverage its stellar relationships in partnering with trade organizations and other groups actively promoting the benefits of green, sustainable building practices. Such organizations include: CEC, FYP,~~

~~2. California Energy Commission (CEC)~~

~~3. National Association of Home Builders (NAHB)~~

~~4. California Building Industry Association (CBIA, BIASC, AIA,)~~

~~5. Green Building Consultants (that is, Build it Green, California Green Builder, Global Green)~~

~~6. National Association of Homebuilders~~

~~7. United States Green Building Council (USGBC)~~

~~8. ULI~~

~~9. LABC~~

~~10. California Manufactured Housing Institute, Build It Green,~~

~~11. IES~~

~~12. AEE~~

~~13. IHACHI~~

~~14. PHCC, and others.~~

~~15. Others~~

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~~Through an innovative, coordinated approach, we will maximize outreach opportunities which that keep energy efficiency and CAHP's program benefits top of mind and maximize program participation.~~

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~~Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.~~

~~CAHP marketing efforts will be enhanced by leveraging IOU market studies and builder focus groups identifying consumers' decision triggers and the effect of GHG labeling on purchase decisions. Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. CAHP marketing efforts will be enhanced by leveraging IOU market studies and builder focus groups identifying consumers' decision triggers and the effect of GHG labeling on purchase decisions. The IOUs will pursue additional sources of research to determine the most cost effective ways builders can meet program requirements; the results will be incorporated into marketing materials and/or communicated to builders as part of the design assistance recommendations. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.~~

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~~Given consumers' interest in going green and the market's deficiency in driving energy efficiency sales, marketing the green features (one of which is EE) is the best way to increase consumer demand for more efficient homes. Given consumers' interest in going green and the market's deficiency in driving energy efficiency sales, marketing the green features (one of which is EE) is the best way to increase consumer demand for more efficient homes. To that end, CAHP will help educate the industry on how to achieve energy efficient, green homes. To increase participation in programs and the general understanding of sustainability, greater emphasis will be placed on education and outreach.~~

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~~The precipitous decline in the building industry offers a great opportunity to improve education and training. To increase participation in programs and the general understanding of sustainability, greater emphasis will be placed on education and outreach.~~

The precipitous decline in the building industry offers a great opportunity to improve education and training. Through their Education & Training programs offered at ERC, CTAC, and PECSCG's Energy Resource Center, SDG&E's Energy Innovation Center, SCE's Energy Education Center, and PG&E's Pacific Energy Center, the statewide new construction team will work to expand the course offerings, web cast seminars, and cost-benefit effectiveness training classes, thermal by-pass checklists compliance training, cost comparison of alternative measures, etc. In order to meet or exceed increased energy savings goals in an extremely difficult residential construction market, the IOUs will utilize a broad range of marketing tactics and communications tools working in concert to expand program awareness and participation.

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The IOUs will diligently explore other means of encouraging builder participation in the CAHP program.

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- Developing a list of resources and contractors that could be used by builders
- Developing a list of resources and contractors that could be used by builders
- Information Providing information on comparative costs and energy savings of alternative measures
- Exploring financing arrangements (green mortgages, energy efficient mortgages, etc.), in consultation with the other IOUs and financial institutions
- Expedited permitting for high efficiency buildings
- Working with Municipalities to develop educational channels for codes and standards.

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- IOU program interactions
- Expedited permitting for high efficiency buildings
- Working with Municipalities to develop educational channels for codes and standards.

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IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

3)

The plan addresses above, in the CAHP Incentive Rationale section, the ways CAHP is responding to current code changes and how it anticipates a leading role in code toward modifications requiring demand performance, in-home displays, on-site generation, square footage reductions, and green elements.

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CAHP is particularly interested in promoting integrated thermal hot water system designs to displace therm demand with on-site renewable sources. In addition to cold water savings from embedded energy and the energy to heat water, longer term there may be GHG reductions that accrue either to the builder, the homeowner, or the utility associated with each demand side reduction as a result of AB 32 and pending national CO₂ legislation.

CAHP prides itself on its established close relationships and memberships with other groups involved with the building industry. These relationships make it possible to provide comprehensive services to our customers. Thus, CAHP will continue to seek out and coordinate synergies with, but not limited to, the following groups:

- ~~California Energy Commission (CEC)~~
 - ~~— New Solar Homes Partnership (NSHP)~~
 - ~~— Environmental Protection Agency (EPA)~~
 - ~~— California IOUs~~
- ~~Flex Your Power (FYP)~~

- ~~National Association of Home Builders (NAHB)~~
 - ~~b. California Building Industry Association (CBIA)~~
 - ~~e. Green Building Consultants (i.e.g., Build it Green, California Green Builder, Global Green)~~
 - ~~d. National Association of Homebuilders (NAHBBIASC)~~
 - ~~— Rater Organizations (e.g. ResNet, CalCerts, CHEERS)~~

- ~~e. United States Green Building Council (USGBC)~~
- ~~f. Urban Land Institute (ULI)~~
- ~~g. Los Angeles Business Council (LABC)~~
- ~~h. California Manufactured Housing Institute~~
- ~~i. Illuminating Engineering Society (IES)~~
- ~~j. Association of Energy Engineers (AEE)~~
- ~~k. Institute of Heating and Air Conditioning Industries (IHACHI)~~
- ~~l. Plumbing Heating Cooling Contractors Association (PHCC)~~

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~~The California Building Industry Association (CBIA) and the California Energy Commission (CEC) continue to seek out partnerships and opportunities with the utilities to help educate builders and other industry participants in order to promote energy efficiency in new construction.~~

~~Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR New Homes and has won ENERGY STAR Achievement awards for the last five consecutive years.~~

~~CAHP will continue its commitment to the Environmental Protection Agency's (EPA) EPA's ENERGY STAR® program and will strive to support, partner and contribute to the success of the ENERGY STAR® Homes label and branding. Numerous surveys and studies continue to show the ENERGY STAR® label represents greater value to consumers and the environmental stewardship it represents.~~

~~Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR® New Homes and has won ENERGY STAR® Achievement awards for the last five consecutive years. In 2011 SCE was rewarded for "Sustained Excellence in Energy Efficiency Program Delivery."~~

~~The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency and green measures into new construction projects including Title 24 code training and ENERGY STAR® requirements.~~

~~In response to builder requests, CAHP will offer a new training workshop for~~

~~2010–12/2013 designed for builders' sales agents. Sales agents have direct contact with the homebuyer and have the greatest impact on selling homes. In order to help promote ENERGY STAR® developments, CAHP will teach sales agents about energy efficiency. Topics will include what qualifies as an ENERGY STAR® home and what is 'green'.~~

~~Other CAHP activities will include attendance at building industry trade conferences, outreach events and any necessary contractor/builder field visits. The target audience~~

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consists of builders, developers, energy consultants, architects, and other industry professionals.

Finally, SDG&E is pursuing Each IOU may pursue partnership efforts with local government entities who are looking to display leadership in the carbon arena by expediting plan check, waiving permit fees, or allowing builders to pay impact fees on the back end (instead of up front) in exchange for higher levels of home performance documented by our CAHP program.

ii.—

1. Similar IOU and POU programs

The statewide CAHP team will reach out to leading POU programs, such as those at SMUD to learn from their experience how best to deliver energy efficient homes.

In addition, the IOUs will work closely with the existing home remodeling programs (Home Performance with Energy Star ENERGY STAR® and the Comprehensive Mobile Home Program) to maintain a two way communication of best practices and lessons learned between the new and existing sectors.

o — b. Program delivery and coordination:

▪ Emerging Technologies (ET) program

Emerging technologies will chiefly be handled within the ZNEH program ZNE sub element of CAHP. The IOUs are looking to partner with our ET and PIEREPIC funded Testing Facilities to pilot zero net energy approaches. SCE is looking toward the construction of a demonstration home at its CTAC facility. However, the proposed incentive approach allows the IOUs the flexibility to include both deemed and calculated energy savings from new technologies as they become market ready.

The utilities will seek to integrate R&D ideas from Emerging Technologies, PIEREPIC, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

▪ Codes and Standards program Codes and Standards program

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See ~~C&S~~the Codes and Standards PIP for more information. ~~C&S~~ Codes and Standards is looking to draft pre-approved “drop-in” legislation that can be used by local municipalities looking to create reach codes. Such activities would all be eligible for utility incentives since IOUs are playing such a critical role in drafting the language.

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■ ~~WE&T efforts~~

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The RNC team is seeking ongoing support from the three energy and training centers for classes relevant to the building industry and training the next generation of trade allies, builders, contractors, and the like.

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Specific workforce development efforts supporting Residential New Construction include training on topics including, but not limited to:

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- ~~Energy Pro~~

- ~~Title 24~~

- ~~Micropas~~

SDG&E will explore voluntary incentive-based approaches to encourage contractors and other industry professionals to complete the full bundle of Residential New Construction workforce development training. For professionals who complete the pre-requisite courses and pass a high road skill standards test, such approaches may include (as applicable):

1. ~~Allowing marketing or advertising differentiation;~~
2. ~~An incentive bonus; and/or~~
3. ~~Providing preference to these professionals during bid evaluation process.~~

Residential New Construction workforce development training will be coordinated with the statewide IOU WE&T program. In addition to the trainings described above, SW IOU WE&T programs will continue to offer building block courses that educate professionals

on the concepts that form the foundation of Residential New Construction programs. Those concepts include:

4. Green building techniques;
5. Codes and standards);
6. Lighting and HVAC technologies;
7. Energy cost management; and
8. Food service equipment.

Contractor recruitment efforts will be conducted primarily by SW WE&T program implementers through:

9. The network of contractors already participating in Residential EE programs;
10. Direct outreach through industry organizations with locally active memberships (e.g. IHACI, USGBC, IFMA, AIA, BOMA, etc.);
11. Workforce development departments (to target unemployed general contractors); and
12. Community Based Organizations with a proven track record of effective outreach to the hard to reach workforce.

▪ Program specific marketing and outreach efforts

TBD

i. In 2013-2014, the program will expand its builder/contractor education and training materials to increase awareness of the California Advanced Home Program and better communicate the advantages to builders of

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~~participation. The IOUs will continue to strengthen delivery channels through improved information and support materials. The IOUs' communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internet.~~

~~ii.~~

~~▪ Non energy activities of program~~

~~Where applicable, the ZNEH sub-ZNE program element will seek to identify new types of water~~

~~savings technologies opportunities; CAHP will leverage local water agency incentives in the core CAHP to save cold and hot water.~~

~~▪ Non IOU Programsprograms~~

~~See item v. above on water agency partnering efforts. There may also be~~

~~opportunities to partner with local AQMDs and County Integrated Waste~~

~~Management Boards to encourage material recycling in ZENHZNE and green programs.~~

~~—CEC work on PIER~~

~~See note on Emerging Technology above.~~

~~▪ CEC work on codes and standards~~

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~~The IOUs will continue to support code development work with the CEC and to test candidate technologies in the new construction programs.~~

~~▪ Non-utility market initiatives~~

~~The homebuilding industry is facing some of the worst times in its history.⁸⁹⁹⁰ In fact, new residentialResidential single family housing permits have declined by 37.1 percent% relative~~

~~from 2006 and multi-family permits have declined by 21.2 percent.⁹¹⁹² As a result, builders are building fewer homes and releasing them more slowly to the market.~~

~~The significant costs associated with carrying inventory coupled with declining prices of houses has created additional resistance in a building industry already averse to additional construction costs. In addition, the industry is consolidating operations and eliminating staff to reduce overhead costs and avoid bankruptcy.~~

~~The industry faces the burden of stringent California Title 24 building code standards.~~

~~The CEC will institute a new code in 2009 and 2011, and on a three year schedule thereafter. Each code is approximately 15% more stringent than the last, increasing costs and requiring additional efforts on the part of the builder. In California, homes built to current Title 24 standards are 35 percent% more energy efficient⁹³ than homes built to the federal government's standards. In addition, reducing greenhouse gas emissions will become mandatory, due to the adoption of AB 32 (Global Warming Solutions Act). Builders confirm that growing consumer awareness of "green" concerns will lead to greater demand for these advanced homes and builders will~~

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⁸⁹ Alan N. Nevin, CBIA Chief Economist and Principal, Market Pointe Realty Advisors, California Builder Magazine, January/February 2008

⁹⁰ Alan N. Nevin, CBIA Chief Economist and Principal, Market Pointe Realty Advisors, California Builder Magazine, January/February 2008

⁹¹ California Industry Research Board (CIRB) Report, January 24, 2008

⁹² California Industry Research Board (CIRB) Report, January 24, 2008

⁹³ Ray Becker, Chairman, CBIA, Southern California Builder Magazine, Vol. 25. CAHP's internal research has shown typical 2005 T24 performance is 20% above IECC 2006.

~~-adapt to meet these demands at the least possible cost.~~

~~Population growth drives the economy and “California’s population is expected to keep growing by 500,000 a year for the next three decades. That means California needs between 220,000 and 240,000 new homes and apartments every year to keep pace with the state’s population growth.”⁹⁴ The year 2007 saw only 112,000 new units permitted. The 2008 forecast is for only 87,000.~~

~~As alluded to above, buyers are increasingly asking for green and energy efficiency and would pay more (up to \$11,000) for such features.⁹⁵ For the first time, a majority of respondents in the National Association of Home Builders’ survey are asking for efficiency first, likely in response to rising energy prices economy wide.~~

~~Paradoxically, a A majority of the same respondents also requested higher ceilings, more square footage, and were willing to trade a larger home for a longer commute, reflecting a soft commitment to green.~~

Transmission & Distribution

~~CAHP staff has been working with our counterparts in the Transmission & Distribution business unit that designs electrical service for new construction projects.~~

- ~~● CAHP will pay the standard calculated incentives for all other measures in low-income units (e.g. improved duct work and windows). CAHP will claim the energy savings resulting from EE measures other than high SEER A/C and refrigerators.~~
- ~~● CAHP would treat market rate units using the standard calculated approach and claim all energy savings.~~

⁹⁴ Wes Keusder, Former Chairman, CBIA, Southern California Builder Magazine Vol. 24

⁹⁵ Jan Dimeo, Builder, <http://www.builderonline.com/business/surveys/reveal-home-buyer-wishes-for-energy-efficiency-and-beyond.aspx>. Accessed 14 Mar 08

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This collaboration will:

- Encourage the development of more below market rate low income units by developers;
- Increase participate in the RNC sub program based on the combined higher incentives; and
- Benefit low income occupants over the life of the installed equipment.

The partnerships program will assist in gathering information to ensure that the units actually are occupied by low income qualified customers. Differences in Program Implementation

This section highlights the major areas where individual IOUs implementation of the program will differ from that of the others. While the incentive structure and other elements of the program will remain synchronized with the statewide nature of the program, each IOUs will leverage its unique strengths and structural differences to enhance the effectiveness of execution. This section highlights some of those differences:

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~~Local governments typically track this information in order to show compliance with state mandates.~~

The program will be implemented by direct contact with the market actors: builders, architects, civil and mechanical engineers, energy analysts, home energy rating system (HERS) providers, HERS raters and other participants. Through design assistance and coordination with the builders and their consultants and contractors, projects will be evaluated for optimal approaches to increase energy savings and demonstrate green building concepts.

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The program will target the residential Residential design and construction teams, architects, energy analysts, HERS raters, trade contractors, and builders. The target segment is low rise and high rise residential new construction Residential New Construction with participation being open to all residential new construction Residential New Construction including custom homes, single family production housing, condominiums, town homes and rental apartments.

Builders may qualify to participate under one of the two subprogram sub-program categories: California Advanced Homes Program (CAHP) or the Zero Net Energy Home (ZNEH). As explained in detail in the common section of this PIP, through ZNE. Through financial incentives, design assistance, education and training, the IOUs will aggressively support high performance single family and multifamily building designs that exceed Title 24 standards in an overall performance design of 15% or greater. Energy savings and incentives will be based upon a sliding scale from 15% to 45% reduction in energy usage from Title 24 budget. Program focus

will be on increasing the participation to a 35% threshold. The sliding scale incentive structure was discussed in detail under the common section of this PIP.30% threshold.

○ Best Practices

The Sempra Energy Utilities and PG&E deliver the California Advanced Home Program in their service territories through a team of experienced account executives. Project qualification will be conducted through internal project review by program management staff, or if necessary, using external consultants.

SDG&E Residential New Construction program management teams have extensive experience in designing and implementing successful offerings to the industry as demonstrated by the 2002-2005 California ENERGY STAR® New Homes programs and the 2006-2008 Advanced Home program. Recognized as an outstanding energy efficiency resource, this team has the ability to successfully work closely with other local, regional, statewide and national stakeholders to ensure the widest opportunities for potential program participants.

SDG&E will deliver the ZNEH sub program through the same account executive and program management staff as the CAHP. Through case studies and demonstration projects, the utilities will examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Participating builders will be encouraged to integrate environmentalism, economics, and social equity, while integrating landscape into the built environment for human interaction. Each being distinctive, these case studies will be positioned to highlight the underutilized potential of sustainability in residential new construction. The utilities will seek to integrate R&D ideas from Emerging Technologies, PIER, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

Design assistance for interested builders will be offered through various mechanisms. Design Team Charrettes that will include the architect, energy analyst, civil and mechanical engineers, HVAC contractors and the builder will allow a review of the product and recommendations that will increase the sustainability and energy efficiency of the product. Education and training will be offered through utility training programs (offered frequently at the ERC) that have been extremely successful in the past. SDG&E also intends to offer a structured Design Team Incentive to encourage architects and design engineers to enhance building performance through innovative approaches. Details of the Design Team Incentive are currently under development, and may range from \$250 to \$2000 depending on the number of residences in a project.

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In recognition of the increased societal movement towards sustainability, and in line with the other IOUs, SDG&E will offer additional financial incentives beyond direct Therm incentives to projects that achieve a green building certification, perform building commissioning during design and construction, and establish and follow a building measurement and verification plan after occupancy. The USGBC LEED program, Build It Green's GreenPoint Rated program, and California Green Builder represent just a few of the rating systems that will be considered for the incentive. Many credits are available in LEED-H for energy efficiency, especially the incorporation of renewable energy. Renewable energy is a significant component to the state's goals of achieving zero net energy in the new construction market by 2020. Building commissioning incentives ensure that the as designed building becomes the as built building.

The minimum threshold for acceptance in the ZNEH sub program will be a whole building performance of at least 45% over Title 24 standards. Projects must meet LEED for Homes (Silver) equivalent and/or qualify for a minimum of 100 points from Build It Green's Green Point Rated system. Energy savings will be evaluated based on the diversity of measures and the overall energy performance. The life cycle CO2 reductions and water savings will be tracked. A broad based support, including outside expertise, education, resources, public recognition, marketing support, design and financial assistance will be offered to qualified builders. The program will explore and encourage the incorporation of innovative measures, such as: Passive Solar, Active Solar (solar water heating), Photovoltaics, Sustainable Urbanism, Smart Growth, Innovative Environmentally Sensitive Building Design, Ecological Design, Innovative Thermal Comfort Solutions, Day Lighting, Carbon Sequestration, Water Recovery and Zero Peak Design. Financial incentives and marketing support offered for the Case Study projects will be significantly higher than those offered under CAHP. However, due to the "show case quality requirements", the number of projects enlisted for case studies is likely to be limited to no more than ten per year per utility.

In addition, the following two new construction programs will be supported through Third Party participation (see separate PIP on Third Party programs):

California Sustainability Alliance. Managed by Navigant Consulting, Inc.

Innovative cross cutting market transformation, marketing and outreach programs that targets comprehensive sustainability. The program includes energy efficiency, water efficiency, renewable energy, waste management, transportation management, smart

growth/land use best practices, and climate action delivered in a single program under the broad umbrella of sustainability. The program will seek to inform the utility as to potential opportunities for future program design that may be available.

HERS Rater Training Advancement Program. Managed by Conservation Services Group.

This program targets training to certified new construction Home Energy Rating System (HERS) raters and Energy Analysts to improve the consistency of ratings and expand the reach of existing programs. Program team members CalCERTS and CHEERS have direct contact with raters, allowing for reduced marketing costs and improved penetration. Conservation Services Group will utilize classroom training and an on line learning management system (LMS), which includes an assessment test and customizable learning units.

e. Best practices

The residential new construction team will gather gathered information and past experience in successful low energy and zero net energyZNE existing projects to evaluate best practices. Thus far the research shows that while ZNE practices exist in piecemeal fashion throughout the state and nation, there are no other utility incentive programs targeting ZNE. RNC will continue to conduct further research and will disseminate its finding by April of 2013 in accordance with the program guidance. This information will be used to develop pilot projects that will demonstrate low energy homes and include home performance monitoring.

Several recommendations were made in the Cadmus Report that evaluated the communication plans, program elements, and services offered by IOUs residential new construction programs. These recommendations have been carefully studied and incorporated into the CAHP program design.

Program Components:

- Institute more continuity in program offerings: The program name, incentive structure and several elements of execution will be developed on a statewide basis, ensuring consistency across all the utilities and continuation into the future.
- Leverage ENERGY STAR AND LEED: The CAHP incentive mechanism incorporates a Performance Bonus element for ENERGY STAR.
- SDG&E has made LEED certification as one of the requirements for participation in the ZNEH sub program.

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- Continue to offer prescriptive options: The CAHP incentive mechanism is based on a sliding scale; however, the Performance Bonus element emphasizes prescriptive elements that are not included in the Title 24 base.
- Enhance demonstration / case study component: The case study component is an integral and crucial element of the ZNEH sub program. The IOUs will strive to show case these homes as reaching far beyond the minimum energy efficiency requirements and serving as the “model homes of the future”.

Processes:

- i. — Improve marketing materials and improve participant recognition: As explained in the Marketing, Education and Outreach section of this PIP, marketing materials and other collaterals will continue to be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.
 - In 2008, SDG&E redesigned RNC has undergone substantial marketing collaterals to be more informative material revisions and professional in appearance.
- — Enhance AE’s role in recruiting and marketing: Working closely with the project management teams, they would enhance their role in identifying and developing the ZNEH case study homes. Joint presentations with home builders will improve builder understanding of the purpose and expectations for the case studies; continue to do so.
 - The SDG&E teams now consist of seasoned account executives and are effective.

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Program Services: Incentives

- In accord with Cadmus recommendations, the CAHP incentives have been fully revamped to be more meaningful and effective for the builders as well as the utilities. Additional incentives under consideration include a Design Team Incentive, more flexible incentives for ZNEH case study projects, and other financial support enumerated earlier are all designed to enhance builder participation in the program and deliberate movement towards the upper end of the energy efficiency scale.

Program Services: Training

- — Taking advantage of the slow down slowdown in the industry, the utilities intend to ramp up the training for builders and other industry participants. Training is an area where significant synergies can be extracted and the IOUs will participate in developing and implementing common training modules and web based training tools. Training will focus particularly on cost / benefit evaluation of energy efficiency improvements and thermal bypass checklist compliance.

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Program Services: Information, Communication and resources

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- ~~A web-based incentive calculation tool is currently being~~will be evaluated by the IOUs. This tool is intended to assist builders in comparing costs and energy savings of alternative measures and arriving at the most optimal approach for the builder.

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~~A suggestion was made to create a hotline for builder questions. Since the IOUs deliver CAHP through a team of account executives/field staff who serve as the focal points of contact for the builders, the utilities do not feel it is necessary to provide hot lines for builders to reach. If this becomes a necessity, the utilities will reevaluate the need and provide communication points as appropriate.~~

- Currently, the technical staff provides preliminary evaluation, engineering review and recommendations for builders to move up on the efficiency scale. It is expected that builders will utilize the services of qualified Energy Analysts and designers in arriving at the final set of measures that should be included. The Design Team Incentive under consideration by the utilities will enable the builders in utilizing the services of qualified engineers that will complement the engineering staff review. The program will continue to work closely with these companies to promote a continued improvement and commitment to integrated design.

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- The IOUs plan to implementwill explore the implementation of an enhanced set of communication tools that will serve to educate builders and enhance participation. As explained earlier, our communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns; all materials and communications will be made available in electronic file formats.

○ Innovation:

The sliding scale incentive calculations, ZNEH Case Study projects, and the IOU joint marketing efforts represent significant departure from past practices and reflect innovative approaches to new construction energy efficiency.

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The incentive design is based on a whole building performance. It appropriately rewards higher levels of building performance and is likely to motivate ~~builder~~them to move towards higher efficiency buildings. This approach offers the builder adequate flexibility to choose the optimal combination of design features. It also enables the utilities to work together and support new construction projects with fuel neutrality.

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By focusing on efficiencies beyond 35% better than Title 24 + 35%, and encouraging Zero Net Energy homes for showcasingZNE projects, the IOUs hope to generate sufficient enthusiasm in the market place for very high efficiency homes. ~~Wherever possible, the California utilities will continue to extract~~

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synergies in marketing and program design by developing a truly statewide program with common features and coordinated efforts.

o Integrated / coordinated Demand Side Management:

The ~~ZNEH case studies offer~~ZNE element offers a great opportunity for savvy builders to demonstrate their commitment towards a truly integrated approach to DSM options. ~~With design assistance and incentives from the utility, custom home builders are uniquely positioned to leverage the various tools available at their disposal. The program management teams will educate and strongly advocate these builders to serve as model designers and be recognized and rewarded in the builder community. Case study~~ZNE homes offer an excellent opportunity for builders to install not just energy saving measures, but also renewable energy, in home display, solar roofs, innovative water saving technologies and other state of the art appliances to demonstrate how sustainable design ~~could~~can be achieved.

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o Integration across resource types (energy, water, air quality, etc):

As discussed above, the program is looking to partner with relevant stakeholders to identify water, air quality, and waste diversion opportunities.

e) —

p) —

q) —

r) Pilots: Please describe any

s) During the course of the program cycle the IOUs may encounter the need to run pilot projectsprograms before an idea is introduced to the core program offerings. At that are time the utility will submit the plans for such pilots.

t) —

u) EM&V

v) Under development in consultation with EM&V team.

w) —

x) —

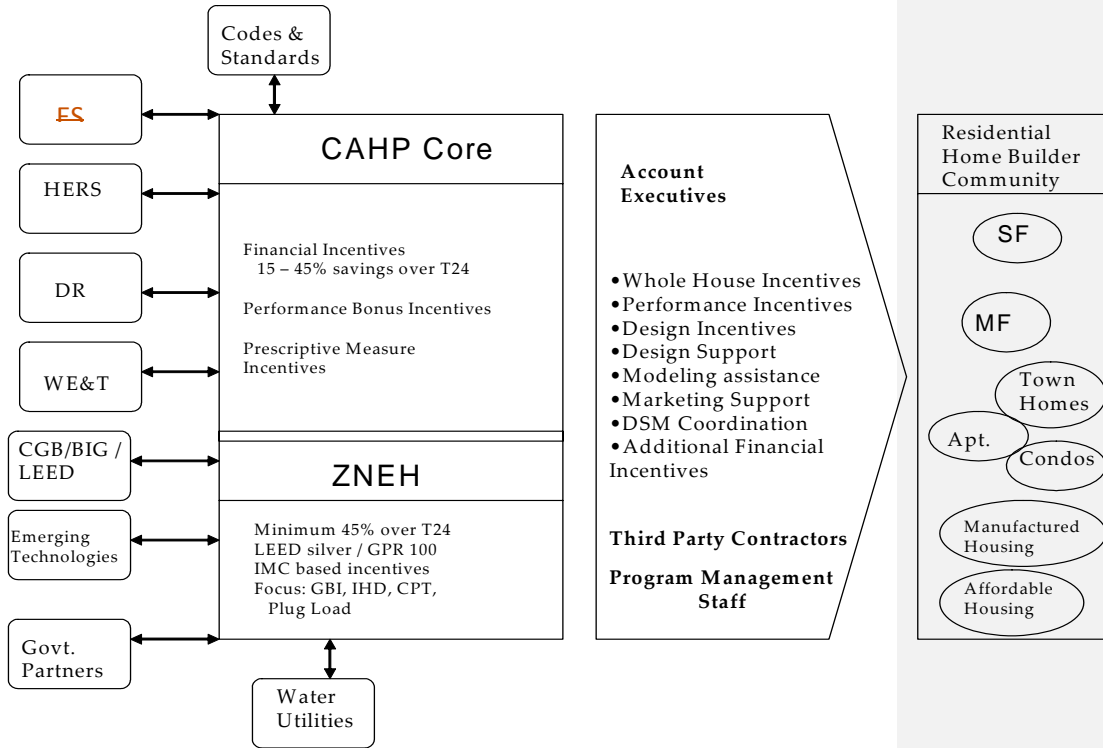
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y) **Diagram of Program**

z)

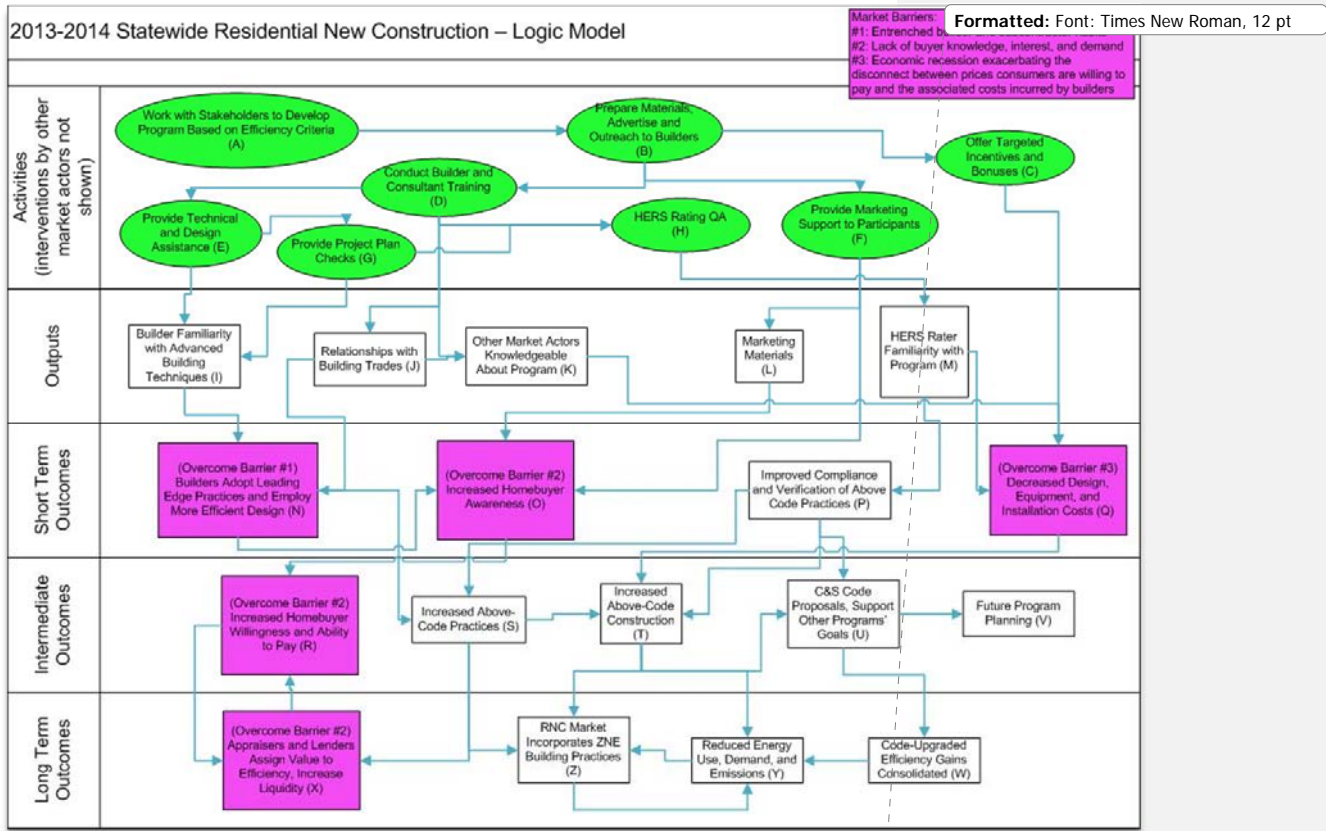


aa)

bb) Program Logic Model

cc) Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the CAHP and ZNE.

dd)



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~~ff)~~

~~gg) ESMH PIP~~

~~hh)~~

~~ii)~~

~~jj) 1. Program Name: ENERGY STAR® Manufactured Homes Program~~

~~kk) Program Type: Core~~

~~ll)~~

~~mm)~~

~~nn) 2. Projected Program Budget Table~~

~~oo) Table 1 See core program for budget details~~

~~pp)~~

~~qq)~~

~~rr) 3. Projected Program Gross Impacts Table~~

~~ss) Table 2 See core program for projected gross impacts detail.~~

~~tt)~~

~~uu)~~

~~vv) 4. Program Description~~

~~ww) Describe program~~

~~a. The ENERGY STAR® Manufactured Homes Program (ESMH) is part of this program the statewide Residential New Construction (RNC) program offering. The RNC program is itself one sixth of the CalSPREE core offering. ESMH addresses new factory built housing, offered by Sempra and Southern California Edison. The structure of the relevant New Construction program elements is as follows:~~

~~CalSPREE Program (Core)~~

~~Residential New Construction Sub Program~~

~~Single family/Multi-family Sub Program (CAHP)~~

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~~a. ZNE Sub Program~~

~~Manufactured Homes Sub Program for Sempra and SCE~~

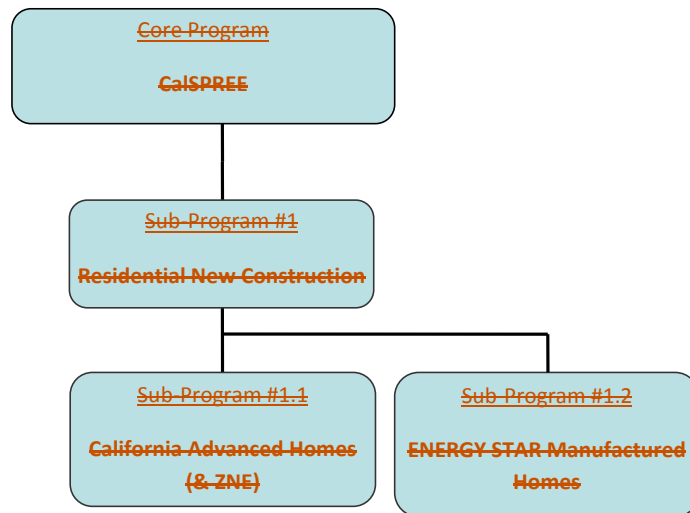
For the convenience of the reader, two other programs relevant to New Construction are also called out:

~~b) Sustainable Communities Program (Name / location differs by IOU) (Third party)~~

~~Covering Master planned communities, mixed use projects, campuses, and commercial projects pursuing advanced energy efficiency and green targets.~~

~~c) Partnership Programs (Core)~~

~~Strategic Planning Sub Program (Energy Leader Partnership Strategic Support) — Trains cities and counties to procure city projects to meet energy efficiency standards, to identify funding sources, to share best practices, and recognizes them for their achievements.~~



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The goal of energy efficient RNC will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the Strategic Plan, and works in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP.

As explored in greater detail below, CAHP will work closely together with the ZNE sub-element to adopt the following strategies toward achieving the Strategic Plan goals. As program technologies and approaches are developed and demonstrated in ZNE, they will be incorporated into the CAHP. The lead program is listed in parentheses after each strategy.

- 12. Raise plug load efficiency (ZNE)
- 13. Promote whole house solutions, with a particular focus on zero peak homes as an interim step toward zero net homes (CAHP)
- 14. Encourage in-home monitoring and visual display tools (ZNE)
- 15. Encourage incorporation of Green Building Standards (ZNE)
- 16. Coordinate CAHP with demand response programs (CAHP)

Specific strategies for achieving net zero homes will be reviewed in more detail below. Moreover, as outlined above, where strategies enter the market more rapidly than anticipated, they will be rolled into the core CAHP.

• List measures

- b) \$500 per gas heated home
- e) \$500 per electric heated home

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• **List non-incentive customer services**

- ~~Technical support to Energy Analysts and Design Teams⁹⁶~~
- ~~Economic modeling/measure selection support to builder/construction managers~~
- ~~Marketing support to builders (sales agent training, marketing materials)~~
- ~~DSM coordination (PV, DR, AMI, ET) for builders to maximize demand-side reductions.~~

ENERGY STAR® Manufactured Homes

~~In addition to the performance approach cited above, CAHP will retain a deemed prescriptive approach for the manufactured home market segment. Homes will have the flexibility to include the entire ENERGY STAR® package for manufactured housing or to incorporate elements within those standards, such as improved windows.~~

~~The ENERGY STAR® Manufactured Homes sub-program is designed to promote the construction of new manufactured homes in SCE's service territory that comply with ENERGY STAR® energy efficiency standards. The program targets manufacturers, retailers, and homebuyers of new manufactured homes. The current baseline for manufactured homes is the HUD standard specification. The program encourages manufacturers to install "right size" HVAC, install high efficiency HVAC equipment, and evaluate homes on a whole building basis covering windows, insulation levels, and quality installation inspections. The program works in coordination with the ZNE program element.~~

~~The program is a logical fit in Sempra and SCE's Residential New Construction portfolio of programs and will be another market segment within CAHP, alongside single family and multi-family dwellings. Likewise, the ZNE element will also look to leverage consumer interest in green building in promoting zero peak homes and market transformation.~~

~~The objectives of the program are:~~

⁹⁶ There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes for design teams.

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- ~~To capture cost effective energy savings and demand reduction opportunities~~
- ~~To move the industry toward coordinated demand side management (c-DSM), including self-generation and SCE's AMI (SmartConnect™)~~
- ~~To move the industry toward zero net energy as identified in the BBEES and advanced in the Strategic Plan~~
- ~~To move the market segment from HUD compliant to ENERGY STAR® and provide savings for customers purchasing energy efficient, manufactured homes~~

The program encourages manufacturers to:

- ~~Install "right size" HVAC equipment~~
- ~~Install high efficiency HVAC equipment~~
- ~~Evaluate homes on a whole building basis covering windows, insulation levels, and quality installation inspections~~

~~The program will also include an education and outreach component as a means to promote awareness of energy efficient practices in the construction of ENERGY STAR® manufactured homes. All segments related to the sale and construction of a manufactured home, including retailers, customers and manufacturers will be engaged. The marketing plan will also target new retailers to inform them of the program benefits and encourage their participation in the program.~~

~~Market actors include manufacturers, retailers and homebuyers. As the primary focus is on retailers, the program is considered a midstream program. Incentives are offered to help induce retailers to promote ENERGY STAR® qualified manufactured homes.~~

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Program Criterion	Incentive
Prescriptive elements, e.g. windows, add'l insulation	TBD, deemed rather than calculated per CZ
ENERGY STAR® Manufactured Home —Gas Heat	\$500/Home (total of prescriptive elements)

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Program Criterion	Incentive
ENERGY STAR® Manufactured Home —Electric Heat	\$500/Home (total of prescriptive elements)
Zero peak Home	\$75 for each peak kW reduction due to on-site photovoltaic system

Financial incentives will take the form of fixed rebates (deemed) or may be calculated on a project by project basis.

RNC will pursue zero peak homes as a reasonable milestone on the way to achieving the Strategic Plan's ZNE homes. The addition of a zero peak photovoltaic kicker is part of the effort toward achieving zero peak homes.

As part of the effort to address plug loads, ESMH is exploring such technologies as master plug shut-off switches (smart outlets that shut off when they detect only parasitic loads). Additionally, and as part of the integrated demand-side management (DSM) approach recommended by the Strategic Plan, ESMH will reward builders for installing demand response offerings such as PCTs and A/C Cycling controllers. CAHP will deliver demand response measures paid for by the demand response programs. CAHP intends to reward builders for these items based on a deemed amount rather than a performance-based incentive.

CAHP will work with their AMI metering infrastructure teams to test and develop in-home displays to both drive plug load usage down and give customers both financial and social reasons to conserve energy⁹⁷. In addition to financial savings, the rationale is that customers will gain social status and personal satisfaction by being the most conserving, much as Prius current owners compete to outperform each other and the EPA's expected miles per gallon.

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⁹⁷To the extent possible, CAHP intends to leverage AMI funding to incent IHDs in new construction projects. However, AMI has its own schedule and its own priorities for research projects. If DR/AMI is not ready for AMI integrated IHDs, the ZNE program through its demonstration projects, working in concert with ET, seeks to demonstrate simpler IHD technologies perhaps without the full capabilities of an AMI integrated device. As these technologies mature into the marketplace, the statewide IOUs will consider adopt them as additional measures into the core CAHP.

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Marketing efforts will target manufactured home retailers as well as customers.

• Desired program outcomes are:

•

- To achieve short and long term energy savings and demand reduction in the most cost effective manner possible.
- To increase the penetration of ENERGY STAR® manufactured homes within California, and to make ENERGY STAR® the customer's preferred choice.
- To transform the marketplace by promoting ENERGY STAR® qualified manufactured homes the new standard choice instead of homes that meet the existing HUD standards.
- To establish a strong working relationship with manufactured home retailers.

A finished project is defined as the completion and assembly of a manufactured home. The process of purchasing and installing an ENERGY STAR® qualified home can be lengthy, so projects need to be monitored closely throughout the program cycle.

The program will include a quality assurance plan with a field inspection component to verify that the manufactured home(s) meets ENERGY STAR® and program's requirements. The program will also have a mechanism to verify that the assembly of the home is in accordance with these standards. This will include ducting work and installation of end use equipment (for example, HVAC). Many ENERGY STAR® components are assembled on-site and the compliance must be verified once assembled.

Customer information will be captured once a project is complete to allow IOUs to integrate delivery of other program offerings to these customers as well as tracking any possible double dipping. Information on parties receiving incentives will be tracked and reported.

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5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

On December 2, 2010, the Commission issued Resolution E 4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Lighting Market Transformation Statewide Program (Resolution E 4385, Appendix A):

Table 3

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
Residential ENERGY STAR® Manufactured Housing	1. Number of manufactured housing units sold in IOU service territories (via retailers and/or manufacturers) participating in program	2a
	2. Number and percentage of participating projects utilizing: (a) whole house incentive for gas heat; (b) whole house incentive for electric heat	2a

• **Market Transformation Information**

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Resolution E 4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.

Program Design to Overcome Barriers (Priority Barrier: Homebuyers)

The energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile. In fact, 16% of U.S. greenhouse gas emissions result from the generation of energy used in houses nationwide (U.S. EPA). However, there is little consumer awareness of the impact their homes have on the environment. CAHP is working with IOU marketing efforts, statewide partners (e.g. Flex Your Power), ENERGY STAR® campaigns, and builder's own messaging to increase consumer awareness of this idea. Moreover, there is scant evidence that energy efficiency drives decision-making among homebuyers, whose access to capital is more difficult in a constrained capital market.

Manufactured Housing: a potential opportunity

The current decline in the housing industry, the high cost of Residential housing, and increasing customer awareness of energy efficiency all make this a good time to address this underserved market segment. The manufactured housing industry is somewhat counter-cyclical to the site-built home market. As buyers are priced out of site-built homes, manufactured housing has become an affordable alternative.

Historically, manufactured housing has been considered a lost opportunity. However, as SCE found in the 2006-2008 IDEEA program, there is significant interest among manufacturers in promoting the ENERGY STAR® brand. Manufacturers recognize that ENERGY STAR® manufactured homes address both the high cost of purchasing a traditional new home and the high cost of energy bills. However, without IOU intervention in the market, retailers are not pushing ENERGY STAR® homes and there is not enough demand for manufacturers to justify building them.

Overcoming Market Failure: CAHP

In a buyer's market, builders are looking to differentiate themselves from competition. This presents a opportunity for CAHP to assist builders in overcoming cost barriers, minimizing

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lost opportunities, and working collaboratively to help meet the state's and IOUs' goals for the reduction of greenhouse gas emissions and utility source demand.

The Residential New Construction market without IOU intervention is a lost opportunity for long term energy savings. However, with IOU intervention in the form of incentives and design support, the new construction market is well placed to demonstrate innovative approaches and cost effective energy savings technologies.

Overcoming Market Failure: Manufactured Housing

The program provides an incentive to manufactured home retailers when they sell a manufactured home that meets or exceeds the current ENERGY STAR® standards. These standards extend to the ducting and installation guidelines for heating/cooling equipment, be tracked and reported.

ENERGY STAR® qualified manufactured homes will generate energy savings and demand reduction. In addition to leveraging retailers of manufactured homes, the program will leverage the Partnerships Program to reach out to local governments where the homes will be built.

Manufactured homes have a higher potential for market transformation than the site built industry due to factory standardization, and the fact that recent research indicates that eight manufacturers control approximately 98%⁹⁸ of the manufactured housing market.

Customers may also receive incentives for purchasing an ENERGY STAR® manufactured home. The incentives are paid directly to the customer after successful construction, assembly, and inspection of the home site.

Current Program Baseline: Manufactured Housing:

The construction of manufactured homes that meet ENERGY STAR® program standards, as opposed to the less stringent HUD standards, will result in demand reduction, energy savings,

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⁹⁸ "Synopsis of manufacturer market share and status," Manufactured Research Association, communication, October 2007.

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and the reduction of greenhouse gas emissions. Prior to IOUs' intervention in the market, there was no ENERGY STAR® qualified manufactured homes sold in our service territory.

The energy savings will result from a combination of improved envelope efficiency (thermal and air tightness), use of high efficiency equipment, and the proper sizing (downsizing) of the cooling equipment. This program is statewide among all the IOUs, to provide continuity and better service to the builder at reduced costs.

● **Quantitative Program Targets**

The targets provided herein are best estimates, but nonetheless are forecasts.

— **Table 5**

ENERGY STAR® Manufactured Homes	Program Target 2013	Program Target 2014
Units Paid	TBD	TBD

● **Advancing Strategic Plan goals and objectives**

Since its inception in 2002, CAHP has had a substantial impact on the homebuilding market. There is a significant opportunity to continue to influence builders, architects and other players in the Residential New Construction industry.

The RNC sub-program is designed to enable the achievement of several goals and strategies identified in the Strategic Plan. The Strategic Plan envisions a transformation of the core Residential sector to ultra-high levels of energy efficiency, resulting in ZNE new construction standards by 2020. It spells out several goals and strategies to address energy reduction in Residential New Construction:

Goal #1: New Construction will deliver “ZNE” performance for all new single and multi family homes by 2020.

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5. ~~By 2012, 50% of New Homes will exceed 2008 Title 24 energy efficiency standards by 20%; 10% will surpass 2008 Title 24 standards by 40% (Strategy 1-1)⁹⁹~~

~~**Goal #2:** Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities~~

~~**Goal #3:** Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy efficient products.~~

~~The goal of energy efficient Residential New Construction will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the Strategic Plan, and works in close coordination with the ZNE sub-element. Together these elements seek to raise plug load efficiency, focus on whole house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the NSHP. In fully aligning itself with the Strategic Plan, the CAHP targets an interim goal of 50% of RNC to Tier II (2005) by 2011, 10 per cent of RNC to 55% by 2011, and a final goal of 100% of Residential New Construction to be net zero by 2020. In fully aligning itself with the Strategic Plan, as modified by Decision 09-09-047, the CAHP targets an interim goal of 50 percent of RNC to be 20% better than the 2008 Title 24 Standards by 2012, and 10% of RNC to be 40% better than the 2008 Title 24 Standards by 2012, and a final goal of 100 percent of residential new construction to be net zero by 2020.~~

~~**6. Program Implementation IOU-specific elements**~~

~~**vi. Statewide IOU coordination**~~

⁹⁹ As modified in D.09-09-047

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Given the success of the collaborative process that led to the production of this PIP, the statewide RNC team plans to meet on at least a quarterly basis going forward in order to review progress toward the goals and make corrections need to achieve them.

2.2.1 ~~Program name~~

~~The single family and multi family programs will be implemented under the common name of California Advanced Home Program. The zero peak pilots will be referred to as ZNE Homes, although the details differ somewhat by utility. Factory built housing will be referred to as ENERGY STAR® Manufactured Homes.~~

2.2.2 ~~Program delivery mechanisms~~

~~Sempra delivers the program primarily through in house account executives with some outside technical support for specific analysis or niche. SCE leverages third party implementers and in house account executives.~~

2.2.3 ~~Incentive levels~~

~~The IOUs have agreed upon a common incentive methodology that will be implemented throughout the service territories.~~

2.2.4 ~~Marketing and outreach plans~~

~~CAHP offers financial incentives, training opportunities, technical support, and marketing resources to single family and multi family Residential builders who construct homes that exceed California's energy efficiency standards for new construction. All types of Residential builders are welcome to participate¹⁰⁰.~~

¹⁰⁰ As discussed above, manufactured housing is not subject to Title 24 and uses the national HUD baseline.

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There will be closer coordination of marketing efforts to synergize wherever possible. While each utility would like to leverage on their strengths and existing relationships within their service territories, certain marketing elements can be launched on a common platform. A common website will be created to provide builder information that will be commonly disseminated. Training and education is an area where pooling of resources is possible to reduce cost and increase participation.

The IOUs plan to be actively engaged in the development and implementation of joint marketing, education and training efforts as described in detail in the common section of this PIP.

In 2013-2014, the program will expand its builder/contractor education and training certification courses to increase overall awareness and understanding of CAHP and service offerings. We will continue to strengthen our delivery channels of information by providing relevant information and support materials, reaching target audiences in key decision-making phases. The IOUs' innovative communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, e-mail blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the Internet.

Additionally, CAHP will leverage its excellent relationships in partnering with trade organizations and other groups actively promoting the benefits of green, sustainable building practices. Such organizations include: CEC, FYP, AIA, USGBC, ULI, California Manufactured Housing Institute, Build It Green, IES, AEE, IHACHI, PHCC and others. Through an innovative, coordinated approach, we will maximize outreach opportunities that keep energy efficiency and CAHP's program benefits top of mind and maximize program participation.

Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

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2.2.5 IOU program interactions

The plan addresses above, in the Incentive Rationale section, the ways CAHP is encouraging demand performance, in home displays, on-site generation, square footage reductions and green elements.

CAHP is particularly interested in promoting integrated thermal hot water system designs to displace therm demand with on-site renewable sources. In addition to cold water savings from embedded energy and the energy to heat water, longer term there may be GHG reductions that accrue either to the builder, the homeowner, or the utility associated with each demand side reduction as a result of AB 32 and pending national CO₂ legislation.

CAHP prides itself on its established close relationships and memberships with other groups involved with the building industry. These relationships make it possible to provide comprehensive services to our customers. Thus, CAHP will continue to seek out and coordinate synergies with, but not limited to, the following groups:

16. NSHP

17. EPA

18. California IOUs

19. Green Building Consultants (i.e. Build it Green, California Green Builder, Global Green)

20. Rater Organizations (e.g. ResNet, CalCerts, CHEERS)

CAHP will continue its commitment to the EPA's ENERGY STAR® program and will strive to support, partner and contribute to the success of the ENERGY STAR® homes label and branding. Numerous surveys and studies continue to show the ENERGY

2013-2014 Energy Efficiency Programs California Statewide Program for Residential Energy Efficiency Program Implementation Plan

STAR® label represents greater value to consumers and the environmental stewardship it represents.

Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR® New Homes and has won ENERGY STAR® achievement awards for the last seven consecutive years. In 2011 SCE was rewarded for “Sustained Excellence in Energy Efficiency Program Delivery”.

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency and green measures into new construction projects including Title 24 code training and ENERGY STAR® requirements.

In response to builder requests, CAHP will offer a new training workshop during 2013–2014 designed for builders’ sales agents. Sales agents have direct contact with the homebuyer and have the greatest impact on selling homes. In order to help promote ENERGY STAR® developments, CAHP will teach sales agents about energy efficiency. Topics will include what qualifies as an ENERGY STAR® home and what is 'green'.

Other activities will include attendance at building industry trade conferences/ outreach events and any necessary contractor/builder field visits. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals.

IOUs may pursue partnership efforts with local government entities who are looking to display leadership in the carbon arena by expediting plan check, waiving permit fees, or allowing builders to pay impact fees on the back end (instead of up front) in exchange for higher levels of home performance documented by our program.

2.2.6 Similar IOU and POU programs

The statewide team will reach out to leading POU programs, such as those at SMUD to learn from their experience how best to deliver energy efficient homes.

In addition, the IOUs will work closely with the existing home remodeling programs (Home Performance with ENERGY STAR® and the Comprehensive Mobile Home Program) to maintain a two way communication of best practices and lessons learned between the new and existing sectors.

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vii. Program delivery and coordination

a) Emerging Technologies (ET) program

Emerging technologies will chiefly be handled within the ZNE program. The IOUs are looking to partner with our ET and EPIC funded Testing Facilities to pilot zero-net energy approaches, particularly in the manufactured home/prefabricated segment. However, the proposed incentive approach allows the IOUs the flexibility to include both deemed and calculated energy savings from new technologies as they become market ready.

The utilities will seek to integrate R&D ideas from Emerging Technologies, EPIC, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

b) Codes and Standards program

As mentioned above, manufactured housing is not subject to Title 24, although there are national efforts to improve the HUD code.

c) WE&T efforts

The RNC team is seeking ongoing support from the three energy and training centers for classes relevant to the building industry and training the next generation of trade allies, builders, contractors, and the like.

d) Program specific marketing and outreach efforts

In 2013-2014, the program will expand its manufacturer and retailer outreach to increase overall awareness and understanding of ESMH. We will continue to strengthen our information and support materials, focusing on the value to the retailer of making the sale to the homebuyer. The IOUs' communication tools will include: account representative meetings/presentations, targeted customer mailings, trade organization affiliations, and

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~~builder award recognition. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internet.~~

~~e) Non-IOU Programs~~

~~There may also be opportunities to partner with local AQMDs and County Integrated Waste Management Boards to encourage material recycling in ZNE and green programs.~~

~~f) CEC work on C&S~~

~~The IOUs will continue to support Codes and Standards development work with the CEC and to test candidate technologies in the new construction programs.~~

~~e) Best Practices~~

~~The Residential New Construction team will gather information and past experience in successful low energy and ZNE existing projects to evaluate best practices. This information will be used to develop pilot projects that will demonstrate low energy homes and include home performance monitoring.~~

~~• Integrated/coordinated Demand Side Management~~

~~The statewide RNC team is committed to a full integration of all resource types. A first step has been taken by way of a recent joint agreement between SCG and SCE, which allows the two utilities to buy back therms and kWh. Water saving technologies and CO² reduction are strongly emphasized and tracked in ZNE projects. As these technologies get accepted and recognized, they will become integrated into the base CAHP projects.~~

~~• Integration across resource types (energy, water, air quality, etc)~~

~~As discussed above, RNC is looking to partner with relevant stakeholders to identify water, air quality, and waste diversion opportunities.~~

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● Pilots

As discussed above, The IOUs may in the ZENH sub program is future need to create a pilot program to test emerging technologies and the viability of zero peak and zero net homes under actual operating conditions an offering.

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xx) EM&V:

11. The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Planplan for 2010-20122013-2014 after the program implementation plans are filed. This will include process evaluations and other program specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

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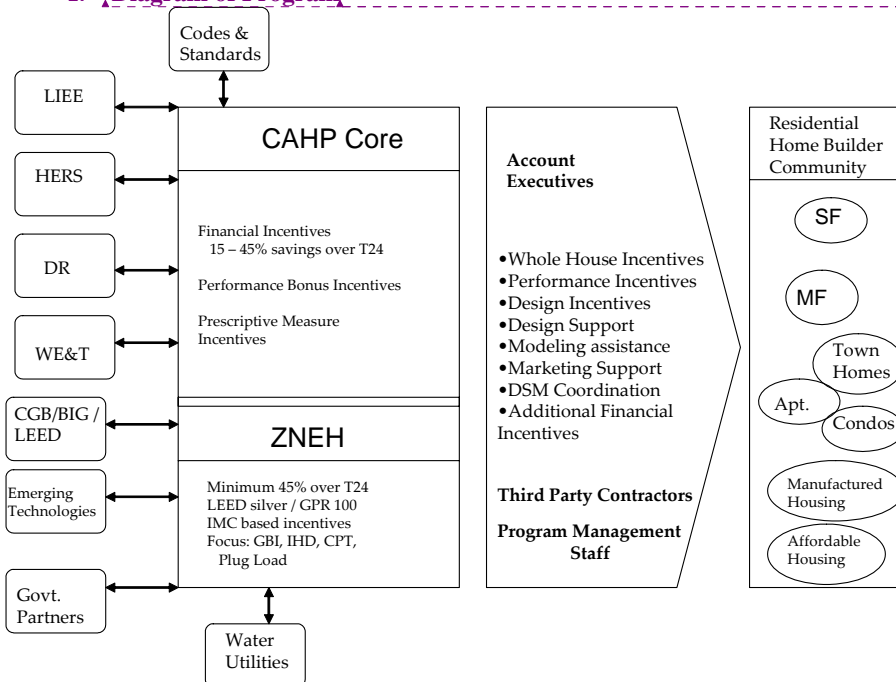
1- Diagram of Program

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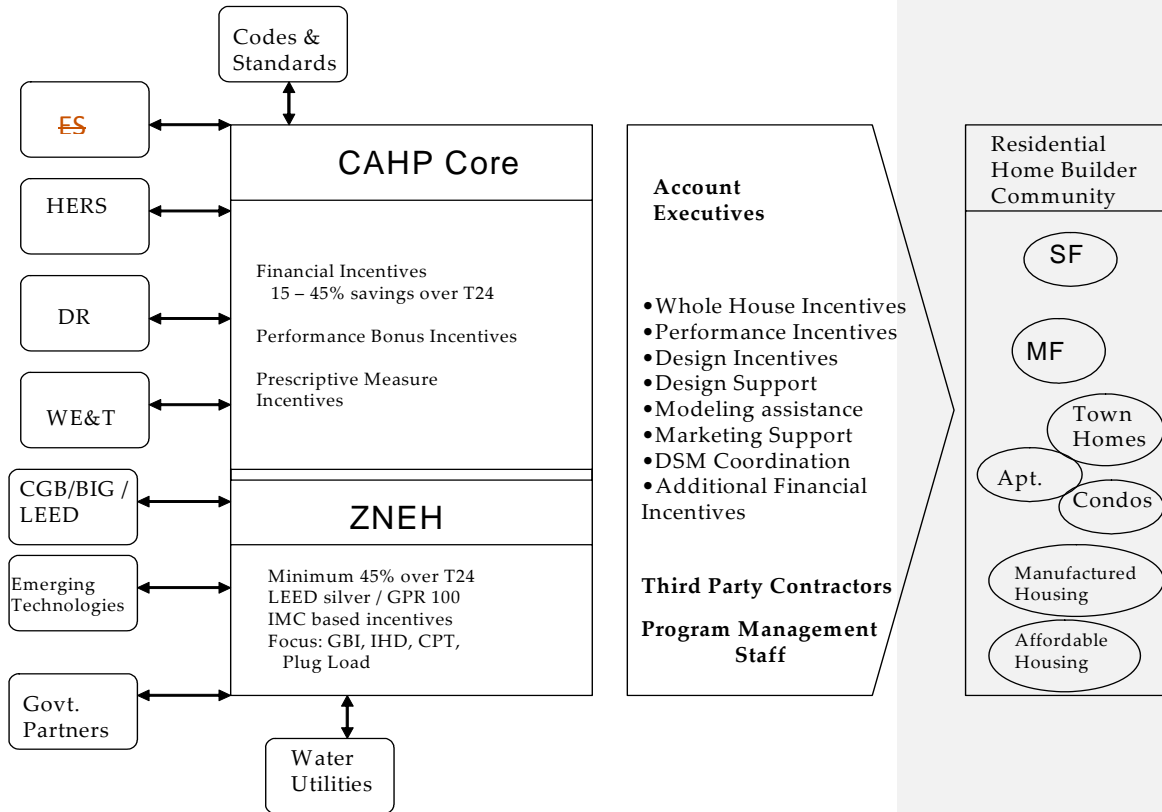
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4)–



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6) **Program Logic Model: Provide a program**

7)–

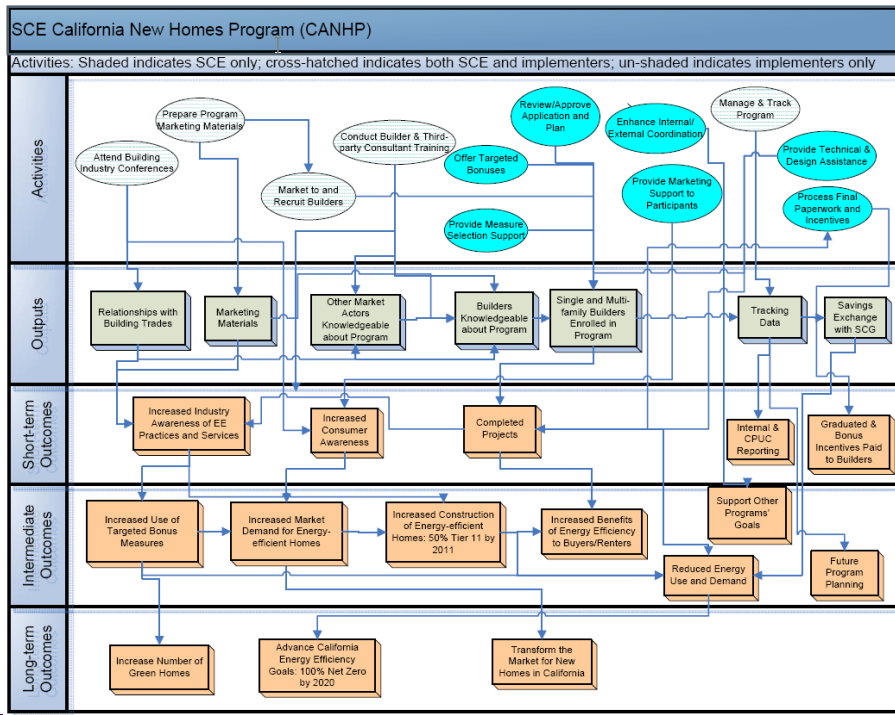
- ~~Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the~~

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statewide programs. Below is the approved logic model including sub-programs for the Energy Star Manufactured Homes Program.

Table X: CAHP & ZNEH Logic Model



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Table XI: Manufactured Housing Logic Model

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Program Outputs	Market research and potential, understanding of market needs, program design	Develop marketing materials; Meet with manufacturers, housing and PV manufacturers and retailers to reach niche market	Submit articles to publications, create catalogs, conduct consumer surveys of manufactured homes; Host educational events	Present ENERGY STAR and program requirements to manufacturers; Offer design assistance for meeting requirements	Conduct training to retailers on selling ENERGY STAR manufactured homes	Provide incentives to retailers and consumers for the sale/purchase of an ENERGY STAR manufactured home and a medium-duty PV system	Leverage existing programs within SCE (CNP, A-HSCP, UEE, other low-income programs) statewide coordination	Leverage external agencies (HUD, MWD, EPA)
Short Term Outcomes	Market research; Determine market potential and project types	Marketing materials distributed to retailers and consumers	Marketing and educational materials distributed to consumers	Increased knowledge about ENERGY STAR manufactured home requirements	Increased sales of ENERGY STAR manufactured homes and PV systems	Project participation goals	Leverage utility delivery channels offer bundled package	Leverage external programs (ENERGY STAR, State CEI, GreenPoint Rated, LEED tax credits)
Intermediate Term Outcomes	Self understanding and customer outreach completed to identify candidates and project types	Program awareness and utilization by targeted markets	Increased knowledge of tools for sustainable design	Increased market penetration and demand	Increased number of projects approaching retail zero peak	Streamlined process and increased participation in multiple programs (batter savings)	Utilization and leveraging of programs and cross promotions	
Longterm Outcomes	Program has a well-developed and defined market strategy	High program awareness by targeted market, increased market situation	Design community has internalized just design practices become common practice	Consumers expect manufactured homes to be sustainable	Increased market share and common practice; Coordinated demand side management	Fully integrated SCE programs, business units, and policies	Establish a network of programs and resources; External programs integrated with A-HSCP and CNP	
Segment Theory	Market research on the potential candidates and project types to include in the program will help to design the program to meet their specific needs	Marketing and outreach increases awareness and program leads	Offering design and technical assistance will increase manufacturer skills and resources for sustainable design and it will become standard practice for future projects	Training states in the features and benefits of efficient and sustainable homes will provide them with the tools needed to educate and sell to consumers	Offering financial incentives will catalyze the up rise and market penetration of ENERGY STAR manufactured homes	Leveraging external core/complementary programs will target the same market and provide energy efficiency incentives will increase participation	Leveraging external complementary programs will target the same market and provide a component of sustainable design will increase participation	
Key Performance Indicators	Deep understanding of market needs and issues Number of potential participants	Type, quality, and quantity of marketing materials distributed Number of leads resulting from marketing and outreach efforts Number (net change) of market developers who are aware of the program	Number and quality of design assistance provided Number of SCE core program projects up to the SCP Measured increase in skill and knowledge of sustainable design Number of participants that continue to design and sell energy efficient homes	Number and quality of trainings conducted Number of ENERGY STAR manufactured homes sold Measured increase in skill and knowledge of sustainable design	Number of participating projects meeting ENERGY STAR requirements Measure (net change) of increased knowledge of home energy efficiency features and benefits Number of retailers that have made promotion of ENERGY STAR homes standard practice	Number and quality of core programs Assessment (consistency, accuracy, quantity, and effectiveness) of information flow and distribution channels through core programs Number of participants resulting from cross-promotions from core programs Quality of experienced participants working with multiple programs	Number and quality of complementary programs Assessment (consistency, accuracy, quantity, and effectiveness) of information flow and distribution channels through complementary programs Number of participants resulting from cross-promotions from complementary programs Quality of experienced participants working with multiple programs	

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Attachment 1

Energy Division Program Adjustment Requests

Implemented by IOUs

Program Name: Statewide New Construction Program

Program Number: 3707

Sub-program Name: Residential New Construction (“California Advanced Homes”)

<u>Source of Request (ED Staff Name)</u>	<u>PIP Section</u>	<u>Modified Content</u>	<u>Justification</u>	<u>Budget Impact (Yes/No: Explain)</u>	<u>Savings Impact (Yes/No: Explain)</u>
<u>Cathy Fogel (Not certain, but she is lead for RNC)</u>	<u>6. Program Implementation, a) Statewide IOU Coordination; iii: Incentive levels</u>	<u>Delete Kicker for Solar Thermal equipment per ED direction</u>	<u>Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall coordinate their CAHP performance bonus for solar hot water with the Energy Division’s proposed CSI Thermal Energy program, authorized by AB 1470; (D. 09-09-047, OP 24c, page 376) “Coordinate” and eliminate are not synonymous.</u>	<u>No additional dollars have been added or subtracted; However, dropping the kicker makes more dollars available for other marketing/ kickers</u>	<u>No</u>

2013-2014 PIP Addendum

Program Name	Statewide Commercial Energy Efficiency Program	Date Submitted	July 2, 2012
Subprogram Name	Statewide Energy Advisor Statewide CEI Statewide Calculated Incentives Statewide Deemed Incentives Statewide Nonresidential HVAC	Utility Name	SoCalGas
Program ID	SCG3708 SCG3709 SCG3710 SCG3711 SCG3712	IOU Program Contact	Andrew Ytuarte
		Program Cycle	2013-2014

This form is to be used to document any required changes to the Program Implementation Plans (PIPs).

The following are triggers that will require a PIP change:

1. Changes to eligibiity rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission–Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

4. Portfolio Budget and Other Commission-Directed Changes

Driver of Change:

Aim to reduce the complexity in IOUs' portfolios while increasing customer participation.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

The 2010-2012 Commercial Energy Efficiency Program program implementation plan (PIP) reflects the following sub-programs:

1. Nonresidential Audits Program
2. Calculated Incentives Program
3. Deemed Incentives Program
4. Continuous Energy Improvement

The new 2013-2014 Commercial Energy Efficiency Program will be simplified and consist of the following sub-programs:

1. Energy Advisor Program
2. Commercial Calculated Incentives Program

Revision Date: 05/11/2012

- 3. Commercial Deemed Incentives Program
- 4. Continuous Energy Improvement (CEI)
- 5. Nonresidential HVAC

PIP Section and/or Wording to be Changed or replaced

Changes are throughout the 2013-2014 Statewide Commercial Energy Efficiency Program.

Replacement Language or Information

Refer to Description of Program of 2013-2014 Statewide Commercial Energy Efficiency Program PIP for details on changes .

Revised Energy Savings (If Any):

Refer to 2013-2014 Statewide Commercial Energy Efficiency Program PIP for details.

Other PIP Changes Required:

Refer to 2013-2014 Statewide Commercial Energy Efficiency Program PIP for details of other changes.

2013-2014 PIP Addendum

Program Name	Statewide Industrial Energy Efficiency Program	Date Submitted	July 2, 2012
Subprogram Name	SW – COM - Calculated	Utility Name	SoCalGas
Program ID	SCG – 3710	IOU Program Contact	Deborah Eggers
		Program Cycle	2012-2013

This form is to be used to document any required changes to the Program Implementation Plans (PIPs). The following are triggers that will require a PIP change:

1. Changes to eligibility rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission-Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

6. Addition or elimination of programs and/or sub-programs (indicate approved advice letter) ▼

Driver of Change:

Streamling of program to reflect a local element for a negotiated incentive option rather than an independent local program.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

See Red-lined Version of the Commercial PIP – Commercial Calculated sub-program

PIP Section and/or Wording to be Changed or replaced:

See Red-lined Version of the Commercial PIP – Commercial Calculated sub-program

Replacement Language or Information

See Red-lined Version of the Commercial PIP – Commercial Calculated sub-program

Revised Energy Savings (If Any):

N/A

Revision Date: 05/11/2012

Other PIP Changes Required:

N/A

**2013-2014 Energy Efficiency Programs
Statewide Commercial Energy Efficiency Program
Program Implementation Plan**

1. **Program Name:** Statewide Commercial Energy Efficiency Program
Program ID: SCG3708 – SW-COM-Energy Advisor
 SCG3709 – SW-COM-CEI
 SCG3710 – SW-COM-Calculated Incentives
 SCG3711 – SW-COM-Deemed Incentives
 SCG3712 – SW-COM-Non-Residential HVAC
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Commercial Energy Efficiency Program					
3708	SW-COM-Energy Advisor	\$83,579	\$0	\$932,429	\$0	\$1,016,008
3709	SW-COM-CEI	\$20,495	\$24,624	\$354,880	\$0	\$399,999
3710	SW-COM-Calculated	\$538,339	\$266,197	\$3,250,320	\$5,184,993	\$9,239,848
3711	SW-COM-Deemed	\$1,340,107	\$692,942	\$3,864,782	\$1,066,270	\$6,964,101
3712	SW-COM-NonRes HVAC	\$36,553	\$5,824	\$613,589	\$0	\$655,965
	TOTAL:	\$2,019,073	\$989,586	\$9,015,999	\$6,251,263	\$18,275,921

3. **Projected Program Gross Impacts Table**

Table 2

Program #	Main/Sub Program Name	2012-2013 Gross kW Savings	2012-2013 Gross kWh Savings	2012-2013 Gross Therm Savings
	SW Commercial Energy Efficiency Program			
3708	SW-COM-Energy Advisor	0	0	0
3709	SW-COM-CEI	0	0	0
3710	SW-COM-Calculated Incentives	0	0	5,844,240
3711	SW-COM-Deemed Incentives	0	0	1,822,777
3712	SW-COM-NonRes HVAC	0	0	0
	TOTAL:	0	0	7,667,017

4. **Program Description**

a) **Describe Program**

The Statewide Commercial Energy Efficiency Program offers California’s commercial customers a statewide-consistent suite of products and services to overcome the market barriers to optimized energy management. The program targets integrated energy management solutions, including energy efficiency, demand response (DR), and distributed generation, through strategic energy planning support; technical support services, such as facility audits, and calculation and design assistance; and financial support through rebates, incentives, and financing options.

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- 1. Program Name: Statewide Commercial Energy Efficiency Program**
Program ID: SCG3708 – SW-COM Energy Advisor
SCG3709 – SW-COM CEI
SCG3710 – SW-COM Calculated Incentives
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	TOTAL:	0	0	7,667,017

4. Program Description

a) Describe Program

The Statewide Commercial Energy Efficiency Program offers California’s commercial customers a statewide-consistent suite of products and services to overcome the market barriers to optimized energy management. The program targets integrated energy management solutions, including energy efficiency, demand response (DR), and distributed generation, through strategic energy planning support; technical support services, such as facility audits, and calculation and design assistance; and financial support through rebates, incentives, and financing options.

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Targeted end users include all commercial sub-segments such as distribution warehouses, office buildings, hotels, motels, restaurants, schools, trade schools, municipalities, universities, colleges, hospitals, retail facilities, entertainment centers, and smaller customers that have similar buying characteristics.

The Statewide Commercial Energy Efficiency Program includes six core statewide sub-program elements, including Commercial Energy Advisor, Commercial Calculated Incentives, Commercial Deemed Incentives, Continuous Energy Improvement, and Nonresidential HVAC. IOU offerings also include local program elements such as third party programs, and local government partnerships that have close ties to Business Improvement Districts (BIDs). Per CPUC directives, the IOUs will strengthen their relationships with local BIDs and develop opportunities for BIDs to participate in the marketing and delivery of direct install and deemed commercial incentives. In addition to the above sub-programs, the utilities will consider one or more demonstrations of a comprehensive whole building approach (WBA) to commercial building energy efficiency. This approach may make available the tools and resources necessary for customers to pursue and integrate multiple customized measures. This approach may also include deployment of energy management and information systems in demonstration projects that can be used to quantify and analyze energy savings based on various forms of measured performance data, including interval meter data. These elements are designed to not only overcome the traditional market barriers to energy efficiency, but also attain deeper energy savings, through distributed generation opportunities uniquely suited to the Commercial segment.

Description of the Commercial Energy Efficiency sub-programs:

- The Commercial Energy Advisor (CEA) brings together under one program all audit services offered to support customer education and participation in energy efficiency, and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities. These services include Benchmarking, Online Energy Audit Tool, CEI, Nonresidential Audits, Pump Efficiency Services, Retro-commissioning (RCx) and coordination with CEI as described below.
- The Commercial Calculated Incentives Program offering provides standardized incentives for customized and integrated energy efficiency/DR projects for retrofit, and RCX projects while also providing technical and design assistance. Customized calculation method that can consider system and resource interactions, it will be the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan and concurrently overcome technical and financial barriers. Calculated savings for the Savings By Design Program are achieved through the commercial new construction component.
- The Commercial Deemed Incentives Program offering provides utility representatives, equipment vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit/measure.

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- Continuous Energy Improvement (CEI) is a consultative service which targets long-term and strategic energy planning. CEI is designed to reintroduce the importance of energy management by transforming the market and to help reduce energy intensity through a comprehensive energy management approach. CEI will address technical and management opportunities for commercial customers while creating sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.
- The Nonresidential HVAC Program delivers a comprehensive set of upstream strategies that are built on education, marketing efforts and leveraged relationships within the HVAC industry geared to transform the market towards a sustainable, quality driven market.
- The Direct Install rebate offering provides small business customers the opportunity to have a third-party contractor retrofit existing systems to energy efficient systems at no cost to the customer. However, PG&E and SoCalGas' Direct Install rebate offering is delivered through its Local Government Partnerships (LGP) and Third Party programs for small business.

When developing program metrics and targets for each sub-program element, each utility will consider market potential as available, past program participation rates, market progress, current economic conditions, work-paper and baseline updates, and customer mix and penetration. Statewide coordination and planning will facilitate inter-utility sharing of successes, lessons learned, and best practices in the pursuit of those targets and metrics.

Statewide coordination and planning between utility program planning staff, utility functional departments, government agencies, municipalities and other key partners and stakeholders will also be critical to the advancement of the Strategic Plan. Leveraging national and state initiatives, tools and resources to manage energy and resources – including greenhouse gasses (GHG), air quality, and water – is a critical path to optimizing the potential for California's commercial customer segments to thrive. The Statewide Commercial Energy Efficiency Program design includes the staged integration and coordination with existing non-utility programs, initiatives, and existing regulations today. This design is aimed to drive or support advancements in integrated resource planning, energy management certification, industry benchmarking, workforce education and training, and sharing of industry best practices.

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The commercial customer markets are uniquely suited to integrated energy strategies. Load management opportunities and demand response have had great success and show additional potential. Opportunities for distributed generation from biogas, biomass, solar, fuel cells, and wind will be supported through this plan in support of state renewable energy targets, state GHG reduction efforts under AB32, and support of emerging carbon markets and offset programs. Utilities are also using integrated energy strategies to test DSM as a means to address T&D constraints in local areas. Consistent with California's preferred loading order, however, the utilities will continue to aggressively market and support energy efficiency first, as California's most cost-effective energy resource, while also being mindful of the customer's ultimate interests and goals.

b) List of Measures

Technologies addressed through this program effort are varied, and include, but are not limited to, HVAC, refrigeration, food service equipment, and boilers

c) List of Non-incentive Commercial Energy Advisor Services

The Statewide Commercial Energy Efficiency Program will include a wide variety of non-incentive program services intended to support customer strategic planning, educate and train customers and the workforce about energy efficiency, and provide customized technical and project support. The service list includes:

- Commercial Energy Advisor (CEA)
 - Hands on workshops
 - Technical support assistance
 - Automated Benchmarking services
 - Nonresidential Audits
 - Pump tests and pumping systems technical support
 - Water leak detection services

- Continuous Energy Improvement (CEI)
 - Energy management assessments
 - Energy planning
 - Baselineing and benchmarking
 - Project implementation support
 - Customer recognition

- Customer Education and Training
 - DOE Basic, Intermediate, and Specialist Training – refrigeration systems, HVAC, motors, compressed air, and steam.

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- Other commercial process systems training
- Regulatory compliance and energy efficiency convergence, for example, NOX and boilers
- Integrated industry-focused workshops, e.g., restaurants, lodging, retail, hospitals, and commercial facilities

- Workforce Education and Training
 - DOE Basic, Intermediate and Specialist Training in support of ANSI Certification, per the Strategic Plan.
 - Title 24 Training,
 - Commercial refrigeration best practices (for designers), in support of the Strategic Plan focus on refrigeration
 - HVAC best practices for data centers, laboratories, and other specialized use facilities.
 - California Advanced Lighting Controls Training Program (CALCTP)

- New Construction – Savings By Design
 - Integrated Building Design Assistance
 - Whole Building, Individual Systems, and Simplified Approaches
 - Integrated design training for architects, engineers and owners
 - Partnerships and collaboration with industry groups like the California Council of American Institute of Architects, California Energy Commission, among others
 - Zero Net Energy Design Services, like consultation services, student design competitions, research activities, 2010-2012 pilot success adoptions
 - Energy Design Resources and Savings By Design – internet portals
 - Software tools and expertise

Nonresidential HVAC

- Education of the market on the value of selecting high-efficiency systems
- Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program
- Training for contractors on HVAC industry standards, sales, and marking of the value of those standard, and their implementation in the field
- Education for customers on how

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5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies³.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴. Markets are social institutions⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁷. According to York⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the

² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁴ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁶ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

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evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory¹⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)¹³" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look

⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

¹⁰ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹¹ Example in bottom chart of this graphic from the New York Times: <http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

¹² Sebold et al (2001) p. 6-5.

¹³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

¹⁴ CPUC (2008) Strategic Plan, p. 5.

¹⁵ Nadel, Thorne, Saches, Prindle & Elliot (2003).

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forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers¹⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed. In addition, the suggested metrics also include a behavioral metric.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a behavioral based metric for this sector a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

¹⁶ Pelozo & York, (1999).

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Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Commercial Energy Efficiency Program (Resolution E-4385, Appendix A, pp 32-33):

Table 3

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED * Data to be reported in disaggregate form by SW program (commercial, industrial, and agricultural)		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub-programs (NRA, Deemed, Calculated, and CEI) by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and by Hard to Reach (HTR)** ** "HTR" is as defined in the EE Policy Manual Comment: No comments	2a
Continuous Energy Improvement (CEI)	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short-term (2010-2012) milestones as identified by their long term energy plans. Comment: No comments	2a
	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N) Comment: IOUs confirmed with ED that this is a 2b metric	2b
	*3. Number and percent of commercial, industrial and agricultural customers that created an energy plan via CEI will be tracked by program. Comment: No comments	2a
Non-Residential Audit Program (NRA)	*1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.	2b

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SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
	<p>Comment: No comments</p> <hr/> <p>*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices, (Report disaggregated data by type of audit - Basic, Integrated, and Retro-commissioning audit).**</p> <p>**Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates.</p> <p>Comment: No comments</p>	2b
Deemed Incentives	<p>*1. Number and percent of new, improved, or ETP measures** installed in the commercial, industrial and agricultural programs.</p> <p>** “ETP measure” defined as ET measures first introduced into the EE portfolio since January 1, 2006</p> <p>Comment: No comments</p>	2a
Calculated Incentives	<p>*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.</p> <p>Comment: No comments</p> <hr/> <p>*2. Number, percent, and ex-ante savings from commercial, industrial and agricultural sector of projects with ETP measures** included. (Report disaggregated savings by measure and number of installations by measure.)</p> <p>** “ETP measure” defined as ET measures first introduced into the EE portfolio since January 1, 2006</p> <p>Comments: No comments</p>	2a 2b

COMMERCIAL		
1. Number and percent of participating commercial customers receiving the “Integrated Bonus.”**		2b
** “Integration Bonus” is an incentive mechanism to promote greater integration of DSM resources, available to customers who (a) sign up or are already signed up for a DSM program, and (b) purchase, install, and/are eligible to receive a rebate for an energy saving device.		
1. Number and percent of Direct Install participants that participate in other resource programs or OBF.		2a

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2. Number of and percent of participants that are hard to reach (HTR).** ** "HTR" is as defined in the EE Policy Manual	2a
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b) Market Transformation Indicators (MTIs)

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in "Attachment H" are approved for this sub-program as applicable.

c) Program Design to Overcome Barriers

The 2013-2014 Statewide Commercial Energy Efficiency Program builds on past program successes and best practices to overcome both common and unique barriers to efficiency in the segment.

Among commercial customers, there are many market barriers to energy efficiency offerings:

- Commercial customers are a highly diverse and geographically disperse customer class, which requires utilities to develop a large number of differentiated incentive offerings for a variety of distribution channels.
- There is a general lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings.
- Energy efficiency improvements are not perceived to add value and marketability of properties.
- Efficient design alternatives can be lost in low-cost bidding scenarios.
- Small business customers are less likely to install EE technologies than larger customers due to lack of time, resources, financial sophistication and familiarity with energy efficiency, among other reasons.

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- Building owners, especially landlord owners¹⁷, tend to focus on minimizing capital costs associated with new construction, building renovation, tenant improvements and building retrofits.
- For multi-tenant buildings, property owners often have little incentive to pursue energy efficiency measures due to ubiquitous “triple net” leasing terms that pass through utility costs to tenants, while tenants may be deterred either by short lease terms relative to project payback or by contractual restrictions regarding leased space improvements.
- Institutional owners are often constrained by rigid boundaries separating capital development and operating budgets and are limited by lowest-bid regulations for capital projects.
- Some activities such as Healthcare and Biotech also face strong regulatory challenges with being integrated in energy efficiency offerings (for example: the Office of Statewide Health Planning and Development (OSHPD) and California Division of Occupational Safety and Health (CAL-OSHA)).
- In some activities like High-Tech and Hospitality, international competition drives short-term survival attitudes versus a long-term continuous improvement approach. In addition franchises have additional barriers to overcome such as Franchise owner approval.
- Whole system opportunities are missed by individual equipment vendors, many of which are only specific equipment types or building systems.
- Customers are often not aware of efficiency degradation or failure in building systems or equipment.
- Customers may be reluctant to invest in new energy savings technologies over concerns regarding product quality, reliability or obsolescence.
- Performance issues resulting from improper equipment installation, maintenance and poor owner/operator education create customer dissatisfaction with energy efficiency measures.

By uniquely approaching constituent vertical market sub segments, this Commercial Energy Efficiency Program will better serve commercial customers while gaining efficiency and consistency in the delivery of the programs. This targeted and focused approach will mitigate the indicated EE adoption barriers as follows:

- Program applications and processes will be simplified and made more consistent. There will be a central core incentive/rebate offering, with service-specific riders added as needed. This will enable customers to better understand the program delivery process. Program verification processes will also be made more consistent so that the customer is touched fewer times for multiple offerings.

¹⁷ For properties where the landlord owns the equipment and the lessee pays the bills, there is currently minimal incentive for the customer or the landlord to invest in EE

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- When appropriate, IOUs will deliver information to customers in a way that bundles relevant EE, DR and other DSM programs and services. For example, the IOUs will develop print and electronic Case Studies that feature customers who have implemented integrated solutions in order to address their energy management needs. A package of program bundles will be made available so that typical offerings for a sub segment will be grouped together. This will minimize lost opportunities as a more comprehensive program and service offering will be readily available for customers.
- Marketing outreach efforts will be more focused on customer sub-segments rather than programs, which should lead to improved customer adoption for all programs. Utilities will continue to foster strategic partnerships with industry associations such as Building Owners and Managers Association (BOMA), Department of General Services (DGS), Green Building Council, Air-Conditioning, Heating, and Refrigeration Institute (AHRI), American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE), Manufacturers Trade Associations, and specific sub-segment professional association as California Hospital Association (CHA), California Society for Healthcare Engineering (CSHE), International Society for Pharmaceutical Engineering (ISPE), to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users.
- Program bundling will be configured so that customers will have greater flexibility in how they enroll; however, the program bundles will be packaged so that customers will be encouraged to take a more comprehensive approach to EE.
- The utilities will consider one or more demonstrations of a comprehensive whole building approach (WBA) to commercial building energy efficiency. This approach may make available the tools and resources necessary for customer to pursue and integrate multiple customized measures. This approach may also include the deployment of energy management and information systems in demonstration projects that can be used to quantify and analyze energy savings based on various forms of performance data, including interval meter data.
- Multi-tenant buildings have a unique and significant barrier. Most typically referred to as the principal-agent or tenant-landlord split incentive, this issue is characterized by the natural separation of tenant energy efficiency savings and capital expenditures by building owners. The commercial program will incorporate market research and/or market tests to better understand potential programmatic offerings that can help reduce the barrier. Some examples of strategies that might warrant testing include combinations of education and creative tenant/landlord incentives or credits for centralized systems or building shell upgrades, incentives for sub-metering, and plug load control technologies.
- Because program offerings will be bundled, especially through the Continuous Energy Improvement Program, the program eligibility requirements will be made more consistent, leading to fewer areas where customers are not served.
- For public sector customers, existing federal and state programs and mandates will be leveraged.

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- Utilities will expand the Statewide EE Finance Program, which offers unique benefits to government departments by allowing them to retain rebates and cost savings from EE projects without having to upstream these financial benefits to the General Fund.
- The Statewide Finance PIP includes plans to explore and develop additional finance tools to facilitate the adoption of integrated projects.
- Coordination with other parties will be enhanced so that related programs (e.g., water conservation, reduction in greenhouse gas (GHG emissions, LEED™) are clearly and concisely communicated to customers, which should improve participation in all offerings.
- During the 2013-2014 period, as part of AB 1103 requirements, utility data to be used for benchmarking buildings will be provided by the IOUs to the EPA for facility owners' use. The existing energy benchmarking offering will give customers the information required to understand how their buildings perform and how the improvements they make can be tracked.

d) Quantitative Program Targets

Table 5 - Program targets are provided at the sub-program level.

e) Advancing Strategic Plan goals and objectives

Many activities under the Commercial Statewide Portfolio advance the goals, strategies, and objectives of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan). Details on these actions are provided in the tables found in the Commercial sub-program descriptions. The examples below highlight some of the Portfolio strategies that align with the Strategic Plan:

- **Integration:** To encourage greater use of IDSM, IOUs will
 - Offer customers solutions that integrate site-specific and optimized packages of comprehensive energy efficiency, demand response, solar and combined heat and power and thermal storage opportunities.
 - Develop an active cooperation network among the different stakeholders, such as corporate and local managers, OSHPD, engineering firms, service companies, architects, and vendors.
 - Create customized long-term plans with large corporations connecting corporate and local levels integrating energy efficiency, DR, self-generation and renewables.
 - Implement integrated local integrated marketing campaigns that leverage multiple tactics and multiple communications to present customers with a holistic view of EE and other DSM programs and service offerings.

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- **New energy efficiency delivery methods:** To take advantage of the significant opportunities offered by information, behavior-change strategies and training as delivery channels for increasing energy efficiency, utilities will:
 - Drive expanded involvement of the California Commissioning Collaborative in developing statewide measurement and verification protocols and professional training and accreditation programs for the retro-commissioning industry
 - Champion adoption of stringent codes and standards within the industry .
 - Publish baselines, best practices and calculation tools to facilitate the dissemination of information and to help customers select and evaluate energy efficient solutions.
- **Financing and Funds Leveraging:** To overcome cost barriers to energy efficiency, the IOUs will:
 - Create customer awareness and educate customers about standardized statewide EE financing and develop additional finance strategies for the commercial section.
 - Continue incentives for on-peak demand reduction related to retrofits and retro-commissioning.
 - Partner with integrators like Siemens, Trane to aggregate energy efficiency with other building improvements, such as security, safety, waste management, and IT.
 - Analyze the green vision of the corporations to align energy plans towards their objectives
- **Advanced Adoption of New Products:** IOUs will create demand for advanced, energy-saving products—such as lighting and HVAC—by expanding incentives to include both financial incentives and technical assistance while partnering closely with Emerging Technologies to bring new technologies through development to the market, and strengthening relationships with vendors.
- **Workforce Development:** To expand their role in creating and meeting the demand for a robust energy efficiency workforce, the IOUs will:
 - Support the development of new and innovative programs to influence commercial trade schools to teach about the financial incentives, tools, protocols, partnerships, expert analysis, and implementation support services that promote commercial building energy efficiency and optimum load management.
 - Engage various industry and energy-wise stakeholders to expand their current intellectual knowledge and coordinate education/training opportunities through the WE&T program, outreach through ME&O, and coordination with research and technology.
 - Expand the CALCTP initiative to create additional opportunities for lighting contractors to become certified in the proper installation of advanced lighting control systems.
- **ZNE Commercial Buildings:** To help make ZNE a reality in the commercial sector, utilities will:

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- Integrate successful ZNE strategies and activities proven through program and/or pilot projects during the 2010-2012 program cycle. The commercial program, particularly Savings By Design, will absorb and enhance existing programmatic elements aimed at delivering ZNE best practices to the market place, potentially including but not limited to:
 - Project consultations that pair projects with experts capable of driving unique designs to ZNE;
 - Provide education opportunities to key architectural, engineering, and other design professionals (see WE&T plans);
 - Continue successful design competition elements aimed at ZNE design in the student and professional communities; and
 - Explore cost effective ZNE solutions that consider the intersection of building and community energy use
- Facilitate benchmarking and constant improvement by supporting the initiative recently launched by the DOE and Lawrence Berkeley Laboratory .
- Explore joining or continue a leadership position in the national Office of the Future Consortium (“Consortium”) which was established to help shape and inform the research and product development of individual component products that have the ability to communicate with each other, are interoperable, and that create a system that will meet defined performance standards for a described office space type. The recent publication of the 25% Solution is intended to identify significant reductions in energy used by lighting, plug loads and HVAC systems using a comprehensive “Systems” approach that also improves lighting quality and air conditioning/heating performance. The efforts of the Consortium will be fully integrated into the Commercial Calculated and Deemed incentive programs to create a delivery mechanism that supports the path to ZNE buildings.

6. Program Implementation

a) Statewide IOU Coordination

i. **Program name:** Statewide Commercial Energy Efficiency Program

ii. **Program Delivery Mechanisms**

The Statewide Commercial Energy Efficiency Program will coordinate on a statewide level to ensure the program is continuously updated and enhanced throughout the 2013-2014 program cycle. In addition, the six Commercial sub-programs will be coordinated on a statewide level to align by program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. (For a detailed description of each of these program aspects and how they will be coordinated statewide, please refer to the Commercial sub-program descriptions). The two

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coordination systems (one for the broad programmatic level and one designed for the sub-program level) will interact with and support one another. The broad, high-level coordination effort will be described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Commercial Energy Efficiency Program.

The Statewide IOU coordinated effort for the Statewide Commercial Energy Efficiency Program will be as follows:

- Designate an IOU Program “Lead” – The coordination process will begin with each IOU designating a Statewide Commercial Energy Efficiency Program “lead.” The IOU lead will represent one Commercial sub-program, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges show potential for impacting the Statewide Commercial Energy Efficiency Program across multiple sub-programs or the statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.
- Hold Periodic Steering Committee Meetings – The Commercial Steering Committee will be comprised of all designated IOU leads (including at least one lead for each of the six sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the Steering Committee meetings, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be transmitted to all IOUs. The Steering Committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the Commercial Energy Efficiency Program’s progress against statewide metrics and goals.
- Adopt Program Enhancements – Once the Steering Committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide Steering Committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.
- Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the Steering Committee will track the program’s accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Steering Committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

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The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the two year ‘transition period’ will be assured.

iii. Incentive Levels

Incentives for commercial customers will be provided through both prescriptive and customized approaches. Refer to the Commercial Deemed and Calculated Incentive sub-program descriptions for information regarding specific incentive levels.

iv. Marketing outreach plans

Local commercial marketing strategy will focus on helping customers understand the relevance of EE programs and services and enabling customers to take actions that are appropriate to their needs -- including one-time measures such as rebates as well as deeper retrofits. This local EE marketing strategy will be coordinated through a variety of channels and tactics, with the intent of reaching customers at the right place and at the right time to drive increased participation and ongoing engagement.

The IOUs will continue to develop an in-depth segmentation of the commercial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the commercial sub-program plans. Local outreach to SMB customers will also leverage a new Statewide ME&O campaign that will focus on creating awareness and educating customers about energy management and integrated DSM.

v. IOU program interactions with the California Energy Commission (CEC), Air Resources Board (ARB), Air Quality Management Districts, local government programs, other government programs as applicable

The Commercial Energy Efficiency Program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with commercial customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. Refer to the Commercial sub-program descriptions for more specific information on linkages with other government programs.

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vi. Similar IOU and POU programs

Several of the initiatives described herein (i.e., California Advanced Lighting Controls Training Program and Office of the Future Consortium) are joint efforts with the other California IOUs and POUs, as well as other domestic and international utilities. In addition to these joint efforts, local third-party programs that address niche opportunities within the commercial market segmented will be implemented in each of the IOUs service territory. These various efforts will be coordinated to ensure a consistent approach in terms of program message, delivery and measure incentives (as appropriate).

b) Program delivery and coordination

i. Emerging Technologies program

The long-term energy efficiency vision of California can only be attained through the continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the program will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. The Commercial Energy Efficiency Program is currently working to support a diverse list of emerging technologies

ii. Codes and Standards

The commercial offering relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As codes and standards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program coordinate with the Codes and Standards Planning & Coordination sub-program. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream.

iii. WE&T Efforts

WE&T efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. For the Commercial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy

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Management Certification and the ISO 50001 Energy Management System development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings.

The education and training takes place through energy centers, technology test centers, and education and training program offerings.

iv. Program-specific marketing and outreach efforts

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. When appropriate, individual programs will be targeted to customers or industries based on segmentation data and strategy, however, such individual program-specific efforts will be part of a larger integrated approach to customer outreach to Commercial customers.

The integrated Statewide ME&O effort will focus on creating awareness and educating SMB customers about energy management and the local campaign will focus on the ways that customers can engage and take action to participate in EE as well as other integrated DSM offerings.

To address the diverse commercial customers segments, utilities will continue to foster strategic partnerships with trade association and industry groups to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. Specific efforts will include:

- Attending trade association meetings and providing information in monthly newsletters.
- Close partnerships with key industry associations, and participation in their annual conferences, with an effort to develop conference speaking engagements.
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement.
- Ads and articles, with program information and case studies, in trade magazines.
- Online content and integration of marketing materials and campaigns with online tools such as audits and other energy demand and usage.
- Targeted customer efforts through assigned account representatives, technical solutions engineers and program engineers, third parties, and government partnerships.
- Telephone and web-based customer support and outreach.

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- Market sector specific collateral that drives customers to account representatives and websites for additional support.

v. Non-energy activities of program

Integrated Energy Audits (described in the Commercial Energy Advisor sub-program) and Continuous Energy Improvement are the primary vehicles to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies).

vi. Non-IOU Programs

In addition to the interactions with local, state and national programs, there are a variety of programs that will be coordinated with and leveraged in support of the Program objectives. These include:

- Connecting customers with the CA Climate Action Registry
- AB32 support through CO2 tracking in program resources
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations
- Non-utility financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives
- international energy management standards (see CEI section)

The Program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

1. CEC

As of June 2012, PIER no longer exists. However, the program will interact with the Emerging Technologies Program (ETP) to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and projects in coordination with the applied research of CEC.

The program will also coordinate with the CEC on the BEARS tool development and launch.

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2. CEC work on codes and standards

As indicated in Section 6.b.ii, planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

3. Non-utility market initiatives

The Commercial Energy Efficiency Program will coordinate with applicable market initiatives to leverage market momentum and areas of mutual advantage. The Program will leverage the following efforts:

- California Green Building Initiative
- LEED
- Zero-net energy
- DOE
- AB1103
- AB758

c) Best Practices

As described in prior sections, the Commercial Energy Efficiency Program reflects the best of each utility program's successful components of statewide Commercial Energy Efficiency Program offerings, and introduces new elements from other utilities and national efforts as well. Best practices include:

- Benchmarking as an appropriate first step for customers to assess their energy baseline.
- Development of a prioritization process, leveraging the CEI sub program, that works to identify the most significant upgrade potential based on building and ownership characteristics. This process will help guide customers to a building integrated approach leveraging all of the available utility programs for a customer segment rather than only pursuing the "low hanging fruit". The utilities will continuously educate the various delivery channels on the importance of the building integrated approach and how to increase customer participation at a whole building level.
- Technical Assistance: The IOUs recognize the need for a personalized, full service approach when providing technical assistance to customers –from audits to design and technical assistance, presentation of recommendations, resources to develop a long term plan, and the potential of project management assistance with financial incentives.
- Vendor Partnerships: This strategy will be coupled with vendor support and educational workshops and classes to provide the full breath of support customers may need to influence their decision to implement energy efficient equipment and practices.

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- Statewide Coordination: The IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.
- Leveraging Local Commercial sector: Resources such as industry associations, trade associations, and facility management associations will be leveraged.

d) Innovation

Significant innovative aspects of the Commercial Energy Efficiency Program offering include:

i. Integration

- Benchmarking will provide customers with an easy and low cost way to assess and monitor their energy use.
- Integrated Energy Assessments provide targeted customers with integrated solutions in efficiency, DR, and DG, and advise customers on other sustainability practices such as water conservation opportunities, CO2 reduction potential or other programs references.
- IOUs will link customers with the California Climate Registry to support carbon foot printing of a customer's plant.

ii. Marketing

- The Customer segmentation work currently underway will support development of new, super targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs.
- IOUs will examine opportunities in the "MUSH" segments (municipalities, universities, colleges, schools and hospitals) for focused offerings in conjunction with all the segmentation plans being deployed.
- Closer coordination with third parties, government partnerships, core programs, and other delivery channels will optimize portfolio performance.
- Utilities will increase outreach to new trade and community-based associations, leveraging best practices identified in ACEEE study of utility Commercial Energy Efficiency Programs.
- Energy Design Resources, developed statewide by IOUs, will be expanded as a web-based hub of commercial and food processing best practice information, training, modeling and performance tracking tools.
- Expanded workforce education and training efforts with vendors, design teams, industry association members and other key market actors will help overcome many customer informational and transactional barriers
- Training will be provided on modeling and quantifying savings opportunities through tools such as eQUEST and Energy Pro.

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iii. Implementation

- Utilities will coordinate process improvements for statewide programs to ease participation barriers.
- SMB-targeted local marketing will leverage the heightened levels of awareness and education that the IOUs expect to result from the Statewide ME&O campaign.

iv. Deeper Energy Savings

- Utilities will seek to deliver deeper energy savings to our customers through bundling of measures, continuous energy improvement, innovative auditing, and/or whole approaches.
- Utilities will explore other mechanisms to more highly reward comprehensive energy management retrofits, e.g. premium incentives for bundled measures coupled with an energy audit.
- Utilities will enhance current finance offerings by standardizing statewide financing and exploring innovative tools to leverage additional funding sources.
- Utilities will evaluate approaches which bundle various equipment and technologies to encourage customer adoption of long and short-term payback IDSM measures.
- Utilities will seek to motivate owners and operators of large facilities to undertake improvements through presenting compelling return on investment (ROI) or Payback based business cases to top decision-makers, while strengthening the skills and knowledge of building operators.
- Utilities are considering a number of different, innovative approaches to achieve deeper energy savings; including a whole building approach that integrates both customized retrofit and retro-commissioning in a single, performance-based program offering.

Energy performance measuring and benchmarking assistance/services to customers will enable customers to compare themselves to “best in class” peers utilizing tools such as the U.S. EPA’s ENERGY STAR Benchmarking tool.

e) Integrated/coordinated Demand Side Management

An integrated portfolio is cost effective, captures program delivery efficiencies, and serves the needs and wants of customers, who prefer a single, informed utility point of contact who can help inform and prioritize their energy investment decisions based on their unique needs. To that end, the statewide utilities and the Statewide Commercial Energy Efficiency Program have made tremendous progress in advancing integrated solutions:

- **Marketing:** In marketing integration, the IOUs are placing major emphasis on getting the right message to the right customer at the right time. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach

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plans which outline multiple tactics, delivery channels and key messages to target to specific customers based on their specific needs. The account representatives, who serve as the key customer point of contact, will be attending an integrated sales strategy and training program to ensure consistent delivery of portfolio offerings.

- Education and training – especially workshops organized around a customer segment – provides an ideal situation to integrate customer energy solutions. Utilities will build on past successes to provide integrated workshops to restaurants, retailers, office building facility managers, lodging, and warehouses. The workshop topics generally start with “analysis” resources and methods, and move on to “conservation”, “efficiency”, “demand response”, then “generation” topics and resources. These workshops provide opportunities for utilities to cross-sell solutions and share key information with other utility departments.
- As appropriate, Workforce Education and Training will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures. For example, the California Advanced Lighting Controls Training Program addresses both the energy efficiency and demand response capabilities through the proper design, specification and installation of lighting system controls.
- The availability of a Continuous Energy Improvement approach, especially for the largest, most strategic customer accounts, will facilitate a thoughtful, integrated energy plan and will allow utilities to stay engaged in supporting the progress of that plan.
- Integrated Energy Audits combine funds and resources of energy efficiency and demand response programs to provide integrated recommendations to customers that emphasize energy management in proper sequence, in support of the California Loading Order: Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in the larger facilities, especially as part of monitoring-based retro-commissioning efforts where the controls to facilitate demand response efforts would be installed. Additionally, any energy efficiency audits required for participation in distributed generation programs will be expanded to include DR opportunities when appropriate.
- Emerging Technologies and CEC collaboration is expected to include initiatives and market acceleration assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

f) Integration across Resource Types

California’s Commercial sectors face a multitude of environmental, regulatory, and financial (Landlord owned, capital outlay) challenges that impede the adoption of new energy efficiency technologies. In addition, new regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

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The Commercial Energy Efficiency Program proposes to leverage these challenges to coordinate with the regulating agencies and the programs they are operating in order to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities.

Utilities will pursue opportunities to partner with water agencies to offer joint energy and water incentives in support for projects that reduce both resources, which ultimately improves payback and decrease project costs.

Where applicable, the program will integrate topics like LEED certification into targeted customer workshops, marketing and communications, building on a strong track record from the 2006-8 program cycle.

Third party programs at the utilities will further integrate resources. These third party programs will focus on specific customer segments offering a complete project package that will include integration aspects.

g) Pilots

During the course of the two-year cycle, initiatives may be created based on the needs of the commercial customers.

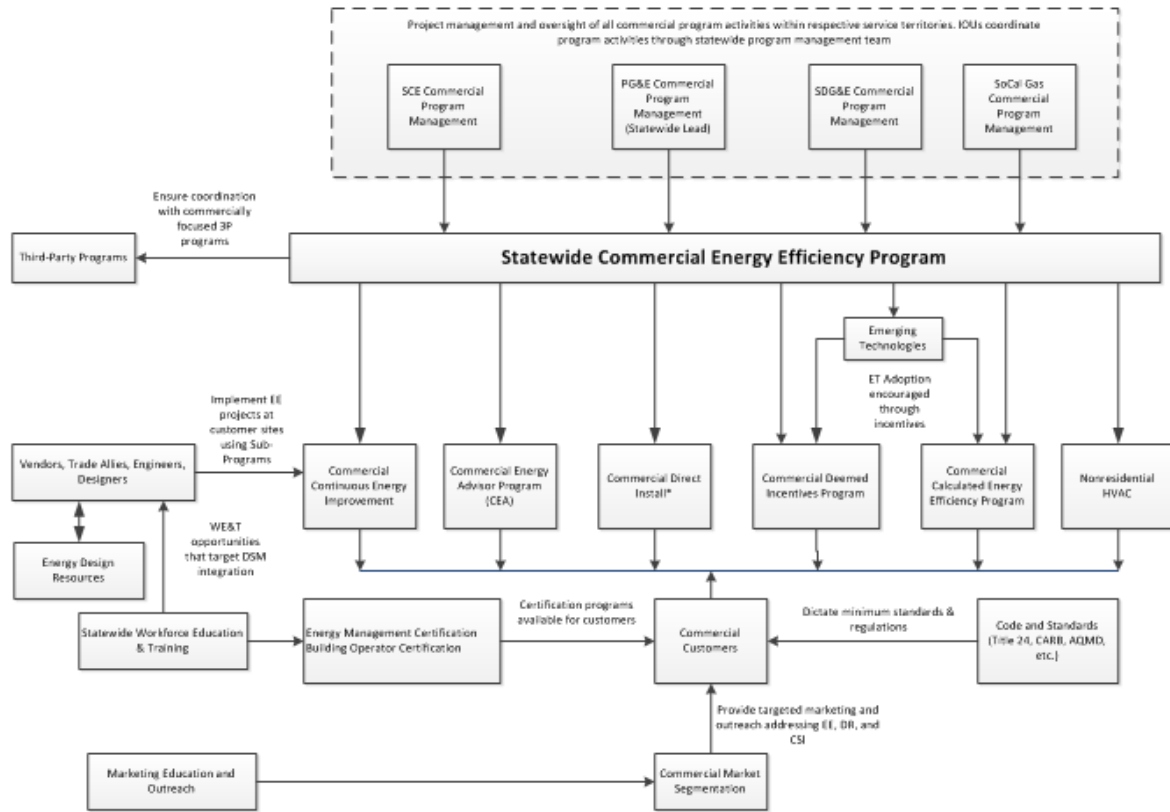
The IOU's intend on implementing methods to gather and retain more detailed performance and usage data on a pilot basis to determine more effective methods and to achieve savings. Exploring incentives for sub-metering is an option as is expanding the tool library in lieu of incentives.

h) EM&V

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues.

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7. Diagram of Program

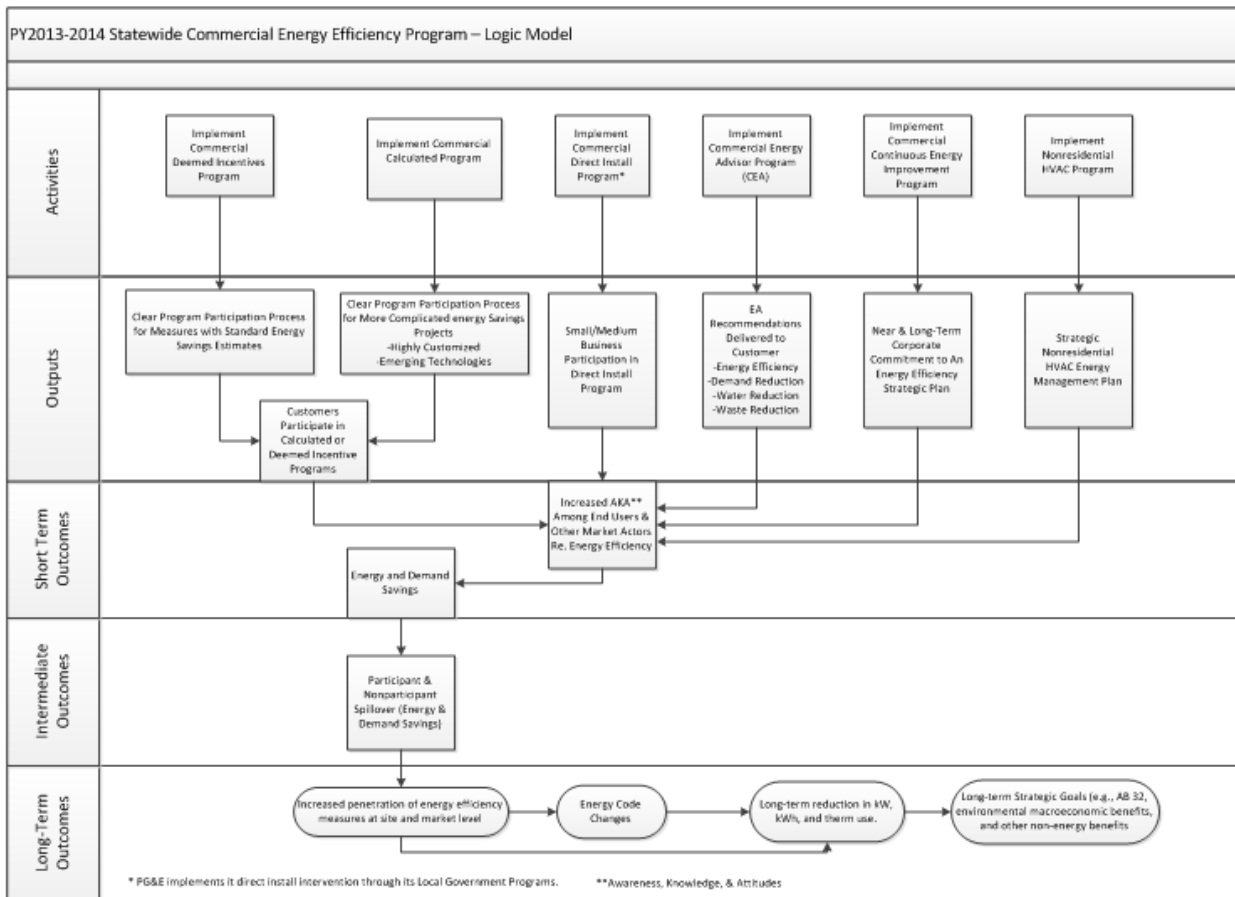


*PG&E and SOG deliver direct install through Local Government Programs and Third-Party Programs

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8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Commercial Energy Efficiency Program.



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1) **Program Name:** Commercial Energy Advisor, Core Sub-program
Program ID: SCG - 3708
Program Type: Statewide Core Program

2) **Projected Program Budget Table**

Table 1 – reference the overarching program for budget details

3) **Projected Program Gross Impacts Table – by calendar year**

Table 2 – reference the overarching program for savings details

4) **Program Description**

a) **Describe Program**

The Statewide Investor Owned Utilities (IOUs) have created the Commercial Energy Advisor sub-program (CEA) to bring together under one program all services offered to support customer education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

CEA was created to provide a streamlined and coordinated assignment of right-sized customer solutions. The key is to start the process with an initial analysis of a customer's needs, determination from the analysis which audit will service the customer with the highest cost/benefit, identify additional program support and key indicators that will motivate the customer to implement energy saving recommendations

The utilities anticipate the restructuring of CEA will affect the way audits are provided. CEA will enhance the IOUs' ability to match customers' need(s) with the right audit service. This will result in an increased cost-effective delivery of these audit services with an increased expectation for customer adoption/installation of provided customer specific recommendations.

In its offerings, CEA will place an emphasis in deep energy saving measures and emerging technologies where appropriate. When the technologies and customer opportunities are correctly aligned, the customer will become more open to the benefits these technologies offer to their business and will therefore increase their acceptance and adoption.

Together the CEA offerings will work to support the achievement of Strategic Plan objectives across all non-residential segments.

The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

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The CEA package consists of six (6) distinct offerings:

- **Benchmarking** is the first step for a customer to begin to understand the energy use of their building. Benchmarking is an initiative designed to educate and motivate customers to measure and track the energy use of their facilities, educate customers of the benefits of benchmarking their facilities and how they can track the impact of energy savings after implementing energy saving measures. To support the customer's efforts, the IOUs will offer technical support, hands-on workshops that will provide customers with information on how to benchmark, how benchmarking can be used as an energy management tool and what to do next after benchmarking.

The IOUs will develop or continue benchmarking initiatives that supports the customers' ability to comply with AB1103's benchmarking requirements (upon its implementation), utilizing ENERGY STAR Portfolio Manager and IOU supported Automated Benchmarking Services.

The IOUs will also continue to offer customers technical support ranging from email and phone hotlines, hands-on workshops and web-based benchmarking educational and instructional materials.

Support will continue to identify, evaluate and make information disposable about other benchmarking tools available.

The primary focus for benchmarking activities will continue to be centered on commercial buildings (in alignment with the target building type of AB 1103).

- **Online Energy Audit Tool (Small Business)**: The online audit tool is an enhanced, customer friendly "do-it-yourself" web-based audit tool targeting small business customers. The online audit tool offers an integrated auditing approach providing energy efficiency, demand response and self-generation recommendation and education.¹

With large numbers of small business customers in each IOU's service territory, it is necessary to offer and test different cost-effective strategies that can help small business customers maximize their energy use.

The IOUs will confirm their implementation timelines and once their tool is rolled out, they will initiate a continuous improvement cycle to ensure the benefits and features of the tool are meaningful for customers use. As the timing is appropriate, the IOUs will initiate marketing campaigns to raise small business customer awareness of the tool's availability and benefits.

¹ The online energy audit tool is a continuation of the Universal Energy Audit Tool (UEAT) from the 2010-2012 program cycle and is also referred to in the Commercial Energy Efficiency Program logic diagram)

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Per the Final Transition Period Decision, IOU implementation timelines occurring beyond 2012 are listed below. Note: PG&E implemented its Residential tool, in compliance with CPUC directives, in Q1 2012.

Audit Type	Description	IOU	Small Business	Residential
Online Energy Audit Tool	The web-based energy audit tool (also known as the Progressive Energy Audit Tool) provides Small Business and Residential customers with a customized audit designed to help customers understand their business and/or home energy use. The tool provides concrete customer suggestions about ways to maximize their energy efficiency (EE), demand response (DR) and distributed-generation opportunity.	SCG	Q2 2013	Q4 2012
		SDG&E	Q2 2013	Q4 2012
		PG&E	Q4 2012	Q1 2012
		SCE	Q1 2012	Q1 2012

- Continuous Energy Improvement (CEI)** Continuous Energy Improvement (CEI) is a consultative service aimed at helping customers (utilities will target CEI services in line with market segment potential in their service territories and resource availability) engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices which address energy savings, reduction of greenhouse gas emissions and water conservation, through high-level energy commitments from executive and board-level management. CEI offers customers the pinnacle of audit offerings guiding executive management to levels of energy management self-actualization that makes energy and environmental issues a consideration in all management/business operational decisions and in long term energy planning. For additional information about CEI, please consult the CEI Program Implementation Plan.
- Non-Residential Audits (NRA)** for the Transition Period will provide Integrated Comprehensive Energy Audits (ICEA) that focus on customer energy savings, cost/benefits, and the targeted delivery of financial and technical assistance. Audit information must communicate complex information in a simple and understandable way to enable customers in identifying energy efficiency, demand response and distributed generation opportunities. Audits use “ex ante” deemed and calculated methodologies for energy savings analysis information.

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As stated above, NRA offers two (2) categories of audits – basic and integrated.

Audit Type	Description	Detail	SCG	SDG&E	PG&E	SCE
Integrated Customer Energy Audit	The ICEAT audit is a customized audit specifically designed to help customers understand and identify their facility's energy use and provide concrete suggestions to maximizing energy efficiency (EE) demand response (DR), and distributed-generation opportunity as defined by the customer's need.	Phone	YES	YES	YES	YES
		Online (Web-Based)	YES	YES	YES	YES
		Onsite	YES	YES	YES	YES

This program cycle, emphasis will be given on meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), streamlining the audit process increasing its efficiency, lessening complexity, and increasing the effectiveness of influencing customer implementation actions through actions such as integration of the demand response technical audit component directly into NRAs offerings. In addition, the IOUs will investigate ways to implement meaningful financial measurements such as return on investment (ROI) and/or simple payback metrics. The key is ensuring financial tools selected provide the customers with meaningful information by ensuring cost assumptions are appropriate to the customer. Also, NRA will assume the audit and budget responsibilities for Demand Response's technical audit services, as applicable. It is intended that these audits will be a critical component of the integrated comprehensive audit service offering.

- Pump Efficiency Services** is designed to help commercial customers make informed decisions about improving inefficient pumping systems and operations through recommendations derived from pump test audit or direct observations of processes. Pumping of water is estimated to account for more than 80% of the electric load and 73% of the natural gas requirement in California in the agricultural segment, and this load is growing as the state's water users increase their reliance on pumping water to meet their needs. Pumping is also estimated to account for 20 to 25% of energy usage within the nation.

The Pump Efficiency Services program element, implemented by a team of trained in house or third party contractors, aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, retrofit incentives, and targeted education, training and technical support for customers and pump companies. Each IOUs database of pump test results will be used in the near-term to target pumps in need of retrofit as a means to capture savings. However, pump performance data aggregation at the

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statewide level will contribute to the development of metrics and targets for pump improvements, in support of a statewide pumping focus across segments, in agriculture, commercial and industrial, supporting their strategies and objectives.

The IOUs will continue to offer pump testing services at no or low cost and pumping system efficiency workshops through their energy education centers or other event opportunities.

- **Retro-commissioning:** The IOUs are planning to continue and enhance their core Retro-commissioning (RCx) programs. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments.

The RCx element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary adjustments to correct the deficiency. RCx is offered to agricultural, commercial and/or industrial customers based on the market segment potential and resources of the respective IOU. The range of projects may involve measures which reset, repair or replace existing system controls and components. Simple paybacks for these measures are usually short in duration and must meet customer expectations. Through the RCx assessment report, comprehensive projects are identified and referred to other sub-programs for completion (i.e., Commercial Calculated and Deemed Incentives). Energy savings from projects identified through RCx will be claimed in the Commercial Calculated Incentives sub-program.

Enhanced RCx program elements will explore and may include but not be limited to:

- a. Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- b. Continuous commissioning and monitoring-based commissioning;
- c. Solutions for small and medium commercial customers;
- d. Strategies to drive savings persistence;
- e. Appropriate alignment with retrofit activities;
- f. Overall program incentives, targeting, and delivery.

The RCx program is a key offering in the Commercial Calculated sub-program and a more detailed description of the program is provided.

The CEA strategy focuses on simplifying the way audits are provided to customers. Through various assessment functions, the IOUs will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (i.e. primarily EE, DR, and SG).

It is anticipated CEA will allow the expansion of audit serves across diverse class of customers, potentially across all segments and will interconnect the customer with the wide and diverse range of programs offered. From a customer perspective, the impact on customer time and resources will be reduced, the audit analyses will include DSM, greenhouse gas

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reduction information, provide water conservation recommendation all in a single report. The resulting report will identify comprehensive solutions that will simplify the customer decision-making process.

The primary program objectives for 2013-2014 are:

- Support the Strategic Plan by offering integrated audits across a wide selection that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed generation) focusing on customer facilities as defined by each IOU's market potential and resource availability.
- Provide a focus on the "MUSH" market (municipalities, universities, colleges, schools, and hospitals) to test ideas for deeper energy savings efforts.
- The continuation of delivering high value audit reports to the customer. Audit reports will be designed in such a way that they will provide the customer with information which motivates them to implement energy efficiency, demand response and consider renewable generation options.
- Enhance efforts to identify and provide financial analyses focused on deeper energy savings and technologies. Identify ways different financial metrics, such as return on investment (ROI) and/or simple payback, can be provided where the values presented have meaning to the customer.
- The IOUs will explore and evaluate the potential of enhanced customer incentive options that are contingent on a customer's receiving an audit prior to applying to incentive programs.
- Incorporate new and/or emerging technologies appropriate for the customer's facility.
- Develop and implement enhancements to current benchmarking workshops (targeting commercial buildings) and continue providing benchmarking and AB 1103 technical support through established and new delivery channels.
- Encourage statewide consistency by offering a similar energy audits with the ultimate goal of offer customers the best energy management practices and technologies.
- Review and evaluate the CEC's Building Energy Asset Rating System tool (BEARS) once the CEC has completed developing the tool. The successful implementation of testing the new BEARS audit tool will depend on its timely release. BEARS is currently slated for completion at the end 2012. If the release of the BEARS tool is significantly delayed then the implementation of a successful pilot will also be delayed.
- Enhance the CEA ' offerings by including activities such as, but not limited to:
 1. The highlighting of emerging technologies and deep energy savings opportunities and providing education on long term energy planning/project management strategies (in coordination with the Commercial CEI program).

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2. Will continue existing water saving services and develop Leak detection services and strategies which will offer the service to customers in all customer segments as determined by the IOUs to provide customer benefits and cost-effective to administer. The services will, be offered through the use of audit teams, in house and/or contracted, and may be required as a service in the delivery of all integrated comprehensive audits.
3. CEA will play a key role in exploring options regarding identifying deep energy savings, promotion of emerging technologies and providing the proper support to those customers who take advantage of more than three (3) measures from Commercial Deemed Incentive subprogram.
4. CEA will develop processes to assist energy audit teams and customers identify facilities and services that will provide the greatest return on benefits from the audit. The IOUs may explore leveraging tools to complete energy audits, usage analysis, assessments and/or building performance benchmarking as the first step in determining a customer's need.
5. CEA may also enhance tracking and audit component capabilities to support customer needs analysis, reduce program application barriers, maximize recommendation follow up and streamlined audit report generation.

b) List of Measures

The CEA primarily offers non-resource, auditing services. It does not offer incentives, but ultimately influences the customer's implementation of energy efficiency, demand response, and self-generation opportunities in combination with incentive from the core commercial incentive programs (refer to the Commercial Deemed and Calculated Incentives sub-programs for specific information). However, each utility reserves the ability to offer incentives specific to CEA's individual service offerings.

c) List Non-incentive Commercial Energy Advisor Services

The Commercial Energy Advisor (CEA) sub-program is designed to deliver a coordinated and customer specific service. CEA features a statewide integrated demand side management customer specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer's need(s).

Such activities include, but are not limited to: energy management assessments, energy planning, marketing and outreach, baselining and benchmarking, project implementation support, technical support, energy savings calculations, process evaluations and report generation, and web-based energy resources.

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5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

See Attachment A - Table 3 – refer to the overarching program for quantitative baseline metrics

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

c) Program Design to Overcome Barriers

CEA offers services that address corporate/management cultures that prevent successful implementation of comprehensive energy policies. These offerings help overcome customers' lack of awareness of DSM opportunities by providing a customer focused, comprehensive package of energy solutions designed specifically to motivate the customer to implement recommendations. Information such as cost/benefit analysis (i.e. ROI or simple payback) and identification of appropriate IOU incentive and/or finance programs can significantly enhance the financial benefit of the energy saving recommendation. CEA also provides customers with tools to measure the effects of implemented energy savings actions on their bottom line.

CEA brings together audits and related services to implement energy saving activities.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Number of Audits	635	790

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e) Advancing Strategic Plan goals and objectives

The CEA is designed to promote DSM coordination and the integration strategies of the Strategic Plan. Foremost are recognition of the linkage between energy and environmental policy and the importance of integrating energy efficiency, demand response and distributed generation to support California's plan to reduce greenhouse gas emissions.

Specific near-term strategies proposed by the Strategic Plan that are addressed by the CEA include:

- Facilitate all State-Owned and Leased Buildings having a Retro-Commissioning option

By offering a dedicated retro-commissioning program a mechanism is created whereby IOUs can facilitate the achievement of this goal as a coordinated effort with the IOU Government and Institutional Partnership Programs.

- Strengthen Tools and Practices for Building Commissioning

Based on the IOUs' experience with managing the Retro-commissioning program, lessons learned and best practices can be integrated into the 2013-2014 offering. To increase market adoption of these program best practices, the IOUs will work in cooperation with the California Commissioning Collaborative to disseminate relevant information to the retro-commissioning community and services may be extended to all segments as deemed appropriate by each IOU.

- Identify New and Improved Tools and Strategies to Reduce Energy Consumption in commercial facilities

Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the benchmarking, CEI, NRA and RCx, demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, commercial customer processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing facilities contribute to California's zero net energy goals. Once implemented, recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.

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- State/Local Governments and Major Corporations Commit to Achieve EE Targets

CEA's offerings will seek to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop an actionable plan to achieve these goals; (4) guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

- Develop Tools to Reduce Energy in Commercial Facilities

As part of the implementation of specific CEA offerings, the IOUs will partner with energy industry peers, industry associations, and DOE/CPUC-sponsored labs and consultants to enhance the use of existing tools and explore new tools to help commercial customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

- EPA EnergyStar Portfolio Manager Benchmarking Tool.
- Management Standard for Energy SME2000-2008.
- DOE Superior Energy Performance.
- ISO-50001.

- Develop Business Models to Deliver Energy Management Solutions

CEA's offerings will address the fundamental purpose to influence decision making practices from commercial customers to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the agricultural market sector.

In addition, CEA's offerings promote acceptable practices of accounting, auditing, and evaluation by:

- Offering integrated and focused audits, benchmarking, savings calculation assistance for retrofit and retro-commissioning opportunities, and simplifying the audit-to-project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action.
- Guiding and supporting customers as they implement technologies, processes and practices to achieve deeper energy efficiency savings.
- Long term energy planning support.

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6. Program Implementation

- a) Assess and identify the best way to support the use of CEC's BEARS tool.
- b) Enhanced current benchmarking workshops and continue providing benchmarking and AB 1103 technical support through established and new channels.
- c) Emphasize and support integration in emerging technologies and deeper energy savings opportunities.
- d) In coordination with incentive programs, identify ways to streamline the end to end process for customers wanting to participate in utility energy saving programs.
- e) Continuation of Statewide IOU coordination

a) Statewide IOU Coordination

i. Program name: Commercial Energy Advisor

ii. Program delivery mechanisms

CEA will employ a variety of delivery mechanisms or channels. Most of CEA's offering will use IOU customer energy efficiency staff and contractors, service and sales representatives, website and/or marketing and outreach efforts. Other delivery channels may also be developed.

In addition, where applicable, Utility customer account representatives or program management staff will support this activity within the statewide commercial sector, as well as third parties, government partnerships, and local programs.

iii. Incentive levels

Not applicable.

iv. Marketing and outreach plans

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs.

Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost effectiveness of reaching customer groups.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

CEA's energy recommendations will continue to recognize the regulations required by other bodies. For example, information about GHG reductions resulting from

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AB 32 may be incorporated into the customer recommendations and to factor into the project's cost-effectiveness and water conservation information will be included in the reports as appropriate.

Program offerings will collaborate and support the CEC's AB 1103 mandate by assisting customer with technical and awareness activities. CEA will advance the introduction of the BEARS and California Rating Tool where reasonable.

CEA recognizes the efforts of the CEC's Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs and will leverage such activities to the customer's benefit.

b) Program delivery and coordination

The sub-program will be coordinated with the following activities, as applicable:

i. Emerging Technologies (ET) Program

The IOU CEA Management Team will stay abreast of and incorporate relevant emerging technologies into audit recommendations as appropriate.

ii. Codes and Standards Program

CEA implementation will include information about pending new codes and standards that may affect planning or prioritization of retrofit or new construction projects. Audits reports will include customer recommendations that are consistent with current governing codes.

iii. WE&T efforts

CEA implementation will integrate with WE&T efforts, as needed, by providing CSI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches, as required.

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iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs.

Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost effectiveness of reaching customer groups.

v. Non-energy activities of the program

Integrated audits are a key tool for identifying non-energy opportunities for specific customers. These opportunities will be pursued whenever possible.

vi. Non IOU programs

CEA reports will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. CEA will partner with programs offered by CEC, ARB, Air Quality Management Districts, ENERGY STAR, and other government and quasi-governmental agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to commercial sector customers, as opportunities present themselves.

With respect to water conservation, utility program managers will continue to partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects (ESPM, BEARS, California Rating Tool, Water Agencies and others).

vii. CEC

CEA implementation will continue collaboration efforts with the CEC and seek to promote adoption of new technologies developed through the CEC's processes and to educate customers to demonstration, research and/or pilot projects. Specific EA offerings will encourage recommendations addressing new technologies, processes, and methods, as identified in CEC projects, which will enable customers to achieve energy efficiency "stretch" goals that produce significant energy savings beyond an established baseline in a cost-effective manner.

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viii. CEC work on codes and standards

CEA will not be implemented with a direct linkage to codes and standards efforts. Although CEA will reflect code and standards regulation in its energy savings calculations as deemed appropriate.

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-utility information and guidance that CEA offerings will provide to customers. In addition, the IOUs will participate in state and national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

c) Best Practices

The IOUs will continue to leverage best practices and lessons learned at regularly scheduled statewide program management meetings. These meetings are forums to discuss program design and implementation issues, and as appropriate provide statewide collaborated guidance in RFP solicitations and awareness of program offerings so customers operating multiple facilities across IOU service territories receive the same customer experience.

Other best practices approaches apply the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the market sectors. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach will continue through the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

d) Innovation

For 2013-2014, the IOUs are identifying and evaluating program processes to increase effectiveness, simplification and increase the benefits the program delivers. Each IOUs set of lessons learned from these efforts will be shared and implemented to enhance energy savings benefits to all California IOU customers.

CEA will engage in a process of continuing improve as a new standard way of packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

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Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

e) Integrated/Coordinated Demand Side Management

CEA will provide a comprehensive approach for integrated audit services. Its services will have the flexibility of meeting every level of a customer's audits needs from integrated comprehensive audits to targeted or focused audits, which centers on specific systems or processes, to assessments or general walk through audits or online "do-it-yourself" audits (currently for small business customers), which when properly applied can assist in identifying the areas of a customer's greatest energy interest, financial capabilities of the customer's ability to invest in improving its energy use, and identification of other programs that can be brought into the discussion to motivate a customer to move forward with the energy saving plan.

The scope of services offered can coordinate the audit to look for retrofit or retro-commissioning opportunities; with benchmarking tools, or long term planning. Audit reports can present a truly integrated analysis to customers, seamlessly providing them with information and recommendations regarding energy efficiency, distributed-generation, demand response, greenhouse gas emissions and water energy savings, Customers will be referred to other IOU programs that will help them implement the recommendations resulting from the audit report and thus will be given a complete picture of their energy usage and options for reducing costs and using energy more efficiently.

f) Integration Across Resource Types

CEA will focus on DSM integration.

CEA implementation will include information on Non-IOU programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IOU EA managers will partner with the appropriate programs, when applicable, with government agencies to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers.

Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote CEA offerings, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, utility program managers will collaborate with the

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local water districts to produce marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

g) Pilots

CEA services may consider the development of test markets especially in the introduction of new energy benchmarking or saving tools.

h) EM&V

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues.

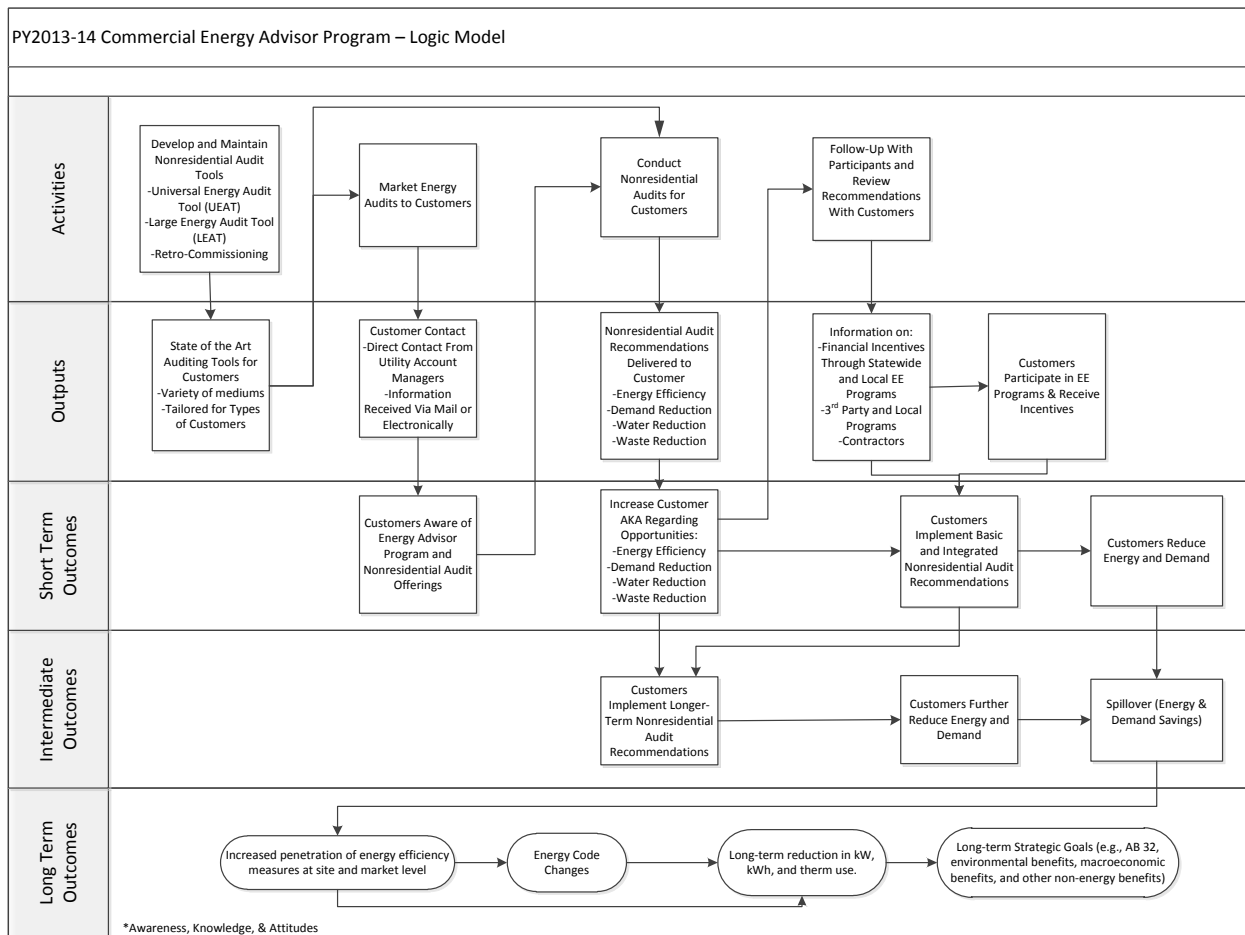
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7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs.



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Program Name: Commercial Calculated Incentives, Core Sub-program
Program ID: SCG - 3710
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 – reference the overarching program for savings details

4. Program Description

a) Describe Program

The statewide Commercial Calculated Incentives sub-program provides customers technical and calculation assistance, as well as incentives based on calculated savings, to influence the design and installation of energy efficient equipment and systems in both retrofit and added load applications.

The Commercial Calculated Incentives sub-program is utilized for projects where a rebate is not available through the statewide Deemed program, where project conditions require customized calculations to provide the most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling. Because calculated savings estimates are based on actual customer operating conditions, pre-inspections (for retrofit projects) and post-inspections are typically required as part of each utility's project documentation.

An important element of the Commercial Calculated Incentives sub-program is the design assistance and calculation assistance provided by the IOUs to influence customers to select the most efficient design and equipment options. For both retrofit and added load projects, IOUs work with the customer and their project team to evaluate their proposed projects and provide a report recommending efficient design alternatives and detailing energy savings, CO2 reductions, and calculated incentives available for exceeding Title 24 code or industry standard practice baselines as appropriate. This information is also available to customers through the nonresidential Audit offering. The combination of technical support and the availability and commitment of approved utility incentive funds is an essential driver to overcome key customer barriers, including lack of technical resources and lack of capital for energy efficiency projects.

Customers and project sponsors (contractors, design teams, vendors, ESCOs) participating in the Commercial Calculated Incentives sub-program may also opt to complete their own calculations for submittal to the IOUs for review and approval. For this purpose, consistent statewide calculators are publically available to customers for use if desired. The statewide utility-created and maintained CCT Calculator can be used for retrofits and is available

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online and through CDs. For whole building construction projects, IOUs accept both Energy Pro, available for license, and the utility-sponsored EQEST, available for free on the statewide Energy Design Resources website www.energydesignresources.com.

Depending on whether a project is a retrofit or added load project, and on whether Title 24 is triggered for a particular project, different baselines are applied to capture appropriate project savings. For retrofit projects, incentives are capped at 50% of the total project costs. For added load projects, incentives are capped at 50% of the total project cost.

b) List of Measures

A broad range of measures is eligible for the Commercial Calculated Incentives Program. The current incentives are summarized in the following table. The incentives for these measures are standard across the utilities participating in the statewide Commercial Calculated Incentives Program.

The following measure categories are eligible for Calculated Incentives:

- Refrigeration
- Gas measures

c) List Non-incentive Commercial Energy Advisor Services

The Commercial Calculated Incentives sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical and calculation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd the project through the process.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited

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available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude “draft” metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics (See Section 1a.5.a)

c) Program Design to Overcome Barriers

The Statewide Commercial Calculated Incentives sub-program offers customers incentives to implement energy efficiency measures that have been identified primarily through standard utility energy efficiency audits, in-depth facility/process assessments or retro-commissioning studies.

Other avenues used to identify energy efficiency opportunities include Programs that provide Education and Outreach, Workforce Education and Training, or through IOU Emerging Technologies Programs.

The Commercial Calculated Incentives Sub-program addresses and eliminates a significant number of barriers to energy efficiency for commercial customers such as:

- A high percentage of the time, developers, building owners, building managers and building contractors build or retrofit to current standards (i.e., Title 24). On the Architect and Engineering Firm side, design engineers specify what they know or what they are familiar with. The Commercial Calculated Incentives sub-program encourages or

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rewards developers, building owners, building managers, contractors, and A&E Firms to “push the efficiency envelope” and exceed Title 24 requirements, or to exceed industry accepted baseline standards when retrofitting existing buildings or systems by providing up-to-date information on emerging technologies and providing incentives to bridge the “chasm” which typically prevent emerging technologies from being adopted by the market.

- In several instances, high efficiency Emerging Technologies are viable, but are unknown to facility owners and system designers and thus, are slow to penetrate the market, causing energy efficiency opportunities to be “lost.” The Commercial Calculated Incentives sub-program helps speed market penetration and associated energy savings for Emerging Technologies by offering, when appropriate, “premium” incentives for emerging technologies that are “proven” but not widely employed in the markets for which they are intended (e.g., solid state lighting, advanced lighting controls).
- Across all nonresidential customer segments, a significant barrier mentioned is “Access to Information”. This can be a lack of awareness of operating “best practices”, lack of awareness of energy efficiency opportunities, difficulty accessing industry relevant technical assistance, inadequate availability of qualified industry specialists or lack of personnel resources to fully assess a building, system or process. Also, in many instances, customers are not sure of how a specific energy efficiency project will impact their emissions, resource consumption or waste discharge streams.
- Multi-tenant buildings have a unique and significant barrier. Most typically referred to as the principal-agent or tenant-landlord split incentive, this issue is characterized by the natural separation of tenant energy efficiency savings and capital expenditures by building owners. The commercial program will incorporate market research and/or market tests to better understand potential programmatic offerings that can help reduce the barrier. Some examples of strategies that might warrant testing include combinations of education and creative tenant/landlord incentives or credits for centralized system or building shell upgrades.

These barriers are overcome by providing:

- Highly skilled Energy Management Professionals that perform basic and integrated facility assessments;
- IOU Workforce Education and Training seminars through the Energy Centers;
- Web-based information and energy management tools that assist with identifying DSM opportunities;
- In-depth plant or system assessments such as the assessments jointly provided by the IOU’s and the U.S. Department of Energy (DOE), that focus on improving production and optimizing energy efficiency;
- Incentives based on energy savings quantified through technical assessments or basic audits that help customers overcome internal financial hurdle rates;

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- Incentive mechanisms that reward implementation of advanced technologies;
- Integrated solutions that conserve energy and reduce GHG emissions; and
- Statewide CCT Estimator that provides energy savings calculation for most popular and common retrofit projects and measures, assists in filling out program applications, and simplifies its processing.

The Commercial Calculated Incentives sub-program delivers a consistent message statewide to commercial customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer. This eliminates the barrier often run into by commercial customers of getting incorrect or out-of-date information from local networks.

The Commercial Calculated Incentives sub-program not only brings IOU incentive information to customers, but in many instances also provides additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, Tax incentives or other local sources of project funding.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

Program Name	Program Target by 2013	Program Target by 2014
Projects	TBD	TBD

e) Advancing Strategic Plan Goals and Objectives

The unifying objective of the Strategic Plan is to employ market transforming strategies to encourage marketplace adoption of energy efficient measures to a point that public investment in energy efficiency is no longer necessary (Section 1, page 4). The Calculated Incentives sub-program will support this effort by employing two of the five market transformation policies identified in the Strategic Plan. Specifically, the Program will offer “carrots” in the form of financial incentives to help pull the marketplace towards energy efficiency. The Calculated Incentives sub-program will also provide education and informational resources through marketing and program outreach efforts. Therefore, these program elements will work in concert to transform the market towards sustained, long-term energy savings.

The program will help to achieve the following near-term strategic goals as identified in Chapter 3 of the Strategic Plan:

- 2-3: Ensure compliance with minimum Title 24 codes – The Calculated Incentives sub-program only provides incentives for projects that exceed current Title 24 minimum

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baselines. Incentive mechanisms will be created to ensure deeper levels of energy reductions, potentially including implementation of the Office of the Future Consortium's Phase 2 recommendations, "The 25% Solution", which seek to reduce energy usage 25 percent below Title 24-2005 baselines.

- 2-5: Develop tools and strategies to reduce energy consumption in commercial buildings – The Calculated Incentives sub-program directly supports this effort by collecting data and conducting energy use and efficiency studies that, when collected over multiple IOU service territories, will be very helpful in supporting statewide efforts to establish a robust and useful knowledge base for the commercial sector.
- 2-7: Develop business models that deliver integrated energy management solutions – The Calculated Incentives sub-program will implement incentive mechanisms that will reward comprehensive energy management and "energy efficiency projects" such as incentives for reaching certain stretch goals that produce significant energy savings beyond an established baseline.
- 2-8: Improve utilization of plug load technologies – The existing incentive structure pays for energy reductions through plug load measures. Additional incentives that encourage greater penetration of plug load technologies may be developed.

6) Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process, described in detail in the Statewide Commercial Energy Efficiency Program, will ensure continuous improvement and consistent implementation of all of the sub-programs. The discussion below will focus on how the IOUs will coordinate the Commercial Calculated Incentives sub-program specifically.

The Statewide IOU Coordination process for the Commercial Calculated Incentives sub-program will be as follows:

- Hold Regular Program Manager Meetings – The Commercial Calculated Sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will unify, to the extent possible, the implementation of program aspects such as Program name, Program delivery mechanisms, Incentive levels, Marketing and outreach plans, and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges. Therefore, the regular meetings will focus on issues specific to the Commercial Calculated Sub-program only.
- Designate an IOU Program "Lead" – One of the sub-program managers that participates in the regular meetings will be the designated Calculated Program IOU "Lead". The IOU lead will represent the sub-program at the regular Statewide Steering Committee meetings.

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- Participate in Regular Steering Committee Meetings – The IOU lead will be responsible for attending the regular Steering Committee Meetings and sharing Calculated Incentives sub-program innovations, experiences and challenges that have the potential to impact multiple sub-programs or the core Commercial Energy Efficiency Program as a whole.
- Adopt Program Enhancements - Once the Steering Committee agrees that a specific innovation or implementation policy has merit on a statewide level; the IOU lead will distribute the information to the Commercial Calculated Sub-program managers by email or at the next regular meeting for adoption and integration. Therefore, the IOU lead will act as a conduit feeding Commercial Calculated Sub-program-specific information up to the statewide Steering Committee and distributing measures for adoption back to the Commercial Calculated Sub-program managers.
- Evaluate Program Enhancements – To complete the adaptive management loop, the Commercial Calculated Sub-program managers will track the success of the adopted statewide enhancement or implementation policy and report any challenges or concerns at the regular Commercial Calculated Incentives sub-program meeting. The IOU lead will report any challenges that transcend the Commercial Calculated Incentives sub-program to the Steering Committee, who will determine whether further course corrections are needed.

By following the process stated above, the Calculated Incentives sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the three year implementation cycle. Sub-program innovations and challenges will also feed productively into the higher-level Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

The coordination and unity of all program aspects, such as Program name, Program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions, will be handled through this statewide coordination framework. However, these aspects will start off at a high level of statewide consistency. In rare cases, there will be IOU-specific deviations. Such instances where one IOU will favor a different approach than the other IOUs will be called out in italicized text throughout the Calculated Incentives sub-program.

Additional areas of program coordination include:

i. Program Name : Commercial Calculated Incentives

ii. Program Delivery Mechanisms

The Commercial Calculated Incentives sub-program for will be delivered consistently across IOUs using the same application materials and energy savings calculation to ensure consistency. Both retrofit and added load projects for commercial customers are eligible for incentives.

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iii. Incentive Levels

Incentives will be at \$1.00/therm, capped at 50% of project cost.

The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division and market direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Calculated Incentive sub-program.

iv. Marketing and outreach plans

In 2013-2014, the IOUs will continue to target customers for calculated incentives based upon segmentation research and messaging. Large Commercial customers make up a significant portion of the audience for Calculated Incentives and these customers will not be targeted by the SW ME&O campaign. Due to the complexity of aligning Calculated Incentives with customer operations and highly individualized energy management needs, the sales cycle for these deeper retrofit measures tends to be longer and require significant one-to-one contact at the local level. Customer workshops and other account management support are all important parts local marketing and the consultative selling process for Commercial Calculated Incentives.

The Commercial Calculated Incentives sub-program will be marketed through IOU Account Executives, as well as through third-party programs, trade allies, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and e-mail support will be provided.

The IOUs plan to monitor and optimize local marketing campaigns and when possible, will share best practices and coordinate efforts for statewide consistency.

v. IOU program interactions

The Commercial Calculated Incentives Sub-program managers will partner with the appropriate programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector's customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated

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by or interested in more than one resource issue, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Commercial Calculated Sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that utilize the Commercial Calculated Incentives infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program Delivery and Coordination

The program will be coordinated with the following activities:

i. Emerging Technologies program

The long-term EE vision of California can only be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the sub-program will consider higher initial incentives for technologies being newly introduced to the market place through the Emerging Technologies Program. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. In addition, portfolio staff actively works to incorporate promising emerging technologies from IOU or CEC-funded projects.

ii. Codes and Standards program

The program relies on the Codes and Standards program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into codes and standards. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the

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bundling will be made to ensure the latest cost effective technologies/services made available as these technologies transition from research and development to the mainstream.

iii. WE&T

WE&T is a portfolio of education and training programs that showcase energy efficient equipment found on the list of measures offered in the program. The education and training takes place through energy centers, technology test centers, and education and training program offerings. In addition to providing the education and training the classes also address how customers engage the energy efficiency program offerings relative to the class. An Energy Efficiency representative will be present at appropriate classes to provide detailed information on the application process to the relevant Energy Efficiency program.

Specific workforce development efforts supporting the Commercial Calculated Incentives sub-program which include training on topics, not limited to as follows:

- Audits – Training will be developed in an effort to promote a consistent approach and format to facility audits.
- Financing
- Soft skills and Business training (including customer service, sales, and marketing).
- Benchmarking
- Program-specific training – Training will be developed to promote increased familiarity with the program’s eligibility requirements, application, processes, etc).
- IDSM

The IOUs will explore voluntary incentive-based approaches to encourage contractors and other industry professionals to complete the full bundle of Commercial – Calculated workforce development training. For professionals who complete the pre-requisite courses and pass a high-road skill standards test, such approaches may include (as applicable):

- Allowing marketing or advertising differentiation;
- An incentive bonus; and/or
- Providing preference to these professionals during bid evaluation process.

Commercial – Calculated workforce development training will be coordinated with the statewide IOU WE&T program. In addition to the trainings described above, SW IOU WE&T programs will continue to offer building-block courses that educate professionals on the concepts that form the foundation of Commercial calculated programs. Those concepts include:

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- Green building techniques;
- Codes and standards (Title-24);
- Lighting and HVAC technologies;
- Energy cost management; and
- Food service equipment.

Contractor recruitment efforts will be conducted primarily by SW WE&T program implementers through:

- The network of contractors already participating in EE programs;
- Direct outreach through industry organizations with locally active memberships (e.g. IHACI, U.S.G.B.C., IFMA, AIA, BOMA, etc.);
- Workforce development departments (to target unemployed general contractors); and
- Community Based Organizations with a proven track-record of effective outreach to the hard-to-reach workforce.

iv. Program-specific marketing and outreach efforts

Market outreach to raise awareness of EE programs available will use a number of strategies, including:

- Account representatives will make a regular and consistent customer calling effort to key customers within this sector;
- Utility representatives, Energy Efficiency program management representatives, and field engineers will be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the Commercial Market Sector;
- Attendance at the key trade shows for each high priority sub-segment within the Commercial Market Sector;
- Utility-sponsored training events at the IOUs Customer Training Centers and other convenient locations within the IOUs service territory;
- Online content and integration of marketing materials and campaigns with online tools such as audits and other energy demand and usage assessments
- Hosting of utility-sponsored Webinars that provide sub-segment training and program adoption; and
- Written collateral pieces that provide an overview of the IOUs Energy Efficiency programs will be linked into the appropriate IOU DSM web page.

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v. Non-energy activities of program

Integrated Energy Audits (described in the Commercial Energy Advisor sub-program) is the primary vehicle to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies).

vi. Non-IOU Programs

The Program will continue to engage with Air Quality Management Districts, CEC, ARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC

As of June 2012, PIER no longer exists. However, the program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and projects in coordination with the CEC.

viii. CEC work on codes and standards

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The program will support, educate customers, and facilitate such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, ISO 50001 California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Such changes have been and will be targeting ease of program understanding and participation, measures eligibility, increase of customer economic benefits and policy restrictions that will be identified as barriers to participation. IOUs are implementing such process based on market studies conducted on the subject and preceding discussion of the policy change. Among modifications that would be potentially discussed and implemented are incentive caps, redesign of measure/equipment early retirement according to the CPUC concept and other.

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IOUs are planning to explore appropriate consolidation of various calculating software such as CCT Calculator. Engage and other measure specific calculating tools to standardize our calculating methodology. This will ensure that calculations will be more uniformed and consistent amongst all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures. The IOUs also plan to continue exploration of emerging software tools that have the potential to enable significant advances in comprehensive energy efficiency at both the system and whole building levels.

IOUs are also planning to elaborate and utilize positive experience obtained using Savings By Design and Energy Design Resources tools and extend it to energy efficiency retrofit projects. Such tools substantially reduce application processing and review time, minimize number of hand-offs, not sacrificing accuracy of energy saving calculations.

Leveraging best practices from past program cycles, the Commercial Calculated Incentives sub-program information will also be made available through industry organizations such as The Building Owners and Managers Association (BOMA), and through advertising in industry and trade publications. Trade associations and vendor allies have historically delivered substantial energy savings through previous calculated program models.

d) Innovation

Innovative aspects of the program are aiming major program performance indicators such as accuracy of energy saving calculation, higher realization rate, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrated energy management.

For the new program cycle California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During 2013-2014 program cycle new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance.

An additional example of innovation is aimed at the strategic plan's transformational vision and goals around energy user behavior, market transformation and deeper energy savings. PG&E intends to provide upfront payments for installation of system-level controls (e.g. lighting, HVAC etc.) and/or energy management and information systems (EMIS). Customers receiving the payments would be enrolled in a statistically based pre- and post-measurement evaluation of data, using whole building measurement and verification protocols, from which savings will be determined and claimed. Where possible, IOUs will use integrated approach to addressing DSM opportunities. Innovative aspects such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retro-commissioning and/or Calculated program, processing and reviewing energy efficiency and demand response measures in a

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single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

The IOUs are planning to continue and enhance their core Retro-commissioning (RCx) program in multiple target markets. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments. Measures may involve resetting, repair or replacement of existing system controls and components, and in general are low-cost projects with simple payback periods of less than 4 years.

The RCx program is a key offering in the Calculated Sub-program. The audit components of the RCx program are also described in the non-residential audit section above. Enhanced RCx program elements will explore and may include but not be limited to:

- Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- Continuous commissioning and monitoring-based commissioning;
- Solutions for small and medium commercial customers;
- Strategies to drive savings persistence;
- Appropriate alignment with retrofit activities;
- Overall program incentives, targeting, and delivery.

After energy audit is complete and applicable no-cost/low-cost measures are identified the scope of work will be handed-off to RCx implementer who, in-tum, will follow RCx program protocols, execute the scope of work (measure implementation, M&V plan, incentive payment for energy savings) and report final results to the core program office.

e) Integrated/coordinated Demand Side Management

As the primary incentive vehicle that customers have for implementing efficiency projects, the Commercial Calculated Incentives sub-program is the logical choice for implementing greater demand side integration. Appropriate incentive mechanisms will be developed and implemented during the 2013-2014 program cycle to reward customers who implement comprehensive DSM programs.

The first step on the path towards DSM integration may be to introduce incentives for kW demand reduction, which as shown in Section 4.b. This will provide additional incentives for demand reduction strategies such as lighting controls.

f) Integration Across Resource Types

Integration across resource types (e.g., energy, water, and air quality) will be explored. Examples include working with Water Agencies to co-promote Food Service appliances

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that save water and energy and working with Air Quality Management Districts to co-promote Boilers and Water Heating measures that save energy and improve air quality.

Water/Energy Nexus Strategy

SoCalGas supports improving the efficiency of water systems as one of the most critical strategies to capture water/energy nexus benefits in the energy efficiency programs. SoCalGas plans to focus its efforts in areas that use gas engines as the energy source to deliver and treat water. For water agencies within SoCalGas' territory, we plan to issue an RFP to utilize a contractor to implement leak-loss detection and remediation and pressure management services applicable to storage, pumping and distribution through SoCalGas' core or Third Party Program. SoCalGas will explore new project ideas for the water/energy nexus, as well as the calculation of ancillary water benefits (e.g. "embedded" energy savings). SoCalGas will accelerate the expansion of cost-effective water-energy nexus programs by coordinating with the other utilities, water agencies, and municipalities to study the cost effectiveness and the embedded energy savings for water/energy efforts. Our intent is to continue to offer measures and services to the water sector through the "calculated" and audit programs. SCG will also explore for new direct energy measures that can be incented under the calculated program. Additionally, we will increase our efforts to capture the water-energy nexus and sustainability in the agriculture, industrial, and commercial segments.

g) Commercial New Construction – Savings By Design

As a single fuel utility, SoCalGas will work collaboratively in conjunction with the other IOUs to implement the SBD offerings statewide where SoCalGas jointly shares service territories. SoCalGas will not offer a standalone Whole Building Approach.

The Savings By Design (SBD) component aims for significant energy efficiency improvements in the nonresidential new construction industry, and is designed to overcome customer and market barriers to designing and building high performance facilities. Since 1999, SBD has provided statewide consistency, program stability and savings. SBD seeks to protect and preserve natural resources by advancing the design and construction of sustainable communities and promoting green building practices. The program is designed to overcome customer and market barriers to designing and building high performance facilities.

California's Title 24 requirements set some of the most stringent energy regulations in the nation. Exceeding these standard energy performance levels requires a high degree of design expertise, technical knowledge, and motivation. The requirements also can be complex and sometimes confusing. Because many in the design field are unaware of the potential savings from energy efficient design or perceive budgetary constraints, they are reluctant to implement energy-efficiency strategies. As a result, energy efficiency is often a lost consideration, abandoned in favor of pursuing the "lower initial cost" option. SBD

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strives to avoid lost opportunities by assisting customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings.

Through an integrated design approach (a whole building approach that encourages performance significantly better than Title 24 code by offering a variety of financial incentives) as well as a systems approach for simpler facilities where integrated opportunities are limited, SBD encourages energy efficiency and green building practices in new commercial buildings. These financial incentives are supplemented by a variety of other support activities, including feasibility studies and pilot projects, training and education, conferences and workshops, scholarships, and program marketing activities. In the 2013-2014 portfolio period, SBD will advance a broader palette of technical and financial resources to aid the proactive design of new facilities in accordance with the most cost-effective energy and resource efficiency standards. SBD will incorporate several new approaches towards integrated design and green building certification in support of the Strategic Plan.

SBD provides the nonresidential new construction industry with a broad palette of technical and financial resources to aid the design of new facilities in the most cost-effective energy and resource efficiency standards.

The SBD program will continue to offer two existing program components to its customers with new construction or major remodel/renovation projects, and will add a simplified approach for smaller projects.

- Whole-Building Approach or WBA (Integrated Design) - existing
- Systems Approach - existing
- Simplified Approach - new

SBD will offer financial support for design teams to undertake an integrated design process. Additionally, sustainability incentives will be offered to building owners to perform building commissioning during design and construction, and monitor building performance through End Use Monitoring. These sustainability incentives are designed to encourage new buildings to be as well designed as possible, be built as well as they are designed, and be operated as well as they are built.

The program will continue to incorporate new approaches for 2013-2014 to advance integrated design and green building certification in support of the Strategic Plan.

Tools and Expertise: California's Title 24 requirements establish some of the most stringent energy regulations in the nation. Exceeding these standard energy performance levels requires a higher level of design, technical assistance, and motivation. The requirements also can be very confusing. SBD provides the assistance, tools and expertise necessary to help customers and designers exceed compliance with the requirements and achieve long-term energy- and cost-savings.

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Zero Net Energy Design Assistance: To date there are very few Zero Net Energy Buildings in California. According to study published by the New Buildings Institute¹, only twenty one buildings in the United States have a measured performance of zero energy. This information provides ample proof that ZNE buildings are extremely challenging to achieve and will continue to require substantial support from utility incentive programs. Savings By Design is best positioned to accomplish this task by encouraging higher levels of energy efficiency through higher levels of incentives. When successful, these buildings can be labeled as Zero Energy Capable Buildings (ZECB) that is one step from ZNE status. The missing component then is the self-generation component that is encouraged through other programs offered by the utilities. To get buildings to this ZEC state, Savings By Design will offer a soup to nuts whole building integrated design assistance, which would include analysis on natural ventilation, through energy efficiency, Computerized Fluid Dynamics, self-generation cost analyses, plug load analysis, building compliance analyses, and whole building energy modeling services.

Long-Term Energy-Efficiency: It has been firmly established in SBD program evaluations that the integrated design process, when implemented correctly, can lead to highly cost-effective energy savings for most projects. Because many in the design field are unaware of the potential savings, do not understand the design process, or perceive budgetary constraints, they are reluctant to implement energy-efficiency strategies. As a result, energy efficiency is often a lost consideration, abandoned in favor of pursuing the “lower initial cost” option. SBD strives to avoid lost opportunities by assisting customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings.

Energy Design Resources: Another key component of Savings By Design is Energy Design Resources (EDR). Energy Design Resources offers a valuable palette of energy design tools and resources that help make it easier to design and build energy-efficient commercial and industrial buildings in California. The goal of this effort is to educate architects, engineers, lighting designers, and developers about techniques and technologies that contribute to energy efficient nonresidential new construction. Additionally, design tools that reduce the time spent evaluating the energy use impact of design decisions are provided here at no cost.

Comprehensive Integrated Building Design Training: In conjunction with the Workforce Education and Training program, Savings By Design will proactively offer integrated building design training to architects, engineers and other design professionals. Training might encompass highly technical building modeling techniques for use in the selection of cost effective energy efficient measures. In addition, SBD will offer “lunch and learn” sessions to architectural and engineering firms interested in learning about utility energy efficiency programs.

¹ Getting to Zero 2012 Status Update: A First Look at the Costs and Features of Zero Energy Commercial Buildings

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List of Measures

The Savings By Design Program aims to achieve the deep levels of market transformation described in California’s Strategic Plan, primarily by offering meaningful financial incentives directly to key participants in the building community. Incentives and/or assistance may be targeted to builders, designers, and energy analysts. Various organizations involved in developing green building and sustainability standards may also be actively supported.

In addition to providing the traditional sliding-scale incentives calibrated to energy savings exceeding standard energy performance code, SBD will offer a flat incentive for peak kW reduction and financial support for design teams to undertake an integrated design process. Additionally, sustainability incentives will be offered to building owners to perform building commissioning after construction, and/or establish and follow a building measurement and verification (M&V) plan after occupancy. These sustainability incentives are designed to encourage new buildings to be as well designed as possible, be built as well as they are designed, and be operated as well as they are built.

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Savings by Design Sub-program of the New Construction Statewide Program

Table 3 – Program Performance Metrics

Sub-program: Savings By Design

PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
1. Average site energy install, ex-ante (kBtu/sq ft-yr and demand (kW/sq ft) for participating commercial new construction by building type and climate zone	2b
2. Percentage of committed participating Whole Building Approach projects that are expected to reach a minimum of 40% less energy than	2b

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PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
2008 T24 codes requirements	

Market Transformation Information

Description of the non-residential new construction market

Non-residential new construction is one of the BBEES programmatic initiatives to accelerate market transformation toward greater adoption of energy efficiency. Successful market transformation efforts in the commercial building market must occur at multiple levels across the design and construction supply chain and through building owners and building occupants. This transformation must establish the relevance of energy efficiency among market actors and institutionalize the high efficient building practices².

According to a 2001 study on energy efficiency in new construction³, the non-residential building industry is a series of linked industries arrayed along a value chain. The study identified the following six major industry groups involved in this highly diverse market—providers of capital, developers, design delivery firms, community/political/regulatory interests, real estate service providers, and users. The market structure reflected in this study remains relevant for today’s non-residential new-construction market. An emerging group in this market structure is the design build firm. The design build firm offers a complete design and construction package to the entity pursuing a new project. The building development process brings these groups together to deliver a building product that meets capital, land, and user requirements. Developers orchestrate the development process and bring together the disparate groups during the various phases of the project build. Community, political, and regulatory interests shape what can be built through zoning, codes, review and other public processes. Real estate service providers offer marketing, sales, produced by architects, engineers, and contractors in the design and delivery group. The leasing, investment, management, and operations services represent the interests of many market actors. Building users are the firms and organizations that occupy the buildings on lease or owner-occupied bases.

The complex and interrelated linkages of the market participants need to be studied further as recommended by a recent SCE Savings By Design Market Characterization Study⁴ (“CADMUS Study”). The utilities are interested in engaging in such work during this and subsequent program cycles. The utilities also draw upon available information, past Savings By Design evaluation studies, and the long experience of the program managers and staff to articulate the market transformation process for the non-residential

² http://eec.ucdavis.edu/ACEEE/2002/pdfs/panel04/15_239.pdf

³ Market Structure and Energy Efficiency: The Case of New Commercial Buildings by Loren Lutzenhiser and Nicole Woolsey Biggart July 2001

⁴ Commercial Building Market Characterization for Savings by Design Program Final Report June 20, 2011 Study ID: SCE0312.01

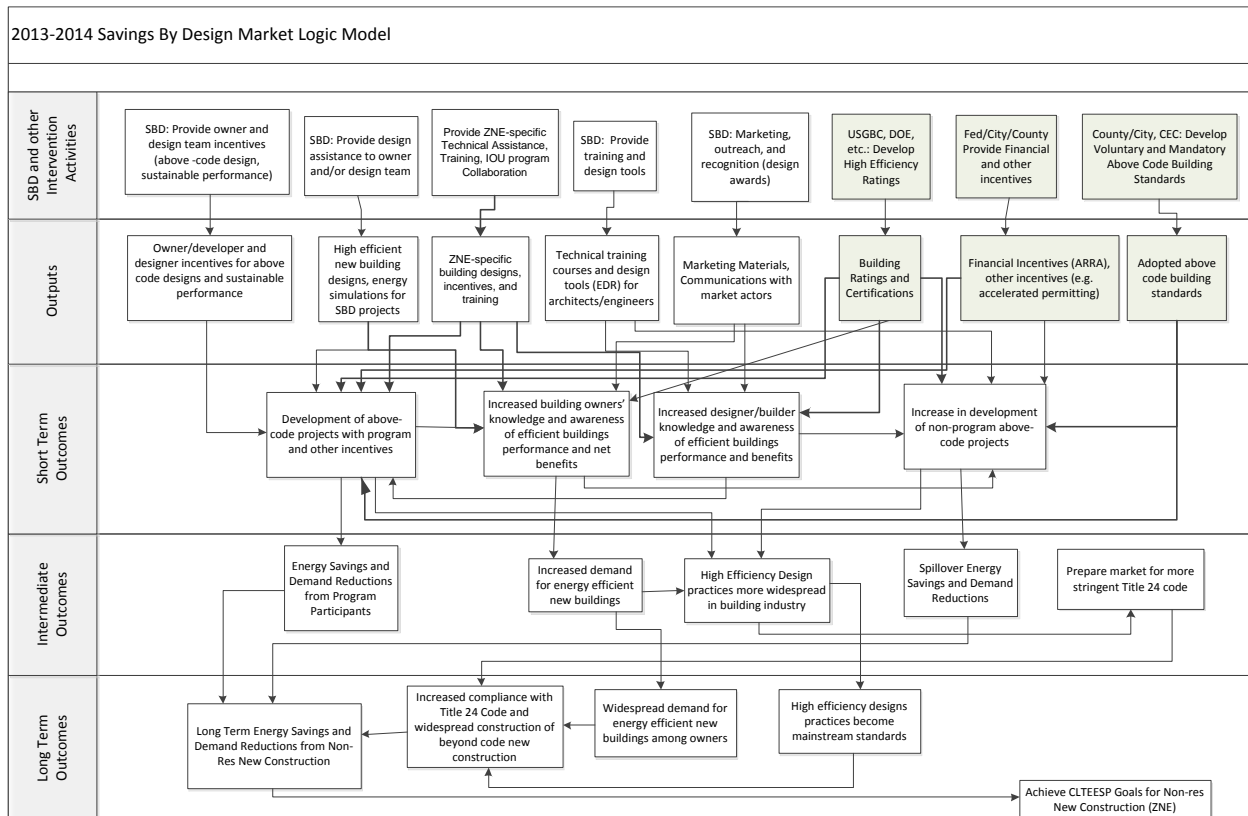
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new construction market.

Finally, the new construction market value chain is slowly showing signs of interest in Zero Net Energy. As indicated earlier in the SBD PIP, New Buildings Institute (NBI) has found very few buildings in the nation that can be labeled as Zero Net Energy. NBI also found that a slightly larger number, although also very few as compared to existing building stock, can be labeled as ZNE capable (ZECB) buildings. From this perspective, Savings By Design will face ever increasing needs for expert consultations in unique ZNE projects, like Computerized Fluid Dynamics that analyzes a design for its effectiveness in a natural ventilation scenario. The emergence of ZNE in the commercial space will undoubtedly spawn new challenges and barriers in the new construction market.

Program Logic model

Developing a program logic description can assure that everyone concerned with the program has a clear understanding of what the program seeks to achieve. Included below is the program logic that addresses specific program interventions related to market barriers, while acknowledging that multiple interactions in the market of various entities and market actors makes the non-residential new construction market quite complex. The full market depiction for the purpose of understanding the market transformation of this market will need to be developed with the input from the market stakeholders, CPUC, and other entities.



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Evaluation plans, market transformation indicators and PPMs

Due to the need to comply with the Decision’s timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects statewide evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section “18.1. Evaluation Budget” in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation: Market Effects. The market transformation program’s theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program’s scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program “spillover” and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program’s direct outputs.

Market Transformation Indicators (MTIs)

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in “Attachment H” are approved for this sub-program as applicable.

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Prah (MT Workshop, Nov 2011) suggest that declaring the program’s strategic intent through the market transformation initiative’s theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of

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them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

The building industry in California continues to be pinned down in one of the worst slumps in decades. In a buyer’s market, builders are looking to differentiate themselves from competition. This presents a great opportunity for Savings By Design to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state’s and utilities’ goals for the reduction of greenhouse gas emissions and utility source demand.

Other SBD best practices include the following:

Systems Approach

The systems approach is a performance-based method utilizing energy analysis tools for energy modeling to analyze efficiency choices. This approach is used for projects that do not present sufficient opportunities to warrant the labor intensive assistance services offered through the WBA. The systems approach is designed to make it easy for designers to look at the interaction of systems within their project, rather than individual equipment or fixtures. The systems approach is used for simple facilities where integrated opportunities are limited, as well as projects where program intervention may come in too late in the design phase to effect sweeping programmatic changes to the design.

For 2013-2014, SBD will continue to offer the same incentives by measure end-use as the non-residential calculated retrofit program (known in 2006-2008 as Standard Performance Contract, or SPC).

Traditional Incentives

For 2013-2014, the statewide owner’s incentives for electrical energy savings offered by the WBA will start at \$0.10 per kWh at 10 percent better than Title 24 code and increase in a straight line to \$0.30 per kWh at 30 percent better than code. For projects that exceed 30 percent better than code, the electric incentive will be \$0.30 per kWh saved. The incentives will be capped at 75% of incremental cost or \$150,000, whichever is lower. For a limited number of projects, Utilities may decide to pay larger incentives if the projects are deemed worthy to receive the larger incentive.

If SBD provides design assistance services to a project that achieves high performance without incurring incremental equipment cost (due to the intrinsic benefits of the integrated

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design process), an owner incentive will not be awarded due to the incremental cost cap. In these cases, SBD will still claim the resulting energy and demand savings.

h) Local Element (Negotiated Incentive Option)

SoCalGas will provide a local component which will include incentives for energy-efficient retrofits, systems new construction, or replacements of existing equipment at SoCalGas customer sites. Participants may be either customers or energy-efficiency service providers (EESP's) acting as project sponsors for activities at customer sites. To qualify, a project must save a minimum of 1,000,000 therms per year. Associated energy, resource such as water, sewerage and emissions, and Greenhouse gas (GHG) emissions savings will be considered when evaluating a project for funding. A project may consist of a single project at a single site, or may be aggregated from multiple projects belonging to a single customer, and may include a variety of measures.

This local element is designed to serve the largest non-residential customers within the SoCalGas service territory. Non-residential customers in this group are comprised of but not limited to the following industry sub-segments: Government/Utilities, Manufacturing/Processing Industries and Institutional. Each sub-segment has distinct energy use patterns, differences in equipment and facility design, and various management structures and decision-making processes. Because each industry sub-segment is unique, this option will use a customized, customer-focused approach. Participating customers, taking into account their individual energy and resource conservation opportunities as well as internal hurdle rates, will propose or "bid" to SoCalGas the incentive level needed to enable large EE and Resource savings projects. This ensures that this option will be adaptable to the unique needs of each market segment.

The program is designed to be flexible and cost effective: The project sponsor proposes a project and desired incentives. Incentives may cover up to 50% of the incremental project costs less any additional funding received from other sources. Measurement and verification (M&V) is required for all projects. As a performance-based incentive program, the approved M&V report will ultimately determine the energy savings for each project. The total sum of incentives paid for a project may not exceed the amount "bid" by the customer and agreed to by SoCalGas.

i) Pilots

Not applicable

j) EM&V

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This

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plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

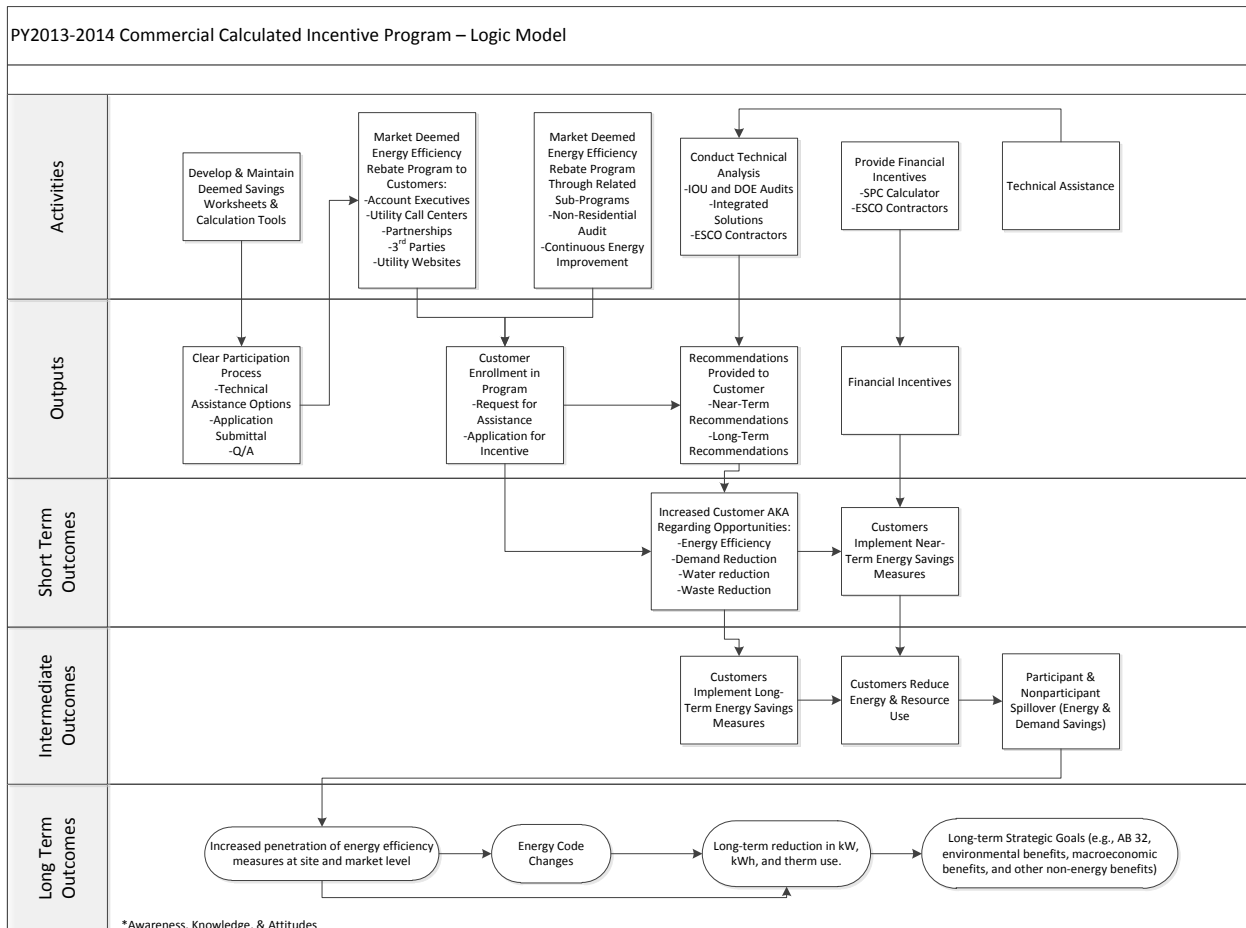
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7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. As there were no revisions to the original logic model for the Commercial Calculated Incentives Program, this logic model is left unchanged.



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1. **Program Name: Commercial Deemed Incentives, Core Sub-program**
Program ID: SCG - 3711
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – reference the overarching program for budget details

3. **Projected Program Gross Impacts Table – by calendar year**

Table 2 – reference the overarching program for savings details

4. **Program Description**

a) **Describe program**

The statewide Commercial Deemed Incentives sub-program provides rebates for the installation of new energy efficient equipment. Deemed retrofit measures have prescribed energy savings and incentive amounts and are generally intended for projects that have well defined energy and demand savings estimates (i.e., T12 to T8 replacements). The Commercial Deemed Incentive mechanism is designed to help influence the installation of energy efficient equipment and systems in both retrofit and added load applications by reducing the initial purchase costs of such equipment and reducing the “hassle” of participating in utility rebate programs by offering a simple application process.

The Commercial Deemed Incentives sub-program directly addresses key market factors that lead to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-wadget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This sub-program makes it attractive for customers to spend money in the short-run in order to achieve lower energy costs in the long-run.

b) **List of Measures**

The following measure categories are eligible for Commercial Deemed Incentives:

- Lighting
- Air conditioning equipment
- Food service equipment
- Refrigeration
- High efficiency water heating
- Plug load

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Audits are an important tool for marketing and increasing the uptake of EE measures. Nonetheless, an audit is not a prerequisite for deemed incentives. In fact, deemed incentives are specifically designed for ease of use, and the goal is to decrease, rather than increase, any administrative burden on customers opting for deemed incentives. Utilities are exploring higher deemed incentives for customers completing an audit as part of their application.

Deemed energy efficiency rebates for businesses will be part of the integrated strategy to promote energy efficiency with non-residential customers. The Statewide Commercial Deemed Team will hold regular conference calls and in-person meetings to share successes challenges, and best practices in delivering energy efficiency via deemed incentives. When appropriate, the Commercial, Industrial, and Agricultural segments will meet as a statewide entity to share successes challenges, and best practices in delivering energy efficiency to each market sector and associated sub-segments.

Commercial Deemed Incentives will work with the other sub-programs to design customer facing marketing materials that integrate EE offerings into a complete energy savings package that is focused on individual market segments.

c) List of Non-incentive Commercial Energy Advisor Services

The Commercial Deemed Incentives sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical consultation and application preparation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

See Attachment A - Table 3 – refer to the overarching program for quantitative baseline metrics

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please

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refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

See Attachment A - Table 4 – refer to the overarching program for quantitative baseline metrics

c) Program Design to Overcome Barriers

The Statewide Commercial Deemed Incentives sub-program offers customers rebates to implement energy efficiency measures that have been identified primarily through standard utility energy efficiency audits, in-depth facility/process assessments or retro-commissioning studies. The sub-program is designed to help commercial customers overcome barriers to adopting energy efficiency program measures by reducing financial costs to the customers for the implementation of energy efficient measures that address major end-uses (e.g., lighting, HVAC, plug loads). Additionally, the easy-to-use online and paper application process reduces that hassle and transaction costs generally associated with commercial deemed incentives, where engineering calculations and pre- and post-monitoring may be required.

Furthermore, to ensure equity to all business customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

Incentives and savings payouts will be based upon deemed measures in the DEER database or through work papers.

The Commercial Deemed Incentives sub-program delivers a consistent message statewide to commercial customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer. This eliminates the barrier often run into by commercial customers of getting incorrect or out-of-date information from local networks.

The Commercial Deemed Incentives sub-program not only brings IOU incentive information to customers, but in many instances also provides additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, Tax incentives or other local sources of project funding.

In several instances, high efficiency Emerging Technologies are viable, but are unknown to facility owners and system designers and thus, are slow to penetrate the market, causing energy efficiency opportunities to be “lost.” The Commercial Deemed Incentives sub-program helps speed market penetration and associated energy savings for Emerging Technologies by offering “premium” incentives for emerging technologies that are “proven” but not widely employed in the markets for which they are intended (e.g., solid state lighting, advanced lighting controls).

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d) Quantitative Program Targets

The targets provide herein are best estimates, but nonetheless are forecasts.

Table 5

Program Name	Program Target by 2013	Program Target by 2014
Projects	TBD	TBD

e) Advancing Strategic Plan goals and objectives

The unifying objective of the Strategic Plan is to employ market transforming strategies to encourage marketplace adoption of energy efficient measures to a point that public investment in energy efficiency is no longer necessary (Section 1, page 4). The Deemed Incentives sub-program will support this effort by employing two of the five market transformation policies identified in the Strategic Plan. Specifically, the Program will offer “carrots” in the form of financial incentives to help pull the marketplace towards energy efficiency. The Deemed Incentives sub-program will also provide education and informational resources through marketing and program outreach efforts. Therefore, these program elements will work in concert to transform the market towards sustained, long-term energy savings.

The program will help to achieve the following near-term strategic goals as identified in Chapter 3 of the Strategic Plan:

- 2-3: Ensure compliance with minimum Title 24 codes – The Commercial Deemed Incentives sub-program only provides incentives for projects that exceed current Title 24 minimum baselines. Incentive rates will be created to encourage the implementation of advanced technologies (e.g., solid state lighting) to ensure deeper levels of energy reductions including implementation of the Office of the Future Consortium’s Phase 2 recommendations, “The 25% Solution”, which seek to reduce energy usage 25 percent below Title 24-2005 baselines.
- 2-5: Develop tools and strategies to reduce energy consumption in commercial buildings – The Commercial Deemed Incentives sub-program directly supports this effort by collecting data and conducting energy use and efficiency studies that, when collected over multiple IOU service territories, will be very helpful in supporting statewide efforts to establish a robust and useful knowledge base for the commercial sector.
- 2-7: Develop business models that deliver integrated energy management solutions – The Commercial Deemed Incentives sub-program will implement incentive mechanisms that will “reward comprehensive energy management retrofits” such as incentives for reaching certain stretch goals that produce significant energy savings

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beyond an established baseline. Additionally the iBonus concept (see Section 6.e) will further encourage integrated solutions.

- 2-8: Improve utilization of plug load technologies – The existing incentive structure pays for energy reductions through plug load measures. Additional incentives that encourage greater penetration of plug load technologies may be required and will be developed to support technologies recommended by CEC, the Office of the Future Consortium.

6) Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process, described in detail in the Statewide Commercial Energy Efficiency Program, will ensure continuous improvement and consistent implementation of all of the sub-programs. The discussion below will focus on how the IOUs will coordinate the Commercial Deemed Incentives sub-program specifically.

The Statewide IOU Coordination process for the Commercial Deemed Incentives sub-program will be as follows:

- Hold Regular Program Manager Meetings – The Deemed sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will unify, to the extent possible, the implementation of program aspects such as Program name, Program delivery mechanisms, Incentive levels, marketing and outreach plans, and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges. Therefore, the regular meetings will focus on issues specific to the Deemed sub-program only.
- Designate an IOU Program “Lead” – One of the sub-program managers that participates in the regular meetings will be the designated Deemed Program IOU “Lead”. The IOU lead will represent the sub-program at the regular Statewide Steering Committee meetings.
- Participate in Regular Steering Committee Meetings – The IOU lead will be responsible for attending the regular Steering Committee Meetings and sharing Commercial Deemed Incentives sub-program innovations, experiences and challenges that have the potential to impact multiple sub-programs or the core Commercial Energy Efficiency Program as a whole.
- Adopt Program Enhancements - Once the Steering Committee agrees that a specific innovation or implementation policy has merit on a statewide level; the IOU lead will distribute the information to the Deemed sub-program managers by email or at the next regular meeting for adoption and integration. Therefore, the IOU lead will act as a conduit feeding Deemed sub-program-specific information up to the statewide Steering Committee and distributing measures for adoption back to the Deemed sub-program managers.

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- Evaluate Program Enhancements – To complete the adaptive management loop, the Deemed sub-program managers will track the success of the adopted statewide enhancement or implementation policy and report any challenges or concerns at the regular Commercial Deemed Incentives sub-program meeting. The IOU lead will report any challenges that transcend the Commercial Deemed Incentives sub-program to the Steering Committee, who will determine whether further course corrections are needed.

By following the process stated above, the Commercial Deemed Incentives sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the three year implementation cycle. Sub-program innovations and challenges will also feed productively into the higher-level Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

The coordination and unity of all program aspects, such as Program name, Program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions, will be handled through this statewide coordination framework. However, these aspects will start off at a high level of statewide consistency. In rare cases, there will be IOU-specific deviations. Such instances where one IOU will favor a different approach than the other IOUs will be called out in italicized text throughout the Deemed Incentives sub-program.

i. Program name: Deemed Incentives

ii. Program delivery mechanisms

Deemed Incentives will be primarily delivered via paper or online application. Measures and incentive levels will be the same across IOUs, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape.

iii. Incentive Levels

Incentive levels vary by measure type, but will be offered consistently across IOU service territory except where local market conditions necessitate different amounts. Higher incentive levels will be provided for Emerging Technologies to spur traction in the market as feasible. The level of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, therms, equipment cost, other market factors and cost effectiveness.

iv. Marketing and outreach plans

The Deemed Incentives sub-program will be marketed through IOU account executives, as well as through third-party programs, trade allies, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade

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associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, Demand Response Program outreach, phone and e-mail support will be provided.

In 2013-2014, the IOUs will implement segmentation research and messaging.

Marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled.” That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment, the IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics and activities to promote the solutions in the Deemed Incentives sub-program. Education, awareness and outreach efforts will rely on a combination of mass media and targeted communication channels to ensure that messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy-related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Additionally, IOUs may investigate piloting alternative channel marketing and outreach options that utilize community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. Local government partnerships, regional and community entities tend to interface with small businesses with some regularity; therefore, partnering with these organizations could prove to be a viable delivery option. A marketing and outreach campaign with Business Improvement Districts through our Local Government Partnerships, will serve to educate and increase engagement in a segment that is hard to reach.

v. IOU program interactions

The Deemed Incentives sub-program managers will partner with the programs as appropriate offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector’s customers, to the extent possible. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

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With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Deemed sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that utilize the Deemed Incentives sub-program infrastructure. This will help ensure a consistent delivery of measure incentives and protect programs from undermining each other and detracting from achieving cost-effective energy savings.

b) Program delivery and coordination

i. Emerging Technologies program

To meet California's future energy efficiency goals, both in terms of overall usage and peak demand usage, new technologies and new applications of technology are needed. The Commercial Deemed Incentives sub-program will seek support from ETP's incubation and development of new technologies to meet the needs of the marketplace. ETP provides the pipeline of new technologies that the Commercial Deemed Incentives sub-program looks to incorporate to maintain a robust selection of energy savings equipment. The program will look to ETP to provide customers with technology information, validating effectiveness as an unbiased and neutral expert.

Deemed incentives will be primarily delivered via paper or online application. Measures will be the same across IOUs and incentive levels will also be aligned, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape.

ii. Codes and Standards program

The Commercial Deemed Incentives sub-program relies on Codes and Standards to help maintain an updated and relevant list of measures that support savings. As codes and standards impact measures, the Commercial Deemed sub-program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into codes and standards. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward "low energy" or "zero net energy" buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) are made available as these technologies transition from research and development to the mainstream.

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iii. WE&T

WE&T is a portfolio of training and information programs that showcase energy efficient equipment found on the list of measures offered in the Commercial Deemed Incentives sub-program. Dissemination of information takes place through energy centers, technology test centers, and information and training program offerings. During classes, time is dedicated to energy efficiency programs and how to participate. In 2013-2014, a program representative will be available to deliver the EE message and answer questions.

iv. Program-specific marketing and outreach plans

The Deemed Incentives sub-program will be marketed through IOU Account Executives, as well as through third-party programs, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and e-mail support will be provided.

The IOUs will continue to build on and refine marketing plans and strategies used in past portfolios in the 2013-2014 cycle. This will involve developing marketing plans to deliver targeted messages to specific customers that resonate with their values and needs with the goal of increasing the market uptake of deemed incentives. These plans will coordinate and create timelines for activities, present strategic campaigns, establish targets and metrics, and include a performance monitoring strategy.

The following will be used as marketing and outreach channels:

- Non-contracted equipment vendors are a key delivery channel of the Commercial Deemed Incentives sub-program. Emphasis will be placed on building awareness with more vendors in the territory and training vendors on how to participate effectively in the program.
- Community-based organizations (CBOs), faith-based organizations (FBOs), non-profit organizations, and non-government organizations (NGOs) with unique access and following are expected to be emphasized as delivery channels.
- Trade associations and industry networks
- Enabling partners (financial institutions, trade associations, service providers, law firms, environmental organizations)
- Unique channels that offer complementary value propositions from the customers' perspective (e.g., energy, water, materials management, recyclables, corporate citizenry).

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The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described above.

v. Non-energy activities of program

Integrated Energy Audits (described in the nonresidential Audit sub-program) is the primary vehicle to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies). The results of the ongoing Water Efficiency Pilot Program will identify potential opportunities to reduce water use and the potential for associated Energy Efficiency savings. Since some customers within the program sectors are major water users, this sector is well positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Programs.

vi. Non-IOU program interactions

The Commercial Deemed Incentives sub-program managers will partner with the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector's customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Commercial Deemed Incentives sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vii. CEC

As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC..

viii. CEC work on codes and standards

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

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ix. Non-utility market initiatives

The sub-program will support, educate customers, and facilitate such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

To maximize program effectiveness, best practices in Program Design and Implementation will be employed and shared amongst IOUs. Areas of best practices for the Commercial Deemed Incentive sub-program approach include:

- Best practices in Program Design:
 - Regular communication amongst IOUs is critical to effective program design.
 - Identify qualifying products simply and effectively (Examples; ENERGY STAR®, CEE).
 - Seek input from industry in the development of new programs. The IOU programs are trying to change how an industry operates from manufacturer design to the customers purchasing and maintenance practices.
 - Industry participation increases program volume and speeds market transformation.
- Best practices in Program Implementation:
 - Strive to simplify messaging and participation for the customer. (Look for the ENERGY STAR label, purchase from a qualifying products list)
 - Understand the key motivators that drive an industry and use that information to market your program. Make certain outreach efforts make your program visible to your customers and the market that is catering to your customers.
 - Always communicate program marketing and advertising plans in advance to appropriate industry channels. Advanced notice allows industry partners an opportunity to leverage off of utility marketing efforts and reinforce the messaging we are trying to get across.
 - Statewide coordination is important as it makes it easier for national chains and manufacturers to understand and support IOU rebate programs. Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced administrative expenses through cost sharing arrangements.

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d) Innovation

Innovative aspects of the program for 2013-2014 include persistent integration of new and emerging technologies into the program processes. This will manifest itself in an increased emphasis on plug load technologies (in support of the Strategic Plan) and by aligning rebates with the recommendations of the Office of the Future Consortium to help make their “25% Solution” a reality.

Additionally, incentive mechanisms that emphasize peak demand reduction, addresses current economic downturn and better motivate customers to participate in energy efficiency incentive programs will be pursued. During 2013-2014 program cycle new incentive structures will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance, including measure bundling incentives. The IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper energy savings.

Where possible, IOUs will use integrated approach to addressing DSM opportunities. Innovative aspects such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retro-commissioning and/or nonresidential Audits, processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

e) Integrated/coordinated Demand Side Management

Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related types of programs. While a successful program experience leads to repeat participation, there has been difficulty in cross pollinating similarly related types of programs with these candidates due to program-specific silos. To overcome the historic siloing of DSM, the Deemed Incentives sub-program will leverage lessons learned from SDG&E’s DSM efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other’s financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program’s incentives are based upon. Since benefits from long term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the program will offer additional incentives for energy efficiency measures that enable demand

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response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer “event season” and wane throughout the remainder of the year. To overcome these differences, the program will offer Integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable. Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.

The integration of energy efficiency and demand response programs presents several issues and, as stated previously, the sub-program seeks to overcome these issues by focusing on several tactics:

- Promotion and incentivizing of demand response enabling energy efficiency measures to ensure that energy efficiency is completed first to maximize potentials;
- Integrated and coordinated year-round marketing (e.g., applications, collateral, web sites, and events);
- Linking of program eligibility requirements (e.g., customer size);
- Provide unified technical assistance through enhanced EE/DR Audits through the TA/TI Program to allow for cross-harvesting opportunities;
- Integrated presence on utility websites; and
- Regular coordination meetings between energy efficiency and demand response program management.

f) Integration Across Resource Types

Integration across resource types (e.g., energy, water, and air quality) will be explored. Examples include working with Water Agencies to co-promote Food Service appliances that save water and energy and working with Air Quality Management Districts to co-promote Boilers and Water Heating measures that save energy and improve air quality.

g) Pilots

Not applicable

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h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

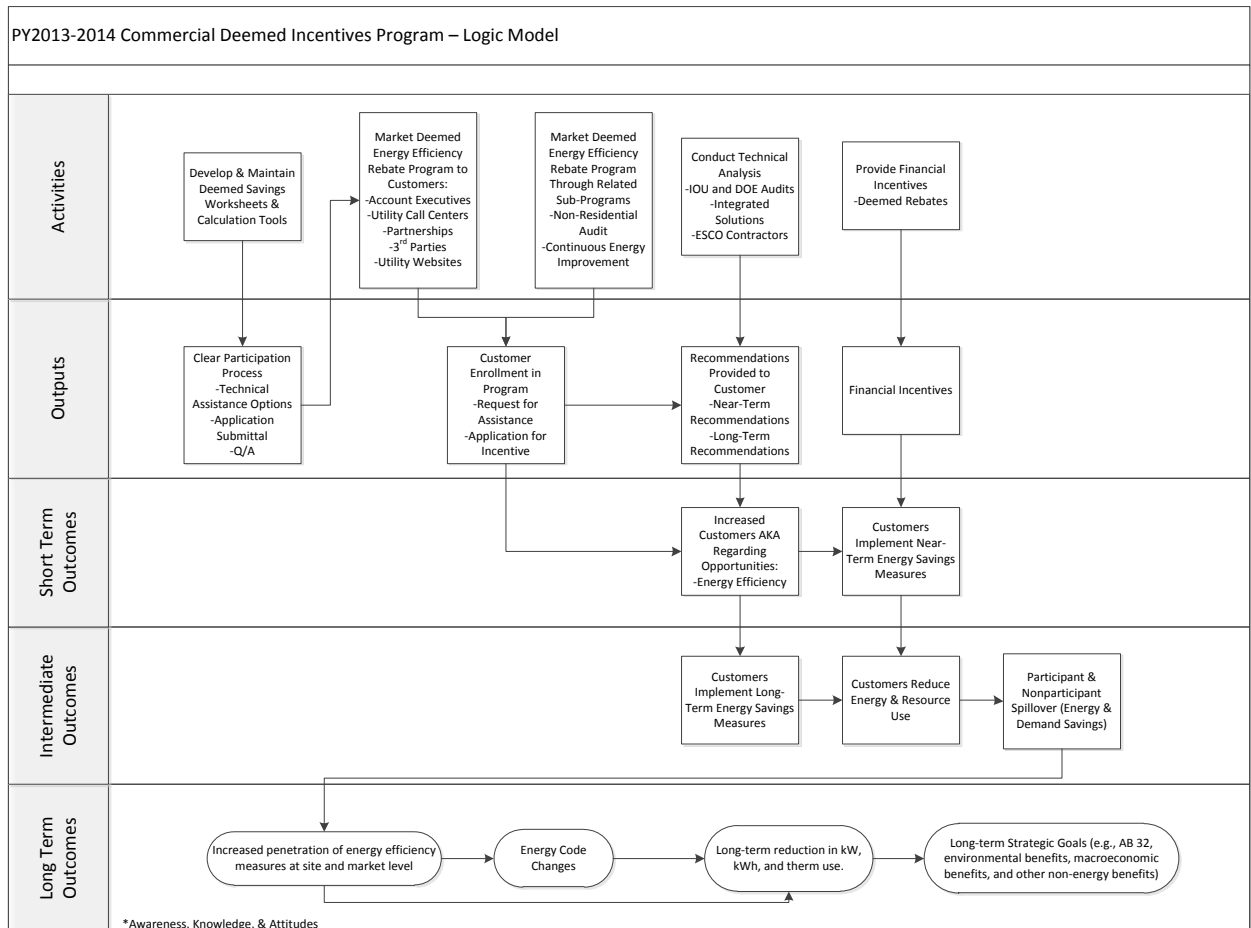
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7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. As there were no revisions to the original logic model for the Commercial Deemed Incentives Program, this logic model is left unchanged.



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1. **Program Name: Continuous Energy Improvement, core sub-program**
Program ID: SCG - 3709
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – reference the overarching program for budget details

3. **Projected Program Gross Impacts Table – by calendar year**

Table 2 – reference the overarching program for savings details

4. **Program Description**

- a) **Describe Program**

The Commercial Continuous Energy Improvement (CEI) is a consultative service aimed at helping commercial customers engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.

In 2013-14, CEI will be expanded to include select group of mid-sized non-residential customers. Available options to help target these customers may include an individualized, a small group, or a mass-market, remote deployment approach.

CEI will coordinate its services with the Commercial Energy Advisor sub-program offerings. CEI offers customers what can be considered the pinnacle of audit offerings guiding senior management to instill energy considerations in all management/business operational decisions and in long term energy planning.

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Commitment

CEI begins with a high-level management commitment to improving energy performance, which increasingly can be combined with other environmental and regulatory commitments that energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention – like safety – and also paves the way for establishing the required company resources required to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, or technical systems and software required for energy management.

Gaining true customer commitment can take time, but is critical. In implementation, utilities will formalize the Commitment phase with more intensive customers through a CEI participation agreement, which outlines the utility CEI services being offered as well as minimum customer expectations.

Assessment

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities, but also systemic energy management practices and cultural shifts that can improve overall facility management practices and sustain continuous improvements towards long-term company targets. A component to the assessment will also include tools to help identify Energy Efficiency (EE) and Distributed Generation (DG) opportunities.

Based on screening criteria, utilities will offer comprehensive energy assessment services using vetted sources like (but not limited to) those described below, to develop a customer specific strategic energy plan.

- ENERGY STAR's Guidelines for Energy Management, housed on the ENERGY STAR website, provide step-by-step guidelines to support CEI in general, and also guide customers to ENERGY STAR's numerous assessment tools. This option is a low-cost resource for smaller and medium customers interested in CEI.
- Energy Management Assessment Tools such as Envinta's One-To-Five, Achiever, or Challenger software products offer professionally facilitated energy management assessment with company decision makers and explores management practices and company priorities to develop a CEI roadmap for energy goals and actions.
- Integrated Energy Audits provide an inventory of technical facility end-uses and energy efficiency, and self-generation investment opportunities. For a full description, see the Commercial Energy Advisor sub-program plan.

Benchmarking can measure the energy performance of a company, building, process, or piece of equipment against industry standards or comparable groupings. Benchmarking is a natural first step for the CEI process. Customers with multiple facilities find benchmarking useful to prioritize efficiency projects, track progress toward energy or GHG

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improvement goals or drive competition among similar benchmarked facilities. Units of measurement vary widely; for commercial buildings, the unit is energy used/square foot for a unit of time. Benchmarking can also be applied to other resources and environmental issues such as water use, CO₂, and emissions.

CEI Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. Planning for customers will typically involve Account Representatives and/or consultants. As is discussed in the Strategic Plan and in the Statewide Integration PIP, strategic planning can also include complementary non-energy considerations as well, such as GHG reduction, water efficiency, and waste-stream minimization, all which have embedded energy components.

Data and findings from a comprehensive customer assessment are critical in developing any comprehensive energy plan, including the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information is analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (“Company X will reduce its overall energy intensity by 3% over the next 3 years”), carbon reduction goals (“Company X will be carbon neutral by 2014”), or management oriented goals (“Company X will implement energy teams by 2013”). Goals can be stated in internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as the resources, staff and schedule for tracking. Action plans typically includes activities such as:

- Prioritizing process systems or facilities based on benchmarking or company drivers,
- Identifying internal resources required to implement plans, and
- Developing project justification and incentive application documentation lists and detailed schedules.

CEI Implementation

In the implementation stage, utilities partner with customers to identify technical support and utility and non-utility resources available to support implementation of projects, such as rebates, incentives, third party and government partnership programs, and state and national resources, including:

- Statewide Commercial Deemed Incentives

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- Statewide Commercial Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning and/or repair
- Third-Party and Government Partnership programs (described in the statewide and local third-party filings)
- IOU and non-IOU financing options
- External and Internal engineer support

CEI Evaluation and Modification

In any continuous improvement program, evaluation is an ongoing process of comparing actual performance against company goals, targets and action plans. It may include:

- Repeating the benchmarking and system or facility baseline process annually,
- Assessing advancements in organizational and management practices that facilitate energy management improvements, or
- Evaluating cost savings per unit of product.

Regular evaluation will inform changes to goals and action plans moving forward.

b) List of Measures

CEI does not provide incentives to customers, but ultimately facilitates the customer's implementation of energy efficiency projects through incentive programs. However, depending on the outcome of the 2012 process evaluation, customer incentives may be offered.

c) List Non-incentive Commercial Energy Advisor Services

CEI is a non-resource program that provides comprehensive strategic energy planning and consulting services for commercial customers. These services include: energy management assessments, energy planning, baselining and benchmarking, project implementation support, customer recognition (e.g., "corporate sustainability awards"), and web-based energy resources.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

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See Attachment A for Table 3 – Refer to the overarching program for metrics

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers and the strategies to overcome them include:

- Lack of information – The CEI evaluation and modification process provides data that customers can use to reevaluate their commitment and/or modify their energy goals.
- Performance uncertainties – Through CEI’s comprehensive baselining and benchmarking assistance, customers will have access to real-time data that demonstrates how their facility is performing relative to their established goals.
- Organizational customs – The high-level customer commitment that is at the core of CEI increases the likelihood that corporate cultures that prevent successful implementation of comprehensive energy policies.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

Program Name	Program Target by 2013	Program Target by 2014
Number of Engagements	TBD	TBD

e) Advancing Strategic Plan goals and objectives

The program will help to achieve the following near-term strategic goals as identified in the Commercial chapter of the Strategic Plan:

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- 2-1: State/Local Governments and Major Corporations Commit to Achieve EE Targets

CEI seeks to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop a actionable plan to achieve these goals; (4) guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

- 2-2: Develop Tools to Reduce Energy in Commercial Buildings

As part of the implementation of CEI, the utilities will partner with energy industry peers, industry associations and Department Of Energy/CPUC sponsored labs and consultants, to enhance the use of existing tools, and develop new tools to assist commercial customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

- ENERGY STAR Portfolio Manager Commercial Benchmarking: Benchmarks customer facility against a national database of similar NAICS codes for an ENERGY STAR score (0-100), kBtu/sq ft-yr, lbs CO₂/yr.
- Management Standard for Energy SME2000-2008
- DOE Superior Energy Performance
- ISO-50001

- 2-3: Develop Business Models to Deliver Energy Management Solutions

CEI's fundamental purpose is to achieve corporate level commitments from commercial customers to change their existing business models to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the commercial market sector.

6. Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process will ensure continuous improvement and consistent implementation of all sub-programs. The discussion below will focus on how the IOUs will coordinate the CEI sub-program specifically. The Statewide IOU Coordination process for the CEI sub-program will be as follows:

- **Hold Regular Sub-program Manager Meetings** – The CEI sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will

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unify, to the extent possible, the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges.

- **Input to Program Sector Lead Meetings** – The CEI sub-program managers will communicate to their Program Sector Leads the CEI sub-program innovations, experiences, and challenges that have the potential to impact multiple sub-programs or the Program as a whole. When a specific innovation or implementation policy has merit on a Statewide-level, the Sector Lead will distribute the information to the CEI sub-program managers by e-mail for adoption and integration.
- **Evaluate Program Enhancements** – To complete the adaptive management loop, the CEI sub-program managers will track the success of the adopted Statewide enhancement or implementation policy and report any challenges or concerns at the monthly CEI sub-program meeting.

By following the process stated above, the CEI sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the 2013-2014 program cycle. Sub-program innovations and challenges will also feed productively into the higher-level Program Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

The coordination and unity of all program aspects will be handled through this statewide coordination framework. However, these aspects will start off at a high-level of statewide consistency. In some cases, there will be local IOU-specific deviations. Instances where certain IOUs favor a different approach than the other IOUs will be called out in italicized text.

- i. Program name:** Commercial Continuous Energy Improvement Program
- ii. Program delivery mechanisms**

As with other information and education sub-programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other delivery channels may also be developed.

Where applicable, the Utility's account representatives will support this activity within the statewide industrial sector, as well as third parties, government partnerships, and Utility local programs.

- iii. Incentive levels** - N/A. (CEI is a non-resource program).
- iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms**

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CEI will be available to all commercial customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will include, but not be limited to, customer energy use, complexity, number of facilities, energy decision-making structure, and environmental commitment or demonstrated motivation. Collateral materials such as fact sheets, how-to documents, Power Point slides, case studies, etc., will be produced and distributed during sales calls, public events, association meetings, and/or trade shows. In addition, sponsoring and/or holding recognition events that present customers with awards for achieving specific levels of efficiency, sustainability and/or integration will be explored as a means to promote greater levels of participation.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

CEI will include the CEC's Green Building Initiative program, DOE's "ISO plant certification" programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs as applicable.

vi. Similar IOU and POU programs

Over the next two years, the IOUs will seek to increase their interactions with the POUs as applicable to promote the CEI concept throughout the state. This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

b) Program delivery and coordination

CEI includes the following coordination efforts:

i. Emerging Technologies (ET) program

CEI implementation will include identification and project development at specific customer sites with potential for Emerging Technologies program participation and demonstrations.

ii. Codes and Standards program

CEI implementation will include information about pending new Codes and Standards program that may affect planning or prioritization of retrofit or new construction projects.

iii. WE&T efforts

CEI implementation will integrate with WE&T efforts by providing CEI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now

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developing. IOUs will assess and support specialized **WE&T** training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with **WE&T** coordination to bridge the linkages and integrate sector strategy approaches. Program costs will be shared with WE&T.

iv. Program-specific marketing and outreach efforts

CEI will be marketed through utility account executives, as well as through educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, outreach, phone and e-mail support will be provided.

In 2013-2014, marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled.” That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment the IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics and activities to promote the CEI sub-program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to help the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy-related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach will be coordinated among the IOUs utilizing the statewide coordination process described above.

v. Non-energy activities of program

CEI implementation will include non-energy activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy related LEED points and definitions, and use of computerized financial analysis tools and cost estimating and forecasting tools.

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vi. Non-IOU Programs

CEI implementation shall include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies to support integrated efforts. The utility managers will partner with programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to commercial-sector customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. Closer alignment with these other programs will be achieved in order to deliver the customer a more comprehensive solution. With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Commercial Calculated sub-program incentives for energy efficient equipment that may also reduce air emissions.

vii. CEC Collaboration

CEI implementation shall continually seek to promote the adoption of new technologies developed through the CEC research process and to expose customers to demonstration, research and/or pilot projects. The continuous improvement process envisioned by CEI will provide new equipment/processes, and methods that will enable customers to achieve energy efficiency “stretch” goals in a cost-effective manner.

viii. CEC work on codes and standards

The program will not be implemented with a direct linkage to codes and standards efforts. However, see Section 6.b.ii., above.

ix. Non-utility market initiatives

CEI will support Energy Management certification efforts (ANSI, ISO), engaging at the material level. Non-utility market initiatives such as education about federal tax incentives for energy efficiency investments is an example of a non-utility information and guidance that CEI sub program will provide customers.

c) Best Practices

CEI's approach applies the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the commercial market sector. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach can now be successfully implemented given the two-

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year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

d) Innovation

CEI is a new way of packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

e) Integrated/coordinated Demand Side Management

CEI includes project analysis and implementation support of recommendations of Statewide Integrated Energy Audits which provide customers with an inventory of facility end-use breakdown and energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similar related programs, but because of siloing – thinking of programs as separate, unrelated efforts – this has proved difficult. To overcome the historic this, the CEI sub-program will leverage lessons learned from IDSM efforts by offering comprehensive, coordinated marketing and program delivery.

CEI is recognized as an integrated element by supporting the statewide IDSM program's goals and objectives, and the IOUs will increase IDSM messaging and coordination within CEI.

f) Integration Across Resource Types

CEI implementation shall include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies to support integrated efforts. IOU CEI sub-program managers will partner as appropriate with CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral and financial incentive analysis with customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will provide information about the mutual benefit of combining complementary resource programs.

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In the effort to promote CEI, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, utility program managers will partner with the local water districts to produce co-branded marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

g) Pilots

N/A

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This may include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

Once results of the 2010-2012 evaluations are ready, recommendations will be reviewed for modifying the CEI PIP accordingly.

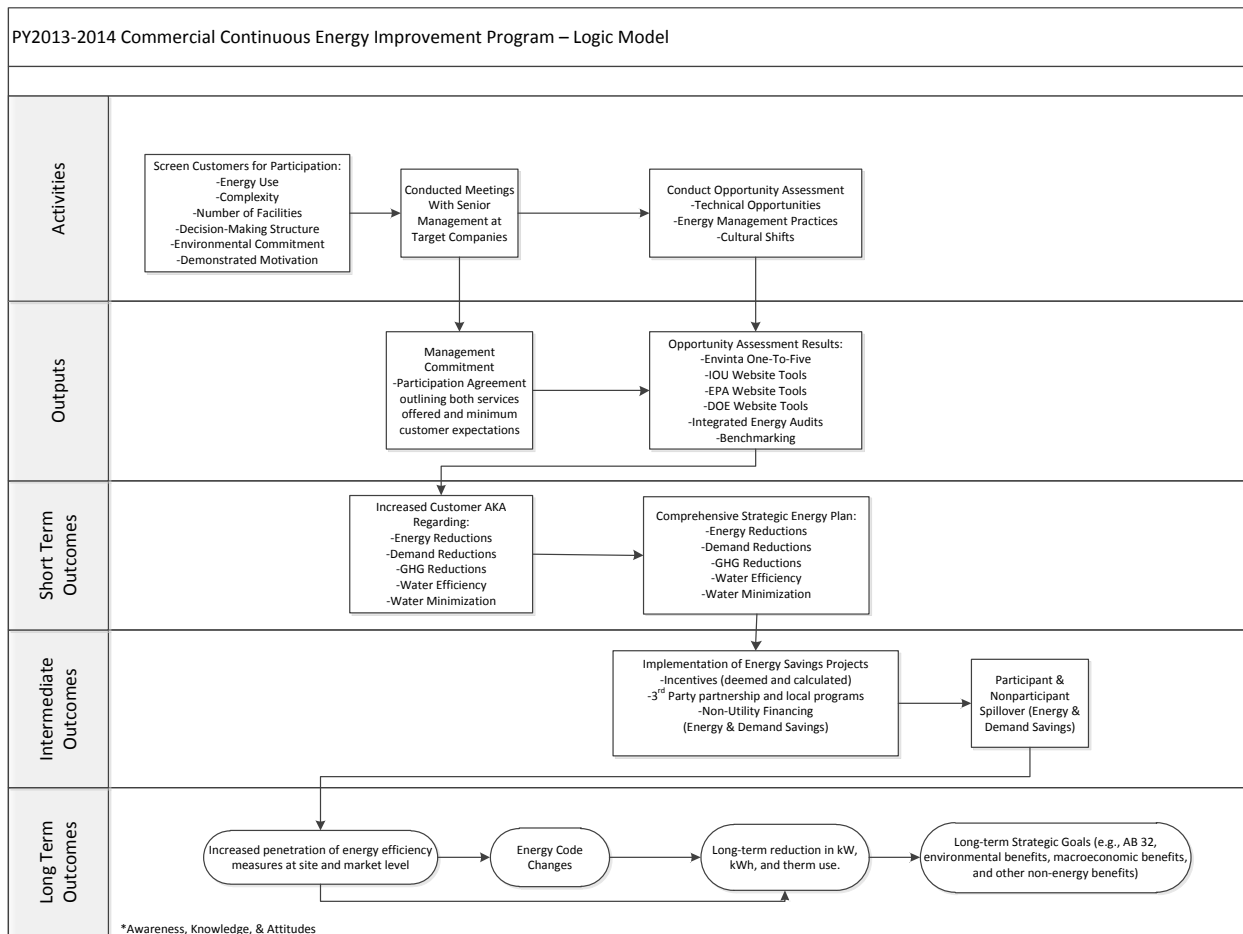
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7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Continuous Energy Improvement Sub-program.



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1. **Program Name: Commercial Nonresidential HVAC, core sub-program**
Program ID: SCG3712
Program Type: Statewide Core Program

1. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

2. Projected Program Gross Impacts Table – by calendar year

Table 2 – reference the overarching program for savings details

4. Program Description

a) **Describe program**

The Nonresidential HVAC Sub-program is a statewide program that will continue the transformation process of California’s HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- HVAC market business models for installing and maintaining heating and cooling systems change from commodity-based to value-added service business.

The IOUs are building towards this vision for HVAC by implementing a comprehensive set of strategies that builds on existing program, education, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality driven market. Through this state-wide HVAC Sub-program and the Western HVAC Performance Alliance group of industry stakeholders, we will continue to gain a better understanding of the market response to our programs as well as the behavioral implications of the various market participants, and then actively revise/update strategies and programs accordingly, as guided by the California Long Term Energy Efficiency Strategic Plan (Strategic Plan).

Market transformation and direct energy savings and demand reductions will be achieved through a series of Sub-program elements that are summarized below:

Upstream HVAC Equipment Distributor Incentive

This sub-program element offers incentives to upstream market actors who sell qualifying high efficiency HVAC equipment. The logic that underscores this sub-program’s design is that a small number of upstream market actors are in a position to impact hundreds of

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thousands of customers and influence their choice of equipment by increasing the stocking and promotion of high efficiency HVAC equipment. The upstream model cost-effectively leverages this market structure and existing relationships. The sub-program element also provides an online rebate application system to facilitate program participant sales and invoice tracking, which further reduces administrative costs as compared with paper application processing.

The upstream sub-program element is designed to adapt to market changes, and therefore the IOUs will continue working with relevant industry players to continually enhance the program to include new beyond-code upstream incentives.

Nonresidential Quality Installation

This sub-program element is applicable to installations of packaged HVAC systems, with a rated capacity up to 760,000 BTU/H. This sub-program element is based on the assumption that energy and demand savings are achievable through the application of QI in accordance with appropriate industry standards (e.g., ACCA, SMACNA and ASHRAE) applied to new commercial HVAC equipment.

This sub-program element intends to:

- Collaborate with EM&V efforts to quantify potential savings;
- Develop and implement a sub-program element focused on comprehensive, continuously improving installation activities that capture those savings and provide a high return on investment (ROI) to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

Nonresidential Quality Maintenance

This sub-program element may represent one of the more creative aspects of the HVAC “Big Bold Energy Efficiency Strategy.” It is based on the assumption that there are energy and demand savings achievable through the regular application of quality maintenance (QM) procedures applied to existing nonresidential HVAC equipment. This sub-program element intends to implement a commercial maintenance program focused on comprehensive, continuously improving O&M activities that capture those savings and provide a high return on investment (ROI) to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

Equipment efficiencies are improved by applying diagnostic methods and the detailed HVAC inspection and maintenance tasks of American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air Conditioning (ASHRAE)/Air Conditioning Contractors of America (ACCA) Standard 180.

The QM sub-program element is driven by Service Agreements between customers and contractors. The program incorporates training, marketing and incentives to help contractors understand and communicate the value of HVAC quality maintenance and energy efficiency. The program is also supported by commercial customer referrals from utility Sales and Service Representatives.

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The 2013-14 HVAC QM efforts will focus on continuous improvement, design enhancements, implementation barriers and collecting program data to help improve savings estimates.

b) List of Measures

To achieve energy savings and the market transformation desired by the Strategic Plan, a variety of appropriate incentives is required to influence specific market actions. Incentives will be targeted to all levels of the HVAC value chain and will be available for equipment (Upstream) and services (Quality Installation and Quality Maintenance).

Additionally, in coordination with the Emerging Technologies Program, the Nonresidential HVAC QM program will continue to consider higher initial incentives for any HVAC emerging technologies that may be newly introduced to the marketplace via this sub-program. Once the new products have taken hold in the market place, any such incentives would be adjusted to reflect market conditions.

Upstream HVAC Equipment Incentive

Eligible measures may include packaged and split system air conditioners and heat pumps and other commercial HVAC equipment. Packaged units less than 65,000 Btu/hour are rated according to seasonal energy-efficiency rating (SEER) and steady state energy efficiency rating (EER). Units greater than 65,000 Btu/hour are rated according to EER and integrated part-load value (IEER). See the tables available on the program website www.cainstantrebates.com for current minimum qualifying efficiency ratings for each size category and corresponding incentive values.

Measure Category	Incentive Level (Not to Exceed)
Air-Cooled Packaged and Split Systems < 5.4 Tons of Cooling Capacity	\$40 - \$450/ton
Air-Cooled Packaged and Split Systems >= 5.4 Tons of Cooling Capacity	\$20 - \$150/ton
Water- or Evaporative-Cooled Systems >= 5.4 Tons of Cooling Capacity	\$100 - \$300/ton
Air-Cooled Chiller Equipment	\$25 - \$90/ton
Water-Cooled Chiller Equipment	\$100 - \$300/ton
Variable Refrigerant (VRF/VRV) Equipment	\$100 - \$1,530/ton

Additional gas savings measures may be included in the program upon further evaluation of their viability and cost-effectiveness. New offering development evaluations will occur through ongoing IOU product development efforts and such continuous national efforts as the Consortium for Energy Efficiency's Commercial HVAC efforts.

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Nonresidential Quality Installation

At this point, providing a list of measures and incentive levels is premature, as a valid Quality Installation based Sub-program must be more fully planned and vetted through the Western HVAC Performance Alliance (WHPA), and since EM&V research under discussion through the HVAC EM&V Project Coordination Group (PCG) is needed to clarify a market-realistic baseline for the level of quality of HVAC installation services. This Sub-program will continue to be designed in 2013 for the 2013-2014 program cycle and therefore will not be providing incentives, at least not initially.

Nonresidential Quality Maintenance

Measure	Purpose	Incentive Level
Customer Service Agreement Incentive	Decrease customer's additional cost to upgrade to a QM Service Agreement. Keep the Service Agreement in place and units maintained by Contractor for 3 years	Up to \$3,836 per HVAC unit covered by agreement
Contractor Service Agreement Incentive	Compensate Contractors' for overhead costs related to Service Agreement sale and unit inventory.	\$75
Contractor QM Tasks Incentive	Reduce some of the additional costs of minor repairs that are required but don't receive incentives.	\$50
Contractor EE Tasks Incentive	Compensate Contractors' for completion of a specific set of tasks (see 4.1) required to bring the unit to minimum performance level (within 6 months of Service Agreement approval). EE Tasks Eligible for Incentives Coil cleaning Fan Maintenance Refrigerant system test Refrigerant system service Economizer functional test Integrate economizer wiring Replace damper motor Replace controller/sensor Renovate linkage & other components Decommission economizer Replace thermostat Adjust thermostat schedule	Up to \$2,425 per HVAC unit

c) List of Non-incentive Commercial Energy Advisor Services

The Nonresidential HVAC sub-program will include a variety of non-incentive program services intended to support customers and contractors in achieving greater energy efficiency from HVAC upgrades and quality installations and quality maintenance. The list of such service includes:

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- Education of the market on the value of selecting high-efficiency systems.
- Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program.
- Training for contractors on HVAC industry standards, sales and marketing of the value of those standards, and their implementation in the field.
- Education for customers on how HVAC industry standards can help them compare bids of contractor services and select those with high-road skills.
- Customer education about the benefits of establishing a long-term trust relationship with a qualified contractor, which can lead to future energy and cost savings, such as from better planning for future HVAC system replacements and the quality installation of those systems when replaced.
- Participating contractors can receive new business sales leads from utility company customer representatives.
- Improved comfort and indoor air quality for customers.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

The Nonresidential HVAC subprogram is a market transformation oriented program. See Section 7. below for market transformation information about the subprogram for 2013-2014 that replaces and enhances sections 5.a., 5.b. and 5.c. of the HVAC Program plan from 2010-2012, which had covered quantitative baseline and market transformation information, as well as program design to overcome barriers.

b) Market Transformation Information

See Section 7. below.

c) Program Design to Overcome Barriers

See Section 7. below.

d) Quantitative Program Targets

The program will achieve the following program targets:

Table 5

	Program Target for 2013	Program Target for 2014
Ups tream HVAC Distributor Equipment Incentive		
Tons of Equipment Cooling Capacity Incentivized	TBD	TBD
Nonresidential Quality Installation (QI)		

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Contractor Information Sessions	TBD	TBD
Participating Contractors	TBD	TBD
Nonresidential Quality Maintenance		
Commercial HVAC Systems Serviced	TBD	TBD
QM-Standard Service Agreements Signed	TBD	TBD
Participating Contractors that Sign at Least One QM-Standard Service Agreement	TBD	TBD

e) Advancing Strategic Plan Goals and Objectives

Upstream HVAC Equipment Incentive

- Support for Strategic Plan, HVAC Goal 1 to improve code compliance (and related SB454, which is now codified at Public Utilities Code Section 399.4)

HVAC distributors and manufacturers are not directly involved in the relevant code compliance market processes. However, they are supplying and helping with training contractors who are in the best position to ensure that quality installations occur, and who are often in a central role regarding permit compliance. The program will continue to engage these market actors for ideas and possible program modifications to enhance support of quality installations and permit compliance.

- Support for Strategic Plan, HVAC Goal 4 to improve market penetration of new climate-appropriate HVAC technologies

The Upstream HVAC sub-program element can serve as an incubator program for increasing the market penetration of promising HVAC technologies, in coordination with HVAC elements of the Emerging Technologies program.

The sub-program element will support improvement to HVAC equipment by providing incentives for various high-efficiency HVAC equipment categories. The eligible equipment categories are based primarily on the Consortium for Energy Efficiency HVAC specifications, which have multiple tiers designed to increase the market share of high-efficiency equipment. Furthermore, by leveraging the geographic area of the Upstream HVAC sub-program throughout California and other parts of the West, the result will be increased participation, which will lead to increased market share of high-efficiency equipment sufficient to argue for standards changes.

Both SMUD and NV Energy currently offer a similar Upstream HVAC program. The California Upstream HVAC Program will look to leverage these existing relationships in addition to engaging the DOE, Southwest Energy Efficiency Project

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(SWEEP), Western Cooling Efficiency Center (WCEC), Western HVAC Performance Alliance (WHPA) and manufacturers to create a regional strategy to develop and increase the commercialization of new climate-appropriate HVAC technologies.

Nonresidential Quality Installation

The program will help to achieve the following near-term strategic goals as identified in Chapter 6 of the Strategic Plan:

- 2-3: Provide expanded QI/QM training – In order to participate in the program, contractors will be required to attend specific training sessions that introduce them to the appropriate industry standards.
- 2-4: Implement contractor accreditation program – Additional support will be made available through the sub-program to reinforce the WE&T Program's efforts toward increasing the level of technician certification.

Nonresidential Quality Maintenance

The program will help to achieve the following near-term strategic goals, as identified in Chapter 6 of the Strategic Plan:

- 2-1: Create a Statewide QI/QM Brand – QM will support the Energy Upgrade California branding as applicable.
- 2-2: Launch Statewide Brand – QM will support the Energy Upgrade California branding as applicable.
- 2-3: Provide expanded QI/QM training –HVAC service technicians will continue to be fully trained on the delivery of the measures promoted by the Program. Furthermore, feedback mechanisms will be utilized to continually evaluate technician performance to ensure that they are applying the information they are being taught in the QI/QM training. Nearly all economists and government leaders agree that negative impacts of the current worldwide financial crisis are likely to linger for years. Thus, the IOUs will work closely with the industry to reduce (and wherever possible eliminate) the direct costs of this transformative training to technicians and contractors who are willing and able to apply their skills and new tools to the task at hand.
- 2-4: Implement contractor accreditation program – Efforts will be made to promote NATE certification.
- 2-5: Develop standards for on-board diagnostic functionality – Evaluating the use of hand-held and other types of diagnostic systems in the field will help determine viable protocols for commercial applications.
- 2-6: Prioritize in-field diagnostic approaches – Conducting the appropriate level of research into existing diagnostic and verification approaches will provide the IOUs and the HVAC industry with the information necessary to target future efforts based on quantifiable energy efficiency benefits.

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6. Program Implementation

a) Statewide IOU Coordination

The IOUs will jointly participate in California’s nonresidential HVAC efforts to achieve real market transformation. In order to accomplish this task, the IOUs will use the principles of adaptive management and follow a structured process to continuously update and enhance the program throughout the two-year implementation cycle. The process will be as follows:

- Designate an IOU Program Lead – The process for adaptive management will begin with each IOU designating an HVAC Program Lead. The lead will be the conduit through which information between IOUs will flow and will investigate new innovations, special accomplishments and challenges faced by sub-program managers and the managers of cross cutting statewide programs within their own IOU. Where such innovations or challenges intersect HVAC and show potential for improving the HVAC program, the Program Lead will present such information to a quarterly HVAC Program Management Team meeting.
- Hold HVAC Program Management Team Meetings – Meetings will be held at least quarterly, individual innovations and accomplishments experienced in one IOU will be transmitted to all IOUs. The HVAC Program Management Team will evaluate the innovations and accomplishments of the individual IOUs, hear ideas for course corrections and overcoming challenges, measure the HVAC program’s progress against statewide metrics and goals and prepare summations for presentation to the Western HVAC Performance Alliance.
- Adopt Program Enhancements – Once the HVAC Program Management Team agrees that a particular idea or innovation has merit on a statewide-level, each IOU program lead will distribute the information to their sub-program element managers for adoption and integration as appropriate. In some cases, it may be necessary to invite the sub-program element managers to the HVAC Program Management Team to get their feedback and ensure they receive the same message.
- Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the HVAC Program Management Team will track the program’s accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results⁵⁵. The HVAC Program Management Team will determine whether future course corrections are needed, and if so, “activate” a fresh start of the adaptive management cycle to generate the improvements necessary to stay on track.

Additional areas of program coordination include:

- i. **Program name:** Nonresidential HVAC Sub-program

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ii. Program delivery mechanisms

The Nonresidential HVAC Sub-program is the umbrella activity that encompasses the three sub-program elements summarized above in Section 4.a. The IOUs will deliver the Sub-program through a combination of third-party vendors and internal administrative staff. The Sub-program will be delivered in collaboration with existing industry infrastructures in order to increase its overall effectiveness. Program guidance will be provided to the CPUC/IOUs through the Westem HVAC Performance Alliance as described below. The program will be targeted to consumers, contractors and distributors to create a push/pull dynamic that influences sustained market changes.

iii. Incentive levels

See Section 4.b above for more information on sub-program measures.

iv. Marketing and outreach plans

Specific outreach efforts will be made to the industry to keep them engaged with IOU programs and in the Strategic Plan process. On a macro level, this outreach will occur through the Westem HVAC Performance Alliance. On a micro level, each sub-program element has specific tactics in place to engage the industry in its own particular demand reduction, energy savings and market transformation objectives

The Upstream sub-program element will explore outreach activities to upstream market actors in other geographic areas that ship into and across service territories and will continue communication with the industry to see where additional collaboration can occur to maximize marketing and outreach resources.

The IOUs will continue to develop common outreach materials, with feedback from market actors to enhance their effectiveness. These marketing materials will only be available to participating contractors, and will leverage IOU and other statewide branding efforts.

v. IOU program interactions

The IOUs are engaged in ongoing collaboration with the CEC and other agencies via the Codes and Standards process and will be able to coordinate and communicate voluntary programs and incentives with mandatory codes that become enacted for the future. Increasing the communication regarding the Strategic Plan will allow all entities to move and plan towards the same objectives.

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In order to support the need for increased code compliance, the sub-program will continue to cooperate with CEC training and other compliance support activities targeted at local building departments. Such activities will also be used to promote the economic and performance benefits of QI/QM. The sub-program will also continue to coordinate its activities with IOU local government partnerships, third-party programs and Codes and Standards activities to ensure that code compliance becomes fully integrated into these programs.

vi. Similar IOU and POU programs

As mentioned in Section 5.e. above, the three IOUs and SMUD implement the same or very similar Upstream HVAC Equipment Incentive Program.

As a result of increased federal equipment efficiency standards, many utilities across the country have begun to offer service-based programs that independently offer measures such as RCA and Duct Sealing. It is expected that the HVAC QM Program could stimulate a paradigm shift by delivering a comprehensive suite of maintenance services that comply with ASHRAE/ACCA/ANSI Standard 180, designed to address the full range of efficiency measures available for commercial HVAC systems.

POUs manage many different types of HVAC programs. However, none of them seek to accomplish the aggressive market transformation goals being proposed by the IOUs. Via the Western HVAC Performance Alliance, the IOUs will continue seek to increase their interactions with the POUs to better align IOU and POU HVAC programs. This may involve increasing awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

b) Program Delivery and Coordination

The program will be coordinated with the following activities:

i. Emerging Technologies program

The program is expected to interact extensively with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment and the advancement of energy efficient climate-appropriate HVAC technologies.

ii. Codes and Standards program

The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This ensures that the code-based solutions are consistent with that program's other activities. The Codes and Standards PIP describes the specific actions that the Program will employ to address HVAC.

As technologies advance and market penetration increases to an acceptable level, the

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minimum threshold for eligibility in California can increase to lock in the higher efficiency levels and continue an upward level of efficiency for HVAC equipment.

Coordination of HVAC, Codes and Standards and Emerging Technologies activities will be realized through regular interactions of statewide program teams to discuss program integration and implementation issues.

iii. WE&T efforts

The workforce education and training needs for the HVAC industry will be managed through the Statewide IOU Workforce Training and Education (WE&T) Program umbrella. However, the WE&T activity will be coordinated with the statewide HVAC Sub-program activity to ensure that the individual efforts are complementary.

Participating contractors in the HVAC sub-program will be required to attend program-specific QM training in order to participate in the programs.

The IOUs will leverage relationships with upstream market actors established through this sub-program to extend the delivery of training modules developed through the HVAC elements of the statewide WE&T Program.

iv. Program-specific marketing and outreach efforts

The primary outreach vehicle between the Upstream sub-program element and program participants is via the website: www.cainstantrebates.com and other electronic communication (e.g., e-mail and newsletters). The cost of operating this website is shared between the participating IOUs and POUs. Additional marketing and outreach activities exist through personal contact between the program staff and program participants. Targeted QI/QM marketing materials can be distributed to contractors via these established upstream channels.

Marketing support will be available for participating HVAC service contractors in order to promote the Statewide QI/QM efforts. Such support may include exclusive promotion on IOU websites, brochures and other leave-behind materials that contractors can use to promote QI/QM and their involvement with the sub-program.

The Nonresidential HVAC sub-program will coordinate marketing activities with other offerings within the Commercial program to create a seamless customer experience.

v. Non-energy activities of program

The direct energy benefits of the program result from promotion of high efficiency HVAC systems and the quality installation and maintenance of new and existing

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systems. Other activities will be required to support these energy savings goals. These activities include significant efforts in program design enhancements and coordination, technology evaluation and integration, contractor training and consumer marketing.

The program will continue to be active in a number of non-resource and market transformation activities that are required to ensure that the HVAC industry is fully involved in the development and implementation of the many tactics required to address the short and long term goals of the Strategic Plan. One such activity is the Western HVAC Performance Alliance (WHPA). The WHPA is necessary to keep the industry engaged in the Strategic Plan process and to provide guidance and support for the implementation of the various tactics required to transform the industry. Mindful that HVAC industry organizations are not traditionally structured, staffed or allocate resources to contribute the level of involvement envisioned by the Strategic Plan, the HVAC Convener’s Report concluded that: *“The agencies and utilities should work together to ensure the working group is adequately funded to meet its responsibilities”*

The WHPA involves high-level HVAC industry stakeholders—such as manufacturers, distributors, contractors, associations, organized labor and influential end user/customers—to coordinate industry sponsorship of and participation in HVAC strategies. Membership also includes and is targeted at other key players, such as the CPUC, California Energy Commission, utilities, building owners/managers, university researchers, consumers, and the Federal Government.

As a communication and coordination entity for HVAC energy-saving collaboration among IOUs, ED, other state and local government entities, and a broad set of HVAC industry and market stakeholders, the WHPA is chartered 1) to champion (coordinate, guide, prioritize, track and facilitate the implementation and evolution of) the HVAC Action Plan in support of the Strategic Plan and 2) to provide thoughtful input into IOU HVAC Energy Efficiency (EE) Program efforts.

vi. Non-IOU Programs

The Upstream sub-program element, in collaboration with the ET Program, will leverage its involvement with the U.C. Davis Western Cooling Efficiency Center and other industry and academic efforts to continually evaluate and include new equipment technologies as they become more commercially viable.

The IOUs will take an active role in Consortium for Energy Efficiency (CEE) activities to ensure that California’s quality needs are appropriately reflected in the ongoing CEE specification-setting efforts.

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The program will interact with the HVAC industry to develop and introduce increasingly stronger QM standards that ensure systems are operating in their most efficient state.

The Program will remain engaged with CEC, CARB, DOE and other government agencies responsible for regulating various aspects of HVAC equipment, services and training.

vii. CEC

The Program will interact extensively with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment and climate-appropriate HVAC technology advancement and market adoption.

viii. CEC work on codes and standards

See Section 6.b.ii. above.

ix. Non-utility market initiatives

The tenets of QI and QM are being actively pursued by leaders in the HVAC industry itself. Air Conditioning Contractors of America (ACCA) has taken the lead in this national effort by developing various ANSI- recognized QI and QM standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR, Utilities). Other organizations have also developed processes designed to improve the operating efficiency of HVAC systems (e.g., SMACNA, NCI). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards that drive increased energy savings for customers.

c) Best Practices

The Statewide HVAC Program demonstrates several examples of programmatic best practices. First, the Program involves the HVAC industry in all aspects of the program including public policy, program design and implementation – both formally through the Western HVAC Performance Alliance and informally through various ad-hoc working groups. Industry involvement is a crucial step in achieving the desired market transformation goals. Second, the Program uses an adaptive management process, as described in Section 6.a, to ensure that the Program is responsive to the changing market environment. Included under this process are inter-utility coordination meetings between HVAC, Emerging Technologies and Codes and Standards program managers to ensure these three programs are well coordinated and implemented consistent with the goals of the Strategic Plan. The Program includes the appropriate level of focus on technology issues through the close involvement with the Emerging Technologies program to advance the

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various technological and policy issues required to meet the deep energy savings and demand reduction goals desired by the Strategic Plan.

The use of industry-accepted design, construction and maintenance standards represents a quality-oriented best practice in air conditioning system installations and maintenance. Industry standards have been developed and vetted by national committees of industry experts and represent the best available information to use for program design. Additionally, networking through organizations such as CEE and the WHPA will provide opportunities for frequent feedback on QI and QM efforts being implemented within California and across the country.

In the Fall of 2007, ACEEE awarded the “Exemplary” Award to this Upstream sub-program element design. This essentially designated this Upstream program model as the highest performing program to promote HVAC equipment as compared to all programs across the United States.

d) Innovation

The Statewide Nonresidential HVAC Sub-program takes an innovative approach to program design through its implementation of a multi-faceted effort to engage all levels of the HVAC value chain. Each sub-program element under the umbrella and in those within the Residential HVAC Sub-program is designed to influence specific market changes. Within the sub-program elements, innovative techniques such as co-branded marketing and workforce training through existing industry channels will be employed to increase the program’s effectiveness. In addition, technical innovation is achieved specifically through the HVAC sub-program’s coordination with a dedicated advocacy effort to advance the state-of-the-art in vapor compression cooling and fault detection and diagnostics within the Emerging Technologies program.

A critical component of the Upstream sub-program element is its use of a web-based application and participation tool that provides transparency to both the program participants as well as the host IOU to be able to see what is occurring for applications that involve them. That this system allows participants to know the status in aggregate or down to a customer application level makes participation easy and efficient. For program participants, a paperless system is critical for ease of participation and for utilities there is reduction in cost per kWh saved from administrative costs over a paper review process. Designing and delivering the QI sub-program program element through active partnership with the industry will increase the likelihood of its success, as will the use of industry-accepted standards for QI as the foundation for activities.

The innovation of the QM sub-program element exists through the adoption of a comprehensive maintenance approach based on industry-accepted standards. A more comprehensive maintenance effort that delivers well-documented energy savings sets the standard for HVAC efficiency programs. Furthermore, delivering this program through active partnership with the industry will increase the likelihood of its success. Finally,

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innovation results through a continuous improvement process that will be employed to evaluate the viability of offering additional incentives for installations that exceed established program standards.

e) Integrated/coordinated Demand Side Management

As with most HVAC oriented programs, the primary source of integration exists between energy efficiency and demand response activities. At a minimum, all marketing materials developed to support QI and QM sub-program elements will cross promote DR to educate customers on the availability of IOU DR programs. Required contractor training will be designed to include a discussion on DR programs and participating contractors will be required to deliver DR information as part of their customer sales efforts. The IOUs will also explore combined EE and DR opportunities within various HVAC distribution channels.

f) Integration Across Resource Types

The program can be designed to support CARB's efforts to regulate GHGs by providing consumer information on the phase-out of existing refrigerants and the move to zero ozone depletion potential (ODP) refrigerants with the customer's maintenance invoice. Such information will seek to influence the customer's adoption of newer equipment by explaining the likelihood of increased maintenance costs as existing refrigerants become less available.

g) Pilots

No pilot programs are planned as part of this sub-program effort, though activities associated with improving QI and/or QM may be piloted before full implementation to ensure more coherent market adoption on roll-out.

h) EM&V

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. To support the continuous improvement envisioned by the adaptive management process and to fully address the intricacies of the program design, appropriate EM&V activities will be conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

Routine evaluation: the Upstream sub-program element will utilize the online incentive application system to track the sale of high-efficiency equipment from year to year. Reports can then be created to show the percent of equipment incentivized in tons based on SEER or EER. These reports will be prepared every year and compared to the previous accomplishments, and will determine whether the program is achieving goals.

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7. Market Transformation Information

The Nonresidential HVAC subprogram is a market transformation oriented program. The following information replaces and enhances Sections 5.a., 5.b. and 5.c. above of the HVAC Program plan from 2010-2012, which had covered quantitative baseline and market transformation information, as well as program design to overcome barriers.

a) Summary of the market transformation objectives of the program:

The Nonresidential HVAC Sub-program will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- HVAC market business models for installing and maintaining heating and cooling systems change from commodity-based to value-added service business.

b) Description of the market, including identification of the relevant market actors and the relationships among them:

- The three central functions of heating, ventilating, and air-conditioning (HVAC) are interrelated, especially with the need to provide thermal comfort and acceptable indoor air quality within reasonable installation, operation, and maintenance costs. In modern buildings the design, installation, and control systems of these functions are integrated into one or more HVAC systems.
- The HVAC industry is a worldwide enterprise, with roles including operation and maintenance, system design and construction, equipment manufacturing and sales, and in education and research. The HVAC industry was historically regulated by the manufacturers of HVAC equipment, but regulating and standards organizations such as HARDI, ASHRAE, SMACNA, ACCA, Uniform Mechanical Code, and International Mechanical Code have been established to support the industry and encourage high standards and achievement.
- For very small buildings, contractors normally "size" and select HVAC systems and equipment on behalf of end-use customers. For larger buildings, building services designers and engineers, such as mechanical, architectural, or building services engineers analyze, design, and specify the HVAC systems, and specialty mechanical contractors build and commission them. Distributors stock equipment from

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manufacturers in local regions and sell HVAC systems to contractors or building services companies. Building permits and code-compliance inspections of the installations are normally required for all sizes of buildings.

c) Market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies:

Successful market transformation programs first and foremost need to be designed specifically to address market transformation. “The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)⁵⁶” The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts⁵⁷, but also reflects the CPUC’s directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful market transformation programs have involved multiple organizations, providing overlapping market interventions⁵⁸. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities will continue to work with the CPUC and all stakeholders to help achieve market transformation while meeting the immediate energy, demand, and environmental needs.

Provided that HVAC is allotted sufficient EM&V funds, the statewide team will build on the growing body of HVAC research in California to ensure the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies have been studied to inform future program decision-making.

Key Barriers:

Lack of value proposition awareness

- **Performance uncertainties:** Previous research has been conducted on the energy savings achievable through HVAC system maintenance measures such as RCA and Duct Sealing, but despite all this research many performance uncertainties still exist, and furthermore, this research has not been able to effectively demonstrate the full energy savings benefits of QI/QM;

⁵⁶ Peters, J.S., Mast,B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

⁵⁷ CPUC (2008) Strategic Plan, p. 5.

⁵⁸ Nadel, Thorne, Saches, Prindle & Elliot (2003).

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- End-use customers do not clearly recognize the loss of energy efficiency performance benefits of a HVAC system if it is not properly installed and maintained, and do not recognize without assistance the value over time of purchasing a high-efficiency system versus a standard-efficiency one.

Availability of higher-efficiency equipment

- Stocking patterns of equipment follow demand, and since customers do not yet well appreciate the value of energy efficiency, HVAC equipment stocking in local distribution centers tends toward lower price, standard-efficiency systems. Without program intervention until market transformation occurs, customers who want to purchase higher-efficiency systems suffer delays from waiting for systems to be shipped from other locations, or just select standard-efficiency systems to avoid delay.

Search costs for qualified QM and/or QI contractors

- Customers do not appreciate the energy efficiency benefits of QI and QM, and suffer from a lack of information, time, and resources to assess their own energy efficiency opportunities.

Commoditized business model practices

- Bounded rationality: It is logical to assume that the HVAC industry would want to take the necessary training required to deliver high quality service; however, market dynamics have not supported such logic as the industry has largely become commoditized and low price/low quality typically wins out. Equipment stocking patterns have followed this same dynamic, such that customers who may seek high-efficiency systems have had to wait for systems to be shipped from outside of California;

Organizational customs:

- The HVAC industry has largely become commoditized into an industry driven by low costs and quality where quality is assumed but not understood or valued by the customer. This is a result, in part, of contractors having minimal success in communicating the value of QI/QM to consumers and consumers not understanding the linkages between comfort and energy use.

- d) Description of the proposed intervention(s) and its/their intended results, including which barriers the intervention is intended to address:

Historically, the nonresidential retrofit programs directed toward customers and contractors have had very low uptake rates on high-efficiency HVAC systems, plus there is very little understanding in the market of the value of quality maintenance and installation services. Consequently, the critical foundation required for achieving HVAC market transformation consists of two main strategies:

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- Continue to leverage the high level of participation in the Upstream sub-program element to ensure availability in the market and drive sales of high-efficiency equipment, and
- Build customer and contractor participation in the HVAC Quality Maintenance program element, since it is designed to provide an evergreen foundation across a broad customer base of existing HVAC users for achieving deep energy savings across HVAC and other programs.
- The QM program element incorporates training, marketing and incentives to help contractors understand and communicate the value of HVAC quality maintenance and energy efficiency.
- This program element is driven by Service Agreements between customers and contractors, establishing an on-going relationship of trust that also then enables better decisions to be made about replacement of equipment with high-efficiency systems and the proper quality installation of those systems.
- The resulting increase in market share of high-efficiency equipment and quality installation and maintenance services then allows increased levels of customer, installer, and distributor/manufacturer knowledge and interest in these systems, which should then make it easier to achieve further increases in the market share of these energy saving practices.

Program Intervention to Overcome Barriers

Lack of value proposition awareness

- By quantifying the energy efficiency benefits of QI/QM, the benefits of QI/QM (as well as those “premium” HVAC services that prove to exceed the ANSI QI/QM standards) will be better understood by program participants. It is our goal to discover the evidence, and expected return on investment (ROI), that customers will require to authorize payment for these measures when subsidies are removed. Via the Upstream sub-program element, the delivery process of information about high-efficiency units is streamlined. Delivery from distributors and manufacturers through contractors will provide consistent information on the benefits of energy efficiency and reduces the need for end user analysis, thus allowing more customers to see the benefits of implementing energy efficiency projects/measures;

Performance uncertainties:

- The innovative diagnostic methods and technologies used by the QM program element set it apart from tune-ups and other HVAC maintenance efforts. Program measures include a thorough site assessment and repairs well above and beyond routine HVAC unit maintenance. The methods provided allow contractors enrolled in

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the program to precisely evaluate commercial customers' HVAC units and subsequently improve unit efficiency and realize energy savings.

Availability of higher-efficiency equipment

- The Upstream incentives ensure product availability to influence the decision maker at the time of purchase or service.

Search costs for qualified QM and/or QI contractors

- By encouraging contractors to promote the concepts and value of quality maintenance at the time of system installation, customers will be more likely to regularly maintain the system and be assured that the energy efficiency performance benefits of their new system will continue throughout the life of their system.

Commoditized business model practices

- Bounded rationality: The sub-program incentives and promotion of qualified participating contractors encourage the HVAC industry to want to take the necessary training required to deliver high quality service;

Organizational customs:

- The program effort is designed to help demonstrate the value proposition of a high quality contracting business and educating consumers on the energy benefits of QI/QM. Additionally, incentives to upstream market actors encourage the development and promotion of new energy-efficiency technologies and tiered incentive structure to build towards meeting future codes and standards changes.

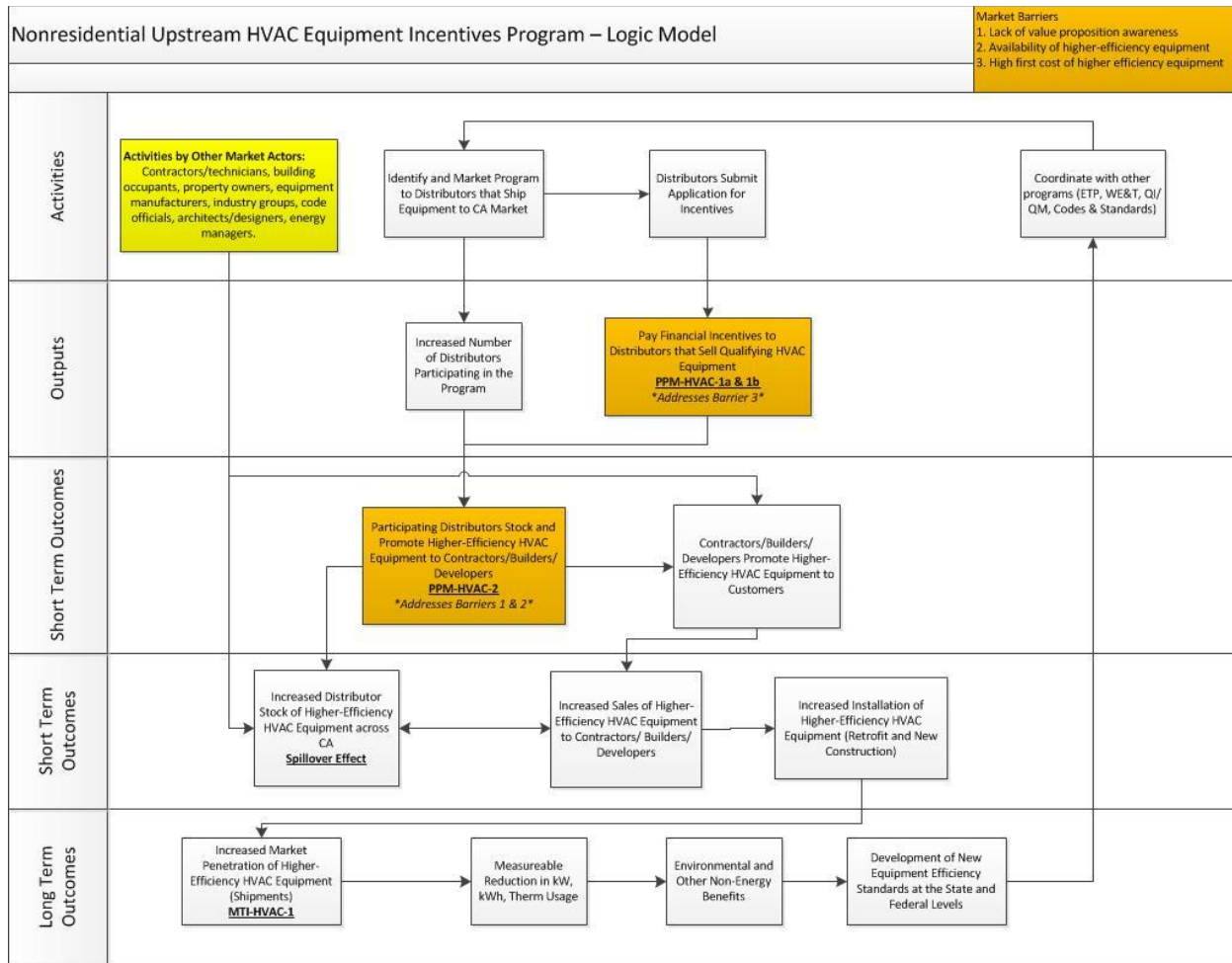
Additionally, several other issues could potentially influence sub-program design for Quality Installation, including:

- Other organizations have established processes and procedures for QI. These processes should be evaluated to determine how well they perform in comparison to minimum QI standards.
- Lack of industry consensus on QI standards and technical protocols
- Overcoming market barriers to exceeding Title 24 Standards
- Cost-effective constraints arising from limited savings for QI measures exceeding Title 24.
- Forging sustainable HVAC industry and market actor support.
- Addressing challenges in standard applicability across a range of commercial building types and HVAC systems.
- True energy savings measurement procedures.
- The WHPA “Road Map” noted that while of both the Title 24 and ACCA standards mandate distribution system evaluation and specify limits for allowable leakage, the Nonresidential QI committee concluded that:

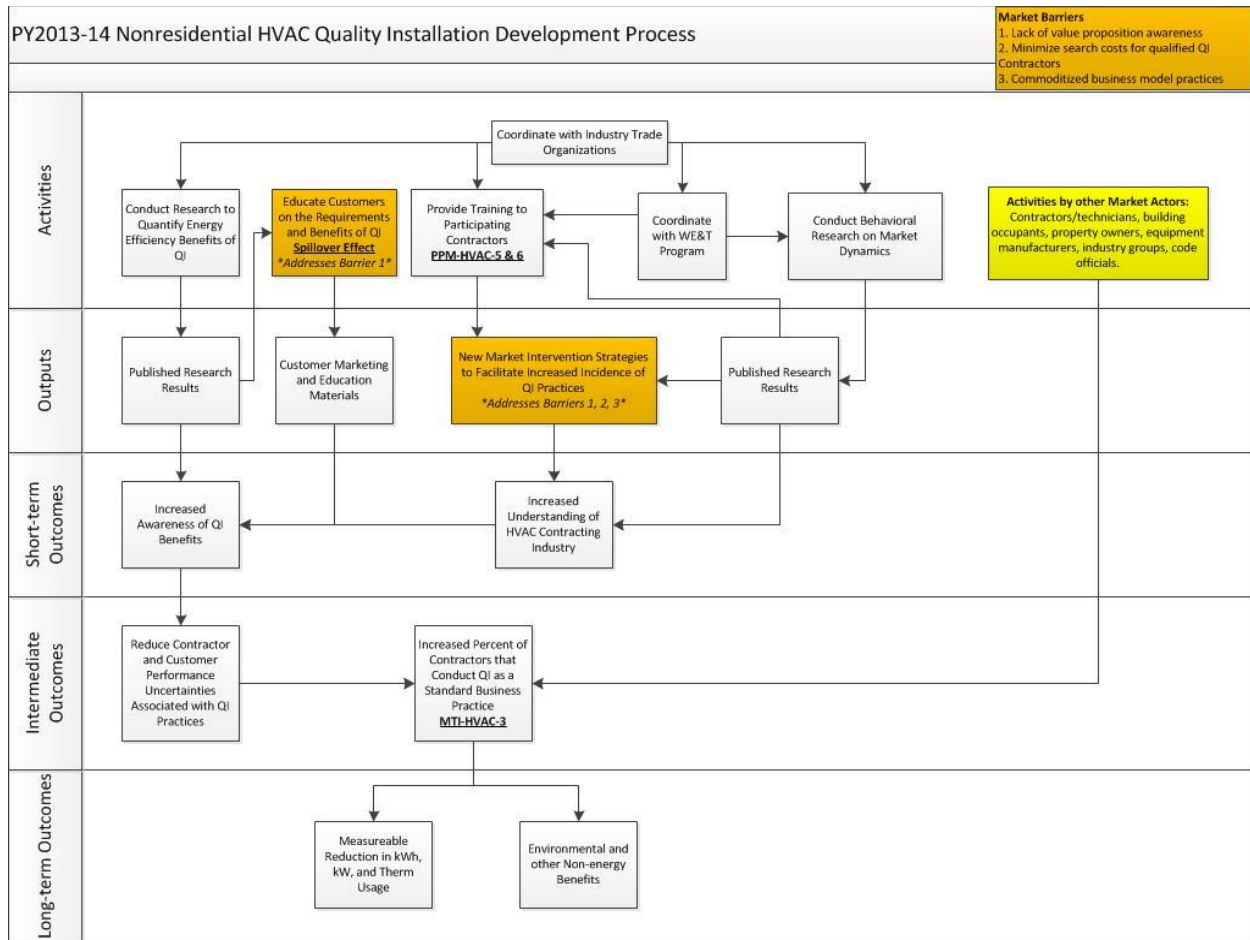
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- “To date, no satisfactory method for performing these examinations has been found for a wide range of non-residential installations.” (WHPA Non-Residential Quality Installation Road Map, 2010, p. 2)

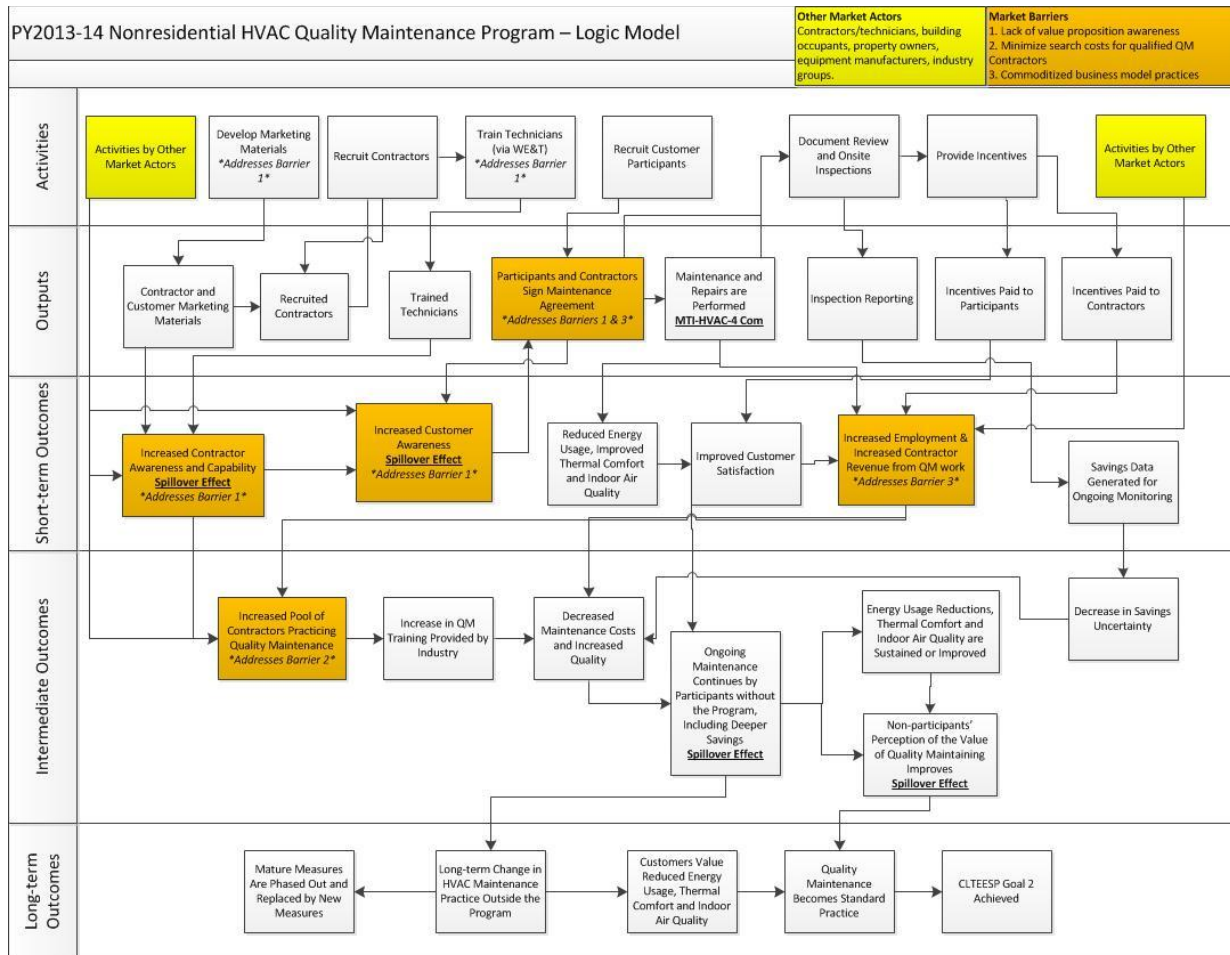
e) Program or market logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results:



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f) Evaluation plans and corresponding Market Transformation Indicators and Program Performance Metrics based on the program logic model:

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the three elements of the Nonresidential HVAC Sub-program (Resolution E-4385, Appendix A, pp 35-36):

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Table 3 – Program Performance Metrics

Program	Metric	Metric Type
<i>Upstream HVAC</i>	1. (a) kW/ton incentivized in the program. (Note: Decrease in metric indicates positive progress), combined with (b) the number of units that are incentivized in the program vs. (c) number of units over 5.4 tons shipped to California as tracked through AHRI shipment data. (Assuming the availability of AHRI data.) ¹ ¹ As is indicated within this PPM, the availability of item (c) in this PPM is not yet confirmed, since it is closely-held, proprietary third-party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for 2010 information.	2a
	2. The distributor stocking percentage of units eligible for program. (Note: Assumes availability of individual distributor data and/or aggregated data from HARDL.) ¹ ¹ The availability of this data is not yet confirmed, since it is closely-held, proprietary third-party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for 2010 information.	2b
<i>Commercial Quality Installation</i>	1. Percentage of HVAC contracting companies that are participating in statewide commercial QI program as a share of the targeted market* * "Target market" defined as C20 licensed HVAC contracting companies in CA.	2a

Market Transformation metrics should neither be used for short-term analyses nor for specific program analyses; rather, should focus on broad market segments. Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”⁵⁹ The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁶⁰.

⁵⁹ California Public Utilities Commission Decision, D.98-04-063, Appendix A.

⁶⁰ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

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Markets are social institutions⁶¹, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶² as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁶³. According to York⁶⁴, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

Resolution E-4385 identified a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms, and these MTIs were presented at a public workshop to allow for public comments and discussion before being finalized. Consistent with the outcome of that public workshop, MTIs for this subprogram are below.

Table 4 – Market Transformation Indicators

HVAC-1	Market share of energy efficient climate appropriate HVAC equipment.
HVAC-3	Percentage of all California Commercial HVAC installation contractors using Quality Installation guidelines (weighted by size).
HVAC-4- Commercial	Percentage of Commercial HVAC units (systems) serviced in IOU service territory under a QM Service Agreement.

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. To support the continuous improvement envisioned by the adaptive management process and to fully address the intricacies of the program design, appropriate EM&V activities will be conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

⁶¹ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁶² Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁶³ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁶⁴ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

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1. **Program Name: Commercial Direct Install**
Program ID:
Program Type: Statewide Core Program

2) **Projected Program Budget Table**

Noted: PG&E's and SCG's Direct Install efforts are or may be delivered by third party bidders whose efforts are included in their 3rd Party Program implementation plans.

3) **Projected Program Gross Impacts Table**

Note: PG&E's Direct Install efforts are delivered by third party bidders whose efforts are included in the 3rd Party Program implementation plans.

4) **Program Description**

a) Describe Program

The Direct Install sub-program delivers free and low cost energy efficiency hardware retrofits through installation contractors to reduce peak demand and energy savings for small commercial customers. The program targets small businesses in a staged delivery approach that provides program services in specific geographic areas at different times allowing for a more concentrated, directed, and yet comprehensive program.

Note: PG&E's and SCG's Direct Installed (DI) sub-program is delivered through LGP and Third Party Channels. Specific descriptions and details of its DI program and offerings can be found in its respective LGP and Third Party PIPs.

b) List of Measures

Direct Install will implement selected measures at reduced or no or low cost to the customer. Low cost measure opportunities will be targeted to small commercial customers. Eligible measure types include but are not limited to:

- Gas Measures

c) List Non-incentive Commercial Energy Advisor

The sub-program provides a complete turnkey solution for the customer, including equipment purchasing, installation, clean-up and disposal. In addition, information about the installed measures is provided to the customer that explains the energy efficiency benefits they received and proper operation and maintenance practices to ensure sustained performance.

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5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude “draft” metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

b) Market Transformation Indicators (MTIs)

See Section 1a.5.a.

c) Program Design to Overcome Barriers

Small businesses are a significant source of untapped energy-efficiency potential. The primary barriers to participation include limited capital resources, lack of expertise and understanding of the benefits of energy efficiency, a suspicion of the “free offer” and its legitimacy, and language and cultural barriers.

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In addition, the majority of these customers occupy short-term leased facilities. Consequently, there is also a split incentive barrier to adoption of energy efficiency improvements. Split incentives occur when the customer and owner do not own the same equipment they pay bills for (e.g., the landlord owns the HVAC equipment and the customer pays utility bills for it, or vice versa). The program makes every effort to address this situation with both the owner/property management company and the tenant to communicate the benefits and gain approval for program services. The no cost offering makes this acceptance of the retrofit easier for the tenant.

While these small customers may be eligible for other elements such as the itemized retrofit incentive, the primary barriers beyond some cost reduction to participation by very small and small commercial customers are not addressed by that program. The No-Cost/Low Cost Installation element addresses these barriers by providing all equipment and installation services at no or very little charge to the customer.

The program utilizes a collaborative team of internal and external stakeholders to conduct strategic program outreach and marketing. Working with our External Affairs Outreach group the Direct Install program has worked actively with a number of Business Improvement Districts and local governments during the current cycle to increase local community involvement and raise the program's profile among BID businesses. This effort will continue during the 2013-2014 cycle with a concerted effort to partner with Local Government Programs and multiple BIDs to increase the number of BID customers involved in the Direct Install program.

Additionally, the program has team members fluent in the languages spoken and familiar with the cultures in its territory to pro-actively working to bridge cultural and language barriers to understanding the benefits of energy efficiency, overcoming the suspicion of the "free offer" and its legitimacy.

d) Quantitative Program Targets

The Commercial Direct Installation Program has program targets defined within each direct install vendor contract.

e) Advancing Strategic Plan goals and objectives

In accordance with the Strategic Plan, this sub-program advances comprehensive energy efficiency, including:

- Integrating marketing and outreach to the commercial customer sector
- Integrating the approach to better maximize savings and minimize lost opportunities
- Identifying the most promising technologies that can play a role of providing multiple solutions, for energy efficiency.

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- Cross-promoting other energy efficiency (e.g., Workforce, Education & Training) and demand response programs.

6) Program Implementation

a) Statewide IOU Coordination

All California IOUs offer The Direct Install efforts. Specific areas of coordination include:

i. Program name: Commercial Direct Install

ii. Program delivery mechanisms

Third-party contractors will be used to perform program services such as customer outreach, survey existing equipment, explain and promote retrofits, and perform retrofit installations for customers and coordinates services performed by the Community-Based Organizations (CBOs).

iii. Incentive levels

The sub-program does not pay a rebate or incentive to the direct install customer. Payments are made to the direct install vendor who employs said incentives to reduce the cost of delivering energy efficiency services. The products and installation of products are at reduced cost or free to the customer.

iv. Marketing and outreach plans

The sub-program is designed to increase the adoption of energy-efficient measures by small and hard-to-reach commercial customers through offering energy efficiency assessments, energy efficient equipment and installation to small business customers at no or low cost. Marketing efforts undertaken will be targeted based on customer size and demographics. Program interactions include working closely with Faith Based and Community Based Organizations as job development partners, creating and providing jobs in addition to the contract deliverables. This provides a partnership in the community that otherwise would not have engaged.

Additionally, the Program utilizes a collaborative team of internal and external stakeholders to conduct strategic program outreach and marketing. Working with our External Affairs Outreach group the Direct Install program has worked actively with a number of Business Improvement Districts and local governments during the current cycle to increase local community involvement and raise the program's profile among BID businesses. This effort will continue during the 2013-2014 cycle with a concerted effort to partner with Local Government Programs and multiple BIDs to increase the number of BID customers involved in the Direct Install program.

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v. IOU program interactions

The sub-program will coordinate its activities with local government partnerships and External Affairs in order to leverage existing infrastructures (e.g., Chambers of Commerce and Business Improvement Districts) that provide outreach to small business customers.

vi. Similar IOU and POU programs

Not applicable

b) Program delivery and coordination

Direct Install contractors are selected using a competitive bid process to ensure cost-effective delivery of services. All customer outreach, existing equipment surveys, explanation and promotion of retrofits and installation of retrofits for customers will be delivered by the contractors.

The IOU Program Management staff provides a customer contact list to the Direct Install contractors. Using this list the contractors will contact the customer to set up an appointment to assess and install the recommended measures at no cost to the customer. In cases where a customer name is not shown on the list (for example, a new business that opened after the list was generated), the contractor confirms their eligibility before performing a survey. Contractors have the main responsibility for contacting eligible customers, but also work with appropriate CBO/FBO and local government partnerships to reach customers.

After completing the energy survey, the contractors must discuss the recommendations with the customer and explain which measures are recommended for upgrade and/or replacement. The contractor must then ask the customer whether to proceed with the retrofit:

The contractor typically installs the equipment within a few days of obtaining permission to proceed. After completing the installation, the contractor must do two things:

1. Perform an on-site post-verification of the installation. The test must ensure that all retrofit work is completed and in compliance with all applicable statutes, acts, ordinances, regulations, codes and standards of the federal, state and local governmental agencies having regulatory jurisdiction.
2. If a customer has any complaint about work done through the Program, the Contractor is ultimately responsible for handling it.

Any advertising or marketing material that the contractor uses must be approved by the Program manager in advance. All customer communications must be presented in the customer's primary language whenever possible and appropriate categories).

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i. Emerging Technologies program

Not applicable; this program does not seek to influence emerging technologies.

ii. Codes and Standards program

Not applicable; this program is not directly involved with the Codes and Standards, but is indirectly involved insofar as Title 20/24 requirements dictate minimum efficiency standards.

iii. WE&T efforts

Direct Install contractors will be required to provide customers with informational materials on statewide and local WE&T opportunities. In addition, the Direct Install program (through its contractor delivery network) offers an opportunity for achieving one of the primary goals of Workforce Education & Training – providing energy efficiency jobs for low income and disadvantaged workers. The linkage between Direct Install and the Statewide WE&T efforts will be made stronger as the WE&T program coalesces.

iv. Program-specific marketing and outreach efforts

Program outreach occurs by working closely with local governments, Faith Based and Community Based Organizations. Marketing and outreach efforts focus on the energy efficiency benefits of the equipment installed, proper operation and maintenance and cross-promotion of DR activities. (Specific IOU budget information for this marketing activity is provided in Table 1.)

v. Non-energy activities of program

As a turnkey program, Direct Install contractors are responsible for outreach efforts, equipment specification, equipment procurement, equipment installation, job-site clean-up, equipment disposal and post-installation inspection.

vi. Non-IOU Programs

Direct Install will leverage the efforts of other philanthropic, faith-based and community-based organizations to achieve additional energy savings. These efforts will be further defined as the program design details are developed and third-party contracts are negotiated.

vii. CEC

Not applicable; see Section 6.b.i.

viii. CEC work on codes and standards

Not applicable; see Section 6.b.ii.

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ix. Non-utility market initiatives

Not applicable

c) Best Practices

Direct Install Programs were successfully offered during the 2010-2012 program cycle. Best practices were derived from these programs and include:

- Keep messaging and participation simple for the customer.
- Understand the key motivators that drive an industry and use that information to market the program.
- Make the program visible to targeted customers.
- Contact targeted customers through identified organizations and associations,
- Maintain a high level of customer service by providing customers with assistance with vendor management and other no cost, low cost recommendations.
- Identify qualifying products simply and effectively.

d) Innovation

As the market matures with information regarding energy efficiency, many small businesses are expressing an interest in the adoption of emerging technologies, such as solid state lighting, and demand response enabling technologies. The IOU Direct Install Program Management team will continually evaluate these technologies and incorporating them into the program delivery model including potential customer co-pay into the program.

IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper savings.

e) Integrated/coordinated Demand Side Management

The Direct Install model provides a great opportunity to market other DSM (i.e., DR and CSI) to traditionally hard-to-reach customers. The program will make every effort to do so; however, it is acknowledged that these small business customers likely do not have the resources (both financial and personnel) to actively pursue participation in such programs (especially CSI). To help bridge this resource gap, DSM promotional materials will describe all known non-IOU programs that offer tax credits/rebates/financing for solar PV systems. Information on DR programs and rate alternatives/changes appropriate to the small-business customer class will also be provided.

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f) Integration across resource types

Promotional materials described in Section 6.e will also include information on water energy savings. In addition, such water savings measures (e.g., low flow faucets) may be evaluated for inclusion in the program delivery.

g) Pilots

Not applicable

h) EM&V

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

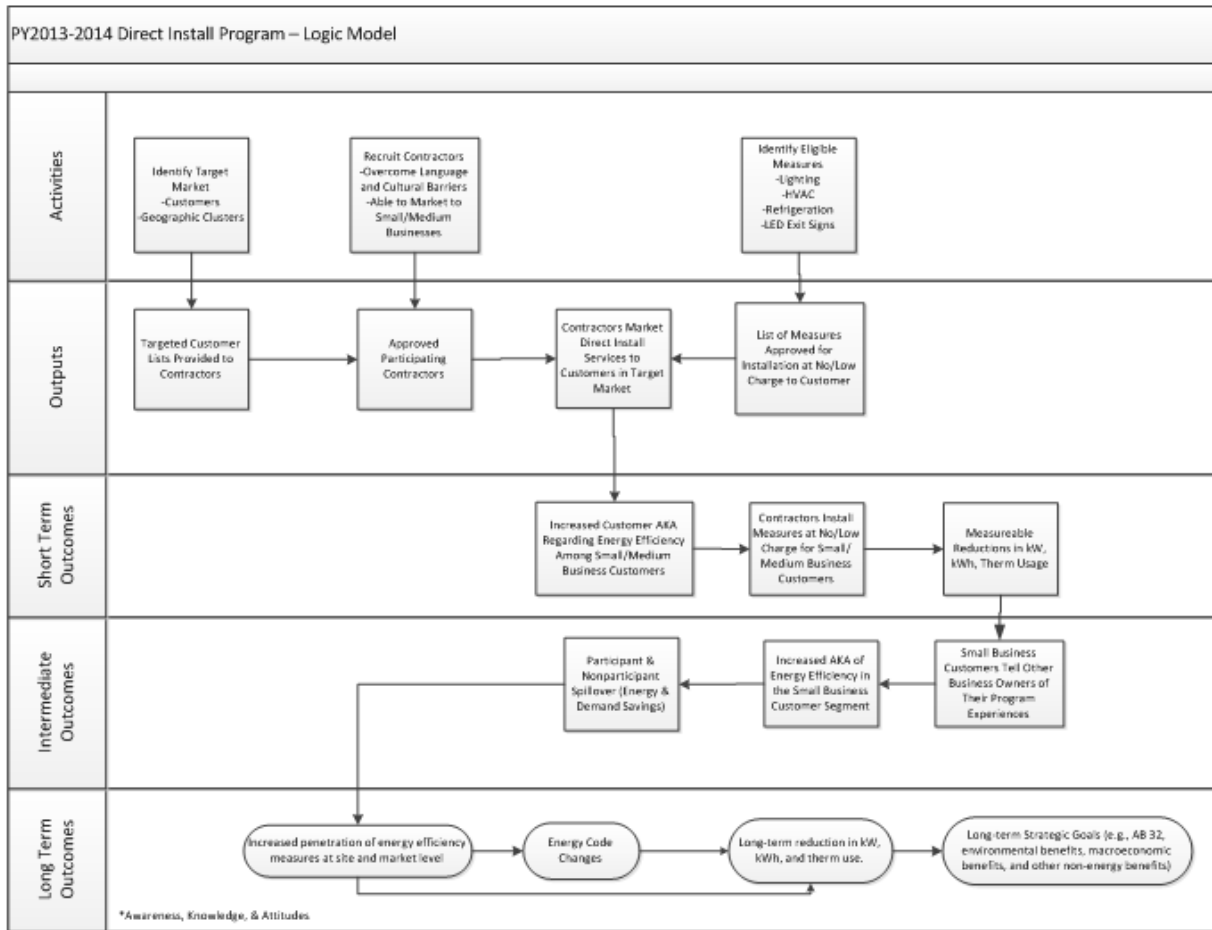
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7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Direct Install Sub-program.



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**1a2a)1. —Program Name: -Statewide Commercial Energy Efficiency Program,
—Program ID: -SCG3708 – SW-COM Energy Advisor
—SCG-3709 – SW-COM CEI
—SCG-3710 – SW-COM Calculated Incentives
—SCG-3711 – SW-COM Deemed Incentives
—SCG-3712 – SW-COM Non-Residential HVAC
—Program Type: Statewide Core Program**

2.) Projected Program Budget Table

Table 1¹ –reference the overarching program for budget

PG&E210 1	Commercial Energy Efficiency Program	Total Administrative Cost	Total Marketing & Outreach	Total Direct Implementation	Total Budget By Program
	Nonresidential Audits Program	\$ 2,391,258	\$ 554,662	\$ 17,291,678	\$ 20,237,598
	Calculated Incentives	\$ 11,820,183	\$ 4,307,610	\$ 61,216,691	\$ 77,344,484
	Deemed Incentives	\$ 5,745,064	\$ 5,422,902	\$ 47,348,720	\$ 58,516,685
	Continuous Energy Improvement	\$ 199,319	\$ 51,000	\$ 1,836,000	\$ 2,086,319
	Commercial Direct Install	*	*	*	*
	Energy Efficiency for Entertainment Centers	**	**	**	**
	K-12 Private Schools and Colleges Audit and	**	**	**	**

¹-Definition of Table 1 Column Headings: **Total Budget** is the sum of all other columns presented here
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).
Total Direct Implementation includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.
Total Budget is the sum of all other columns presented here
Definition of sub-program: A “sub program” of a program has a specific title, targets, budget, uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

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	Retrofit Program				
	California Preschool Energy Efficiency Program (CPEEP)	**	**	**	**
Total		\$20,155,824	\$10,336,174	\$127,693,089	\$158,185,086

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Commercial Energy Efficiency Program					
3708	SW-COM-Energy Advisor	\$83,579	\$0	\$932,429	\$0	\$1,016,008
3709	SW-COM-CEI	\$20,495	\$24,624	\$354,880	\$0	\$399,999
3710	SW-COM-Calculated	\$538,339	\$266,197	\$3,250,320	\$5,184,993	\$9,239,848
3711	SW-COM-Deemed	\$1,340,107	\$692,942	\$3,864,782	\$1,066,270	\$6,964,101
3712	SW-COM-NonRes HVAC	\$36,553	\$5,824	\$613,589	\$0	\$655,965
	TOTAL:	\$2,019,073	\$989,586	\$9,015,999	\$6,251,263	\$18,275,921

Note: The projected program budget and savings impacts shown on Tables 1 and 2 were approved in PG&E's 2010-2012 EE Compliance Advice Letter 3065-G A&B/3562-E A&B effective January 1, 2010, per the Energy Division's disposition letter dated October 21, 2010.

*** The PG&E Commercial Direct Install efforts are delivered by third party contractors. The budgets for these third party direct install efforts are included in the third party program implementation plans.**

**** These three offerings are provided by third party contractors. The budgets for these offerings are included in the third party program implementation plans.**

3) Projected Program Gross Impacts Table

Table 2 reference the overarching program for gross impact details

Program #	Main/Sub Program Name	2012-2013 Gross kW Savings	2012-2013 Gross kWh Savings	2012-2013 Gross Therm Savings
	SW Commercial Energy Efficiency Program			
3708	SW-COM-Energy Advisor	0	0	0
3709	SW-COM-CEI	0	0	0
3710	SW-COM-Calculated Incentives	0	0	5,844,240
3711	SW-COM-Deemed Incentives	0	0	1,822,777
3712	SW-COM-NonRes HVAC	0	0	0
	TOTAL:	0	0	7,667,017

		2009-2011 Three-Year EE Program Gross kWh Savings	2009-2011 Three-Year EE Program Gross kW Savings	2009-2011 Three-Year EE Program Gross Therm Savings
PGE2101	Commercial Energy Efficiency Program	849,500,749	174,629	1,172,991

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Note: The projected program budget and savings impacts shown on Tables 1 and 2 were approved in PG&E's 2010-2012 EE Compliance Advice Letter 3065-G-A&B/3562-E-A&B effective January 1, 2010, per the Energy Division's disposition letter dated October 21, 2010.

4.) Program Description

a) Describe Program

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The Statewide Commercial Energy Efficiency Program offers California's commercial customers a statewide-consistent suite of products and services to overcome the market barriers to optimized energy management. The program targets integrated energy management solutions, including energy efficiency, demand response (DR), and distributed generation, through strategic energy planning support; technical support services, such as facility audits, and calculation and design assistance; and financial support through rebates, ~~and~~ incentives, and financing options.

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Targeted end users include all commercial sub-segments such as distribution warehouses, office buildings, hotels, motels, restaurants, schools, trade schools, municipalities, universities, colleges, hospitals, retail facilities, entertainment centers, and smaller customers that have similar buying characteristics.

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The Statewide Commercial Energy Efficiency Program includes ~~five-six~~ core statewide sub-program elements, including ~~Commercial Customer Services~~ Energy Advisor, Commercial Calculated Incentives, Commercial Deemed Incentives, Continuous Energy Improvement, ~~and nonresidential Audits~~, Nonresidential HVAC Direct Install, ~~Deemed Rebates and the Calculated support services and incentives~~. Each utility IOU offerings also ~~include~~ offers local program elements, ~~such as~~ third party programs, and local government partnerships that ~~complement and enhance this core offering for their region~~ have close ties to Business Improvement Districts (BIDs). Per CPUC directives, the IOUs will strengthen their relationships with local BIDs and develop opportunities for BIDs to participate in the marketing and delivery of direct install and deemed commercial incentives. In addition to the above sub-programs, the utilities will consider one or more demonstrations of a comprehensive whole building approach (WBA) to commercial building energy efficiency. This approach may make available the tools and resources necessary for customers to pursue and integrate multiple customized measures. This approach may also include deployment of energy management and information systems in demonstration projects that can be used to quantify and analyze energy savings based on various forms of measured performance data, including interval meter data. As described below, and in complete detail in the Commercial sub-program descriptions. Together these ~~These elements offerings~~ are designed to not only overcome the traditional market barriers to energy efficiency, but also attain deeper energy savings ~~use efficiency to, advance demand response and through~~ distributed generation opportunities uniquely suited to the Commercial segment.

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Description of the Commercial Energy Efficiency sub-programs:

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- ~~The Commercial Customer Services Program~~ Energy Advisor (CCSPEA) brings together under one program all audit services offered to support customer education and participation in energy efficiency, ~~demand response~~ and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities. These services include Benchmarking, Online Energy Audit Tool, CEI, Nonresidential Audits, Pump Efficiency Services, Retro-commissioning (RCx) and coordination with CEI as described below. ~~Benchmarking is a non-resource initiative designed to educate and motivate customers to benchmark their facilities. It offers technical support and hands on workshops providing customers with information that enables them to complete a benchmarking assessment of their buildings. The program also features an automated benchmarking service which uploads customer energy data to their Energy Star Portfolio Manager profile.~~
- The Commercial Calculated Incentives program offering provides standardized incentives for customized and integrated energy efficiency/DR projects for retrofit, and RCX projects, ~~and projects while also offers comprehensive~~ providing technical and design assistance ~~for each. It overcomes information, technical, and financial barriers. Because it provides a e~~Customized calculation method that can consider system and resource interactions, it will be the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan and concurrently overcome technical and financial barriers. ~~New Construction e~~Calculated savings ~~are covered under for~~ the Savings By Design Program, as described in the Statewide Program are achieved through the commercial New-new Construction construction Program component.
- The Commercial Deemed ~~rebate~~-Incentives Program offering provides utility representatives, equipment vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit/measure.
- Continuous Energy Improvement (CEI) is a consultative service which targets long-term and strategic energy planning. CEI is designed to reintroduce the importance of energy management by transforming the market and to help reduce energy intensity through a comprehensive energy management approach. CEI will address technical and management opportunities for commercial customers while creating sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution. ~~non-resource sub-program that describes the strategic planning tools and resources which lay the groundwork for long term integrated energy planning and serve as a launching platform for other utility and non-utility programs and services. Through analysis, benchmarking, long term goal setting, project implementation support,~~

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performance monitoring, and ultimately energy management certification, CEI aims to transform the market from a “project to project” approach to a continuous improvement pathway. In support of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), a CEI approach also sets the stage for non-energy resource integration, such as greenhouse gas reduction, water conservation strategies, and regulatory compliance. Nonresidential Audits (NRA), including basic audits, Integrated Audits, and Retro Commissioning (RCX) audits, provide an inventory of technical project opportunities and financial analysis information that can be used to populate a customer’s short or long term energy plan, and overcome both informational and technical customer barriers.

- The Nonresidential HVAC Program delivers a comprehensive set of upstream strategies that are built on education, marketing efforts and leveraged relationships within the HVAC industry geared to transform the market towards a sustainable, quality driven market.
- The Direct Install rebate offering provides small business customers ~~that have a small peak demand~~ the opportunity to have a third-party contractor retrofit existing systems to energy efficient systems at no cost to the customer. However, PG&E and SoCal-Gas’s Direct Install rebate offering is delivered through its Local Government Partnerships (LGP) and Third Party programs for small business.

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When developing program metrics and targets for each sub-program element, each utility will consider market potential as available, past program participation rates, market progress, current economic conditions, work-paper and baseline updates, and customer mix and penetration. Statewide coordination and planning will facilitate inter-utility sharing of successes, lessons learned, and best practices in the pursuit of those targets and metrics.

Statewide coordination and planning between utility program planning staff, utility functional departments, government agencies, municipalities and other key partners and stakeholders will also be critical to the advancement of the Strategic Plan. Leveraging national and state initiatives, tools and resources to manage energy and resources – including greenhouse gasses (GHG), air quality, and water – is a critical path to optimizing the potential for California’s commercial customer segments to thrive. ~~As described in full in PIP Section 6b, t~~ The Statewide Commercial Energy Efficiency Program design includes the staged integration and coordination with existing non-utility programs, initiatives, and existing regulations today. ~~This design is aimed to and later will drive or support~~ advancements in integrated resource planning, energy management certification, industry benchmarking, workforce education and training, and sharing of industry best practices.

The commercial customer markets are uniquely suited to integrated energy strategies. Load management opportunities and demand response have had great success and show additional potential. Opportunities for distributed generation from biogas, biomass, solar, fuel cells, and wind will be supported through this plan in support of state renewable

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energy targets, state GHG reduction efforts under AB32, and support of emerging carbon markets and offset programs. Utilities are also using integrated energy strategies to test DSM as a means to address T&D constraints in local areas. Consistent with California's preferred loading order, however, the utilities will continue to aggressively market and support energy efficiency first, as California's most cost-effective energy resource, while also being mindful of the customer's ultimate interests and goals.

b) List of Measures

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Technologies addressed through this program effort are varied, and include, but are not limited to, lighting, HVAC, refrigeration, food service equipment, and boilers, ~~vertical transportation, motors, and plug load controls.~~ ~~Different incentive levels will be those aligned with the Calculated and Deemed sub programs.~~

c) List of Non-incentive Commercial Customer Services Energy Advisor Services

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The Statewide Commercial Energy Efficiency Program will include a wide variety of non-incentive program services intended to support customer strategic planning, educate and train customers and the workforce about energy efficiency, and provide customized technical and project support. The service list includes:

Customer Services Program Commercial Energy Advisor (CCSPEA) Benchmarking

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- Hands on workshops:
- Technical support assistance:
- Automated Benchmarking services
- Nonresidential Audits
- Pump tests and pumping systems technical support
- Water leak detection services

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Continuous Energy Improvement (CEI)

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- Energy management assessments
- Energy planning
- Baselineing and benchmarking
- Project implementation support
- Customer recognition
- ~~Resources on Energy Design Resources website~~
- ~~Resource Conservation Manager initiative??~~

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Customer Education and Training

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- DOE Basic, Intermediate, and Specialist Training – refrigeration systems, HVAC, motors, compressed air, and steam.
- Other commercial process systems training
- ~~Commercial lighting efficiency seminars~~
- Regulatory compliance and energy efficiency convergence, for example, NOX and boilers
- Integrated industry-focused workshops, e.g., restaurants, lodging, retail, hospitals, and commercial facilities

● Workforce Education and Training

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- DOE Basic, Intermediate and Specialist Training in support of ANSI Certification, per the Strategic Plan.
- Title 24 Training,
- Commercial refrigeration best practices (for designers), in support of the Strategic Plan focus on refrigeration
- HVAC best practices for data centers, laboratories, and other specialized use facilities.
- California Advanced Lighting Controls Training Program (CALCTP)

● New Construction – Savings By Design~~Non Residential Audits~~

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- Integrated Building Design Assistance~~Basic audits~~
- Whole Building, Individual Systems, and Simplified Approaches~~Integrated audits~~
- Integrated design training for architects, engineers and owners
- Partnerships and collaboration with industry groups like the California Council of American Institute of Architects, California Energy Commission, among others~~RCx audits~~
- Zero Net Energy Design Services, like consultation services, student design competitions, research activities, 2010-2012 pilot success adoptions
- Energy Design Resources and Savings By Design – internet portals
- Software tools and expertise

Nonresidential HVAC

- Education of the market on the value of selecting high-efficiency systems
- Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program
- Training for contractors on HVAC industry standards, sales, and marking of the value of those standard, and their implementation in the field
- Education for customers on how

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55.) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies³.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴. Markets are social institutions⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁷. According to York⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the

² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁴ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁶ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

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evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory¹⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)¹³" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look

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⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

¹⁰ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹¹ Example in bottom chart of this graphic from the New York Times: <http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

¹² Sebold et al (2001) p. 6-5.

¹³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume I.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

¹⁴ CPUC (2008) Strategic Plan, p. 5.

¹⁵ Nadel, Thorne, Sachs, Prindle & Elliot (2003).

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forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers¹⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed. In addition, the suggested metrics also include a behavioral metric.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge ~~an~~ behavioral based metric for this sector a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

¹⁶ Pelozo & York, (1999).

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Program Performance Metrics (PPMs)

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On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Commercial Energy Efficiency Program (Resolution E-4385, Appendix A, pp 32-33):

Table 3

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED		
* Data to be reported in disaggregate form by SW program (commercial, industrial, and agricultural)		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub-programs (NRA, Deemed, Calculated, and CEI) by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and by Hard to Reach (HTR)** ** "HTR" is as defined in the EE Policy Manual Comment: No comments	2a
Continuous Energy Improvement (CEI)	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short-term (2010-2012) milestones as identified by their long term energy plans. Comment: No comments	2a
	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N) Comment: IOUs confirmed with ED that this is a 2b metric	2b
	*3. Number and percent of commercial, industrial and agricultural customers that created an energy plan via CEI will be tracked by program. Comment: No comments	2a
Non-Residential Audit Program	*1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.	2b

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SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
(NRA)	<p>Comment: No comments</p>	
	<p>*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices, (Report disaggregated data by type of audit - Basic, Integrated, and Retro-commissioning audit).**</p> <p>**Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates.</p> <p>Comment: No comments</p>	2b
Deemed Incentives	<p>*1. Number and percent of new, improved, or ETP measures** installed in the commercial, industrial and agricultural programs.</p> <p>** "ETP measure" defined as ET measures first introduced into the EE portfolio since January 1, 2006</p> <p>Comment: No comments</p>	2a
Calculated Incentives	<p>*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.</p> <p>Comment: No comments</p>	2a
	<p>*2. Number, percent, and ex-ante savings from commercial, industrial and agricultural sector of projects with ETP measures** included. (Report disaggregated savings by measure and number of installations by measure.)</p> <p>** "ETP measure" defined as ET measures first introduced into the EE portfolio since January 1, 2006</p> <p>Comments: No comments</p>	2b

COMMERCIAL	
<p>1. Number and percent of participating commercial customers receiving the "Integrated Bonus."**</p> <p>** "Integration Bonus" is an incentive mechanism to promote greater integration of DSM resources, available to customers who (a) sign up or are already signed up for a DSM program, and (b) purchase, install, and/are eligible to receive a rebate for an energy saving device.</p>	2b
<p>1. Number and percent of Direct Install participants that participate in other resource programs or OBF.</p>	2a

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2. Number of and percent of participants that are hard to reach (HTR).**	2a
** "HTR" is as defined in the EE Policy Manual	

b) Market Transformation Indicators (MTIs)

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As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

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Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in "Attachment H" are approved for this sub-program as applicable. Per Resolution E 4385 identifies a preliminary list of objectives and a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities. Per the Assigned Commissioner's Ruling dated _____, following are the MTIs approved for the Commercial Customer Services Energy Advisor and Deemed Incentives sub programs. (need text approved after an ACR is issued)

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<u>ED Identifier</u>	<u>2010-2012 Subprogram</u>	<u>2013-2014 Subprogram</u>	<u>Market Transformation Indicator Presented by Energy Division at November 7, 2011 Public Workshop</u>
<u>CIA-2</u>	<u>CEI</u>	<u>Customer Service Energy Advisor</u>	<u>Number and percent of targeted large Non Res Customers who developed a long-term energy plan. (Track by sector Industrial, Ag, Commercial)</u>
<u>CIA-10</u>	<u>Deemed</u>	<u>Deemed</u>	<u>Number of energy efficiency measures sunsetted in IOU CIA programs and new measures introduced since year [2011]</u>

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c) Program Design to Overcome Barriers

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The ~~2010-2012~~2013-2014 Statewide Commercial Energy Efficiency Program builds on past program successes and best practices to overcome both common and unique barriers to efficiency in the segment, ~~including:~~

Among Commercial-commercial customers, there are many market barriers to energy efficiency offerings:

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- Commercial customers are a highly diverse and geographically disperse customer class widespread sector, which requires utilities to develop a large number of differentiated incentive offerings for a variety of distribution channels dependent on regional resources for information,
- There is a general lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings.
- Energy efficiency improvements are not perceived to add value and marketability of properties.
- Efficient design alternatives can be lost in low-cost bidding scenarios.
- Small business customers ~~are, such as franchisees, are generally regarded as 'hard to reach' and are traditionally~~ less likely to install EE technologies than larger customers due to lack of time, resources, financial sophistication and familiarity with energy efficiency, among other reasons, geographic, ethnic, and other market barriers.
- Building owners, especially landlord owners¹⁷, ~~tend to focus on want to minimize~~ minimizing capital costs associated with new construction, building renovation, tenant improvements and building retrofits. ~~first cost for new buildings as well as for renovation.~~
- For multi-tenant buildings, ~~landlord-owned~~ property owners often have little incentive to pursue energy efficiency measures due to ubiquitous "triple net" leasing terms that pass through utility costs to tenants, while tenants may be deterred either by short lease terms relative to project payback or by contractual restrictions regarding leased space improvements. ~~management buildings, property managers operate differently from owners because the building is their business. Decision making is more complex, with emphasis on building value and Return on Investment (ROI) rather than lower operating costs. They also depend on complex legal agreements, and building and tenant turn over.~~
- Breaking the tenant landlord barrier for implementing efficiency measures is a critical step to market penetration.
- Energy efficiency improvements are not perceived to add value and marketability of properties

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¹⁷ For properties where the landlord owns the equipment and the lessee pays the bills, there is currently minimal incentive for the customer or the landlord to invest in EE

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- Institutional owners are often constrained by rigid boundaries separating capital development and operating budgets and are limited by lowest-bid regulations for capital projects.
- ~~There is a general lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings.~~
- Some activities ~~like such as~~ Healthcare and Biotech also face strong regulatory ~~issues~~ challenges to be with being integrated in ~~the~~ energy efficiency offerings (for example: the Office of Statewide Health Planning and Development (OSHPD) and California Division of Occupational Safety and Health (CAL-OSHA)).
- In some activities like High-Tech and Hospitality, international competition drives short-term survival attitudes versus a long-term continuous improvement approach. In addition franchises have additional barriers to overcome such as Franchise owner approval.
- ~~Efficient design alternatives can be lost in low cost bidding scenarios.~~
- Whole system opportunities are missed by individual equipment vendors, many of which are only specific equipment types or building systems.
- Customers are often not aware of systems operating optimally efficiency degradation or failure in building systems or equipment.
- Customers may be reluctant to invest in new energy savings technologies over concerns regarding product quality, reliability or obsolescence.
- Performance issues resulting from improper equipment installation, maintenance and poor owner/operator education create customer dissatisfaction with energy efficiency measures.

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By uniquely approaching constituent vertical market sub segments, this Commercial Energy Efficiency Program will better serve commercial customers while gaining efficiency and consistency in the delivery of the programs. This targeted and focused approach will mitigate the indicated EE adoption barriers as follows:

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- Program applications and processes will be simplified and made more consistent. There will be a central core incentive/rebate offering, with service-specific riders added as needed. This will enable customers to better understand the program delivery process. Program verification processes will also be made more consistent so that the customer is touched fewer times for multiple offerings.

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- When appropriate, IOUs will deliver information to customers in a way that bundles relevant EE, DR and other DSM programs and services. For example, the IOUs will develop print and electronic Case Studies that feature customers who have implemented integrated solutions in order to address their energy management needs. A package of program bundles will be made available so that typical offerings for a sub segment will be grouped together. This will minimize lost opportunities as a more comprehensive program and service offering will be readily available for customers.

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- Marketing outreach efforts will be more focused on customer sub-segments rather than programs, which should lead to improved customer adoption for all programs. Utilities will continue to foster strategic partnerships with industry associations such as Building Owners and Managers Association (BOMA), Department of General Services (DGS), Green Building Council, Air-Conditioning, Heating, and Refrigeration Institute (AHRI), American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE), Manufacturers Trade Associations, and specific sub-segment professional association as California Hospital Association (CHA), California Society for Healthcare Engineering (CSHE), ~~International~~ Society for Pharmaceutical Engineering (ISPE), to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users.
- Program bundling will be configured so that customers will have greater flexibility in how they enroll; however, the program bundles will be packaged so that customers will be encouraged to take a more comprehensive approach to EE.
- The utilities will consider one or more demonstrations of a comprehensive whole building approach (WBA) to commercial building energy efficiency. This approach may make available the tools and resources necessary for customer to pursue and integrate multiple customized measures. This approach may also include the deployment of energy management and information systems in demonstration projects that can be used to quantify and analyze energy savings based on various forms of performance data, including interval meter data.
- Multi-tenant buildings have a unique and significant barrier. Most typically referred to as the principal-agent or tenant-landlord split incentive, this issue is characterized by the natural separation of tenant energy efficiency savings and capital expenditures by building owners. The commercial program will incorporate market research and/or market tests to better understand potential programmatic offerings that can help reduce the barrier. Some examples of strategies that might warrant testing include combinations of education and creative tenant/landlord incentives or credits for centralized systems or building shell upgrades, incentives for sub-metering, and plug load control technologies.
- Because program offerings will be bundled, especially through the Continuous Energy Improvement Program, the program eligibility requirements will be made more consistent, leading to fewer areas where customers are not served.
- For public sector customers, existing federal and state programs and mandates will be leveraged.
- Utilities will expand the ~~On-Bill~~ Statewide EE Financing-Finance Program, which offers unique benefits to government departments by allowing them to retain rebates and cost savings from EE projects without having to upstream these financial benefits to the General Fund.
- ~~This triggers and expedites EE project adoption.~~ The Statewide Finance PIP includes plans to explore and develop additional finance tools to facilitate the adoption of integrated projects.

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- Coordination with other parties will be enhanced so that related programs (e.g., water conservation, reduction in greenhouse gas (GHG emissions, LEED™) are clearly and concisely communicated to customers, which should improve participation in all offerings.
- During the ~~2010-2012~~2013-2014 period, as part of AB 1103 requirements, utility data to be used for benchmarking buildings will be provided by the IOUs to the EPA for facility owners' use. ~~While providing this data will meet the intent of the law, a new offering will be added (the Energy Benchmarking Program) that will allow customers to learn the process and methodology for setting up their own benchmarks. This~~ ~~The existing energy benchmarking offering~~ will give customers the information required to understand how their buildings perform and how the improvements they make can be tracked. ~~It will be associated with Retro-Commissioning services, focusing on operation improvements and allowing many projects to be funded through operating budgets, overcoming a common financial barrier related to capital budget approvals.~~

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~~• To overcome barriers to advanced lighting control adoption, consideration will be given for systems installed by The the California Advanced Lighting Controls Training Program (CALCTP) certified contractors. The CALCTP is a team made up of the IOUs, POUs, contractor and labor organizations, community colleges and other interested stakeholders. The goal is to promote the proper design, installation and commissioning of advanced lighting controls through training and certification of contractors. CALCTP is being piloted in 2010 and will be expanded into a full fledge program in 2010-11. CALCTP addresses specific market barriers preventing increased adoption of advanced lighting controls by ensuring a qualified contractor base is available for customers interested in lighting retrofits. Additional consideration will be given to including additional lighting incentives for systems installed by certified contractors. CALCTP also supports Statewide Workforce Education & Training activities by partnering with local community colleges and labor organizations to deliver the training.~~

d) Quantitative Program Targets

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Table 5 - Program targets are provided at the sub-program level. Refer to each Commercial sub-program for more information.

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Table 5

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e) Advancing Strategic Plan goals and objectives

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Many activities under the Commercial Statewide Portfolio advance the goals, strategies, and objectives of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan). Details on these actions are provided in the tables found in the Commercial sub-program descriptions. The examples below highlight some of the Portfolio strategies that align with the Strategic Plan:

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- **Integration:** To encourage greater use of IDSM, IOUs will

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- Offer customers solutions that integrate site-specific and optimized packages of comprehensive energy efficiency, demand response, solar and combined heat and power and thermal storage opportunities.
- Develop an active cooperation network among the different stakeholders, such as corporate and local managers, OSHPD, engineering firms, service companies, architects, and vendors.
- Create customized long-term plans with large corporations connecting corporate and local levels integrating energy efficiency, DR, self-generation and renewables.
- Implement integrated local integrated marketing campaigns that leverage multiple tactics and multiple communications to present customers with a holistic view of EE and other DSM programs and service offerings.
- New energy efficiency delivery methods: To take advantage of the significant opportunities offered by information, behavior-change strategies and training as delivery channels for increasing energy efficiency, utilities will:
 - Drive expanded involvement of the California Commissioning Collaborative in developing statewide measurement and verification protocols and professional training and accreditation programs for the ~~retro-commissioning~~retro-commissioning industry
 - Champion adoption of stringent codes and standards within the industry.
 - Publish baselines, best practices and calculation tools to facilitate the dissemination of information and to help customers select and evaluate energy efficient solutions.
- Financing and Funds Leveraging: To overcome cost barriers to energy efficiency, the IOUs will:
 - Offer on bill financing
 - Create customer awareness and educate customers about standardized statewide EE financing and develop additional finance strategies for the commercial section.
 - ~~Create new~~Continue incentives for on-peak demand reduction related to retrofits and retro-commissioning.
 - Partner with integrators like Siemens, Trane to aggregate energy efficiency with other building improvements, such as security, safety, waste management, and IT.
 - Analyze the green vision of the corporations to align energy plans towards their objectives
- Advanced Adoption of New Products: IOUs will create demand for advanced, energy-saving products—such as lighting and HVAC—by expanding incentives to include both financial incentives and technical assistance while partnering for advanced systems,

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~~working~~ closely with Emerging Technologies to bring new technologies through development to the market, and strengthening relationships with vendors.

- **Workforce Development:** To expand their role in creating and meeting the demand for a robust energy efficiency workforce, the IOUs will:
 - Support the development of new and innovative programs to influence commercial trade schools to teach about the financial incentives, tools, protocols, partnerships, expert analysis, and implementation support services that promote commercial building energy efficiency and optimum load management.
 - Engage various industry and energy-wise stakeholders to expand their current intellectual knowledge and coordinate education/training opportunities through the WE&T program, outreach through ME&O, and coordination with research and technology.
 - Expand the CALCTP initiative to create additional opportunities for lighting contractors to become certified in the proper installation of advanced lighting control systems.
- **ZNE Commercial Buildings:** To help make ZNE a reality in the commercial sector, utilities will:
 - Integrate successful ZNE strategies and activities proven through program and/or pilot projects during the 2010-2012 program cycle. The commercial program, particularly Savings By Design, will absorb and enhance existing programmatic elements aimed at delivering ZNE best practices to the market place, potentially including but not limited to:
 - Project consultations that pair projects with experts capable of driving unique designs to ZNE;
 - Provide education opportunities to key architectural, engineering, and other design professionals (see WE&T plans);
 - Continue successful design competition elements aimed at ZNE design in the student and professional communities; and
 - Explore cost effective ZNE solutions that consider the intersection of building and community energy use
 - Facilitate benchmarking and constant improvement by supporting the initiative recently launched by the DOE and Lawrence Berkeley Laboratory.
 - Explore joining or ~~Continue~~ continue a leadership position in the national Office of the Future Consortium (“Consortium”) which was established to help shape and inform the research and product development of individual component products that have the ability to communicate with each other, are interoperable, and that create a system that will meet defined performance standards for a described office space type. The recent publication of the 25% Solution is intended to identify significant reductions in energy used by lighting, plug loads and HVAC systems using a comprehensive “Systems” approach that also improves lighting quality and

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air conditioning/heating performance. The efforts of the Consortium will be fully integrated into the Commercial Calculated and Deemed incentive programs to create a delivery mechanism that supports the path to ZNE buildings.

6. Program Implementation

a) Statewide IOU Coordination

i. Program name:

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i. Statewide Commercial Energy Efficiency Program

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ii. Program Delivery Mechanisms

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The Statewide Commercial Energy Efficiency Program will coordinate on a statewide level to ensure the program is continuously updated and enhanced throughout the ~~three-year implementation~~ 2013-2014 program cycle. In addition, the ~~five-six~~ Commercial sub-programs will be coordinated on a statewide level to align by unify the implementation of program aspects such as P program name, Program-program delivery mechanisms, Incentive-incentive levels, Marketing-marketing and outreach plans, and IOU program interactions. (For a detailed description of each of these program aspects and how they will be coordinated statewide, please refer to the Commercial sub-program descriptions). The two coordination systems (one for the broad programmatic level and one designed for the sub-program level) will interact with and support one another. The broad, high-level coordination effort will be described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Commercial Energy Efficiency Program.

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The Statewide IOU coordinated effort ~~Coordination process~~ for the Statewide Commercial Energy Efficiency Program will be as follows:

- Designate an IOU Program "Lead" – The coordination process will begin with each IOU designating a Statewide Commercial Energy Efficiency Program "lead." The IOU lead will represent one Commercial sub-program, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges show potential for impacting the Statewide Commercial Energy Efficiency Program across multiple sub-programs or the statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.
- Hold Periodic Steering Committee Meetings – The Commercial Steering Committee will be comprised of all designated IOU leads (including at least one lead for each of the ~~six~~ five sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the ~~quarterly~~ quarterly Steering Committee meetings, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program

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will be transmitted to all IOUs. The Steering Committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the Commercial Energy Efficiency Program's progress against statewide metrics and goals.

- Adopt Program Enhancements – Once the Steering Committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide Steering Committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.
- Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the Steering Committee will track the program's accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Steering Committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the ~~three-two~~ year 'transition period' ~~implementation cycle~~ will be assured.

iii. Incentive Levels

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Incentives for commercial customers will be provided through both prescriptive and customized approaches. Refer to the Commercial Deemed and Calculated Incentive sub-program descriptions for information regarding specific incentive levels.

iv. Marketing outreach plans

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Local commercial marketing strategy will focus on helping customers understand the relevance of EE programs and services and enabling customers to take actions that are appropriate to their needs -- including one-time measures such as rebates as well as deeper retrofits. This local EE marketing strategy will be coordinated through a variety of channels and tactics, with the intent of reaching customers at the right place and at the right time to drive increased participation and ongoing engagement.

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The IOUs will continue to develop an in-depth segmentation of the commercial market.

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The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the commercial sub-program plans. Local outreach to SMB customers will also leverage a new Statewide ME&O campaign that will focus on creating awareness and educating customers about energy management and integrated DSM.

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~~The IOUs are currently developing an in-depth segmentation of the commercial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the commercial sub-program plans.~~

v. **IOU program interactions with the California Energy Commission (CEC), Air Resources Board (ARB), Air Quality Management Districts, local government programs, other government programs as applicable**

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The Commercial Energy Efficiency Program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with commercial customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. Refer to the Commercial sub-program descriptions for more specific information on linkages with other government programs.

vi. **Similar IOU and POU programs**

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Several of the initiatives described herein (i.e., California Advanced Lighting Controls Training Program and Office of the Future Consortium) are joint efforts with the other California IOUs and POUs, as well as other domestic and international utilities. In addition to these joint efforts, local third-party programs that address niche opportunities within the commercial market segmented will be implemented in each of the IOUs service territory. These various efforts will be coordinated to ensure a consistent approach in terms of program message, delivery and measure incentives (as appropriate).

b) **Program delivery and coordination**

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i. **Emerging Technologies program**

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The long-term energy efficiency vision of California can only be attained through the continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the program will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. Portfolio staff actively works with statewide emerging technologies staff to identify new emerging technologies, support evaluation and demonstration, develop and promote case studies, and market results to applicable customers with the goals of total market penetration and eventual movement into code. The Commercial Energy Efficiency Program is currently working to support a diverse list of emerging technologies including advanced building system controls, and LED lighting technologies, forklift battery chargers, commercial refrigeration advancements, commercial refrigeration design enhancements, and solar thermal applications (hot water).

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ii. Codes and Standards

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The program commercial offering relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As Codes codes and Standards standards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The Programs program coordinate with the Codes and Standards Planning & Coordination sub-program will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward "low energy" or "zero net energy" buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream. In the Commercial Energy Efficiency Program, current work focuses on transitioning the market to accept new Title 24 code changes, and incorporating best practices and advanced energy efficiency practices into that marketing and outreach effort.

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iii. WE&T Efforts

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WE&T efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. For the Commercial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification and the ISO 50001 Energy Management System development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a

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leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings.

The education and training takes place through energy centers, technology test centers, and education and training program offerings.

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iv. Program-specific marketing and outreach efforts:

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Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. When appropriate, individual programs will be targeted to customers or industries based on segmentation data and strategy, however, such individual program-specific efforts will be part of a larger integrated approach to customer outreach to Commercial customers.

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The integrated Statewide ME&O effort will focus on creating awareness and educating SMB customers about energy management and the local ~~campaign~~ campaign will focus on the ways that customers can engage and take action to participate in EE as well as other integrated DSM offerings.

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-To address the diverse commercial customers segments, utilities will continue to foster strategic partnerships with trade association and industry groups to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. Specific efforts will include:

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- Attending trade association meetings and providing information in monthly newsletters.
- Close partnerships with key industry associations, and participation in their annual conferences, with an effort to develop conference speaking engagements.
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement.
- Ads and articles, with program information and case studies, in trade magazines.
- Online content and integration of marketing materials and campaigns with online tools such as audits and other energy demand and usage.
- Targeted customer efforts through assigned account representatives, technical solutions engineers and program engineers, third parties, and government partnerships.
- Telephone and web-based customer support and outreach.

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- Market sector specific collateral that drives customers to account representatives and websites for additional support.

v. Non-energy activities of program

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Integrated Energy Audits ~~and Retro-commissioning~~ (described in the Commercial Customer Services-Energy Advisor nonresidential Audit sub-program) and Continuous Energy Improvement are the primary vehicles to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies). ~~The results of the ongoing Water Efficiency Pilot Program will identify potential opportunities to reduce water use and the potential for associated Energy Efficiency savings. Since some customers within the program sectors are major water users, this sector is well positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Programs.~~

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vi. Non-IOU Programs

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In addition to the interactions with local, state and national programs, there are a variety of programs that will be coordinated with and leveraged in support of the Program objectives. These include:

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- Connecting customers with the CA Climate Action Registry
- AB32 support through CO2 tracking in program resources
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations
- Non-utility financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives

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● ~~Water/Energy efforts within California~~

● ~~ANSI standard (see CEI section)~~

- ISO international energy management standards (see CEI section)

The Program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

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1. CEC

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~~1. work on PIER with Environmental Protection Indicators for California (EPIIC)~~

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As of June 2012, PIER no longer exists. However, ~~The the Program~~ program will interact with the Emerging Technologies Program (ETP) to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and ~~projects in coordination with the applied research of EPICCEC. PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.~~

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The program will also coordinate with the CEC on the BEARS tool development and launch.

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2. CEC work on codes and standards

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As indicated in Section 6.b.ii, planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services. Refer to 6.b.ii of the Commercial sub-program descriptions.

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3. Non-utility market initiatives

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The Commercial Energy Efficiency Program will coordinate with applicable market initiatives to leverage market momentum and areas of mutual advantage. The Program will leverage the following efforts:

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- California Green Building Initiative
- LEED
- Zero-net energy
- DOE
- [AB1103](#)
- [AB758](#)

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c) Best Practices

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As described in prior sections, the Commercial Energy Efficiency Program reflects the best of each utility program's successful components of statewide Commercial Energy Efficiency Program offerings, and introduces new elements from other utilities and national efforts as well. Best practices include:

- ~~Benchmarking as an appropriate easy first step for customers to assess their energy baseline.~~
- ~~A Continuous Energy Improvement approach that transforms the market and reduces energy intensity while pursuing technical and management opportunities.~~
- Development of a prioritization process, leveraging the CEI sub program, that works to identify the most significant upgrade potential based on building and ownership characteristics. This process will help guide customers to a building integrated approach leveraging all of the available utility programs for a customer segment rather than only pursuing the "low hanging fruit". The utilities will continuously educate the various delivery channels on the importance of the building integrated approach and how to increase customer participation at a whole building level.
- Technical Assistance: The IOUs recognize the need for a personalized, full service approach when providing technical assistance to customers –from audits to design and technical assistance, presentation of recommendations, resources to develop a long term plan, and the potential of project management assistance with financial incentives.
- Vendor Partnerships: This strategy will be coupled with vendor support and educational workshops and classes to provide the full breath of support customers may

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need to influence their decision to implement energy efficient equipment and practices.

- Statewide Coordination: The IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.
- Leveraging Local Commercial sector: Resources such as industry associations, trade associations, and facility management associations will be leveraged.

d) Innovation

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Significant innovative aspects of the Commercial Energy Efficiency Program offering include:

i. Integration

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- Benchmarking will provide customers with an easy and low cost way to assess and monitor their energy use. Continuous Energy Improvement will foster a long-term energy management approach
- Integrated Energy Assessments provide targeted customers with integrated solutions in efficiency, DR, and DG, and advise customers on other sustainability practices such as water conservation opportunities, CO2 reduction potential or other programs references.
- IOUs will link customers with the California Climate Registry to support carbon footprinting of a customer's plant.

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ii. Marketing

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- The Customer segmentation work currently underway will support development of new, super targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs.
- IOUs will examine opportunities in the "MUSH" segments (municipalities, universities, colleges, schools and hospitals) for focused offerings in conjunction with all the segmentation plans being deployed.
- Closer coordination with third parties, government partnerships, core programs, and other delivery channels will optimize portfolio performance.
- Utilities will increase outreach to new trade and community-based associations, leveraging best practices identified in ACEEE study of utility Commercial Energy Efficiency Programs.
- Energy Design Resources, developed statewide by IOUs, will be expanded as a web-based hub of commercial and food processing best practice information, training, modeling and performance tracking tools.

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- Expanded workforce education and training efforts with vendors, design teams, industry association members and other key market actors will help overcome many customer informational and transactional barriers
- Training will be provided on modeling and quantifying savings opportunities through tools such as eQUEST and Energy Pro.

iii. Implementation

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- Utilities will coordinate process improvements for statewide programs to ease participation barriers.
- SMB-targeted local marketing will leverage the heightened levels of awareness and education that the IOUs expect to result from the Statewide ME&O campaign.

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iv. Deeper Energy Savings

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- Utilities will seek to deliver deeper energy savings to our customers through bundling of measures, continuous energy improvement, innovative auditing, and/or whole approaches.
- Utilities will explore other mechanisms to more highly reward comprehensive energy management retrofits, e.g. premium incentives for bundled measures coupled with an energy audit.
- Utilities will enhance current finance offerings by standardizing statewide financing and exploring innovative tools to leverage additional funding sources.
- Utilities will evaluate approaches which bundle various equipment and technologies to encourage customer adoption of long and short-term payback IDSM measures.
- Utilities will seek to motivate owners and operators of large facilities to undertake improvements through presenting compelling return on investment (ROI) or Payback based business cases to top decision-makers, while strengthening the skills and knowledge of building operators.
- Utilities are considering a number of different, innovative approaches to achieve deeper energy savings; including a whole building approach that integrates both customized retrofit and retro-commissioning in a single, performance-based program offering.

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Energy performance measuring and benchmarking assistance/services to customers will enable customers to compare themselves to “best in class” peers utilizing tools such as the U.S. EPA’s ENERGY STAR Benchmarking tool.

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e) Integrated/coordinated Demand Side Management

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An integrated portfolio is cost effective, captures program delivery efficiencies, and serves the needs and wants of customers, who prefer a single, informed utility point of contact who can help inform and prioritize their energy investment decisions based on their unique needs. To that end, the statewide utilities and the Statewide Commercial

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Energy Efficiency Program have made tremendous progress in advancing integrated solutions:

- Marketing: In marketing integration, the IOUs are placing major emphasis on getting the right message to the right customer at the right time. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which outline multiple tactics, delivery channels and key messages to target to specific customers based on their specific needs. The account representatives, who serve as the key customer point of contact, will be attending an integrated sales strategy and training program to ensure consistent delivery of portfolio offerings.
- Education and training – especially workshops organized around a customer segment – provides an ideal situation to integrate customer energy solutions. Utilities will build on past successes to provide integrated workshops to restaurants, retailers, office building facility managers, lodging, and warehouses. The workshop topics generally start with “analysis” resources and methods, and move on to “conservation”, “efficiency”, “demand response”, then “generation” topics and resources. These workshops provide opportunities for utilities to cross-sell solutions and share key information with other utility departments.
- As appropriate, Workforce Education and Training will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures. For example, the California Advanced Lighting Controls Training Program addresses both the energy efficiency and demand response capabilities through the proper design, specification and installation of lighting system controls.
- The availability of a Continuous Energy Improvement approach, especially for the largest, most strategic customer accounts, will facilitate a thoughtful, integrated energy plan and will allow utilities to stay engaged in supporting the progress of that plan.
- Integrated Energy Audits combine funds and resources of energy efficiency and demand response programs to provide integrated recommendations to customers that emphasize energy management in proper sequence, in support of the California Loading Order: ~~Permanent reductions will be achieved through energy efficiency first, and then through demand response.~~ Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in the larger facilities, especially as part of monitoring-based retro-commissioning efforts where the controls to facilitate demand response efforts would be installed. Additionally, any energy efficiency audits required for participation in distributed generation programs will be expanded to include DR opportunities ~~when appropriate, and thus address the three facets of DSM integration.~~
- Emerging Technologies and CEC-~~PIER~~ collaboration is expected to include initiatives and market acceleration assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

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f) Integration across Resource Types

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California's Commercial sectors face a multitude of environmental, regulatory, and financial (Landlord owned, capital outlay) challenges that impede the adoption of new energy efficiency technologies. In addition, new regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

The Commercial Energy Efficiency Program proposes to leverage these challenges to coordinate with the regulating agencies and the programs they are operating in order to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities.

Utilities will pursue opportunities to partner with water agencies to offer joint energy and water incentives in support of ~~for~~ projects that reduce both resources, which ultimately reduces project costs and improves payback.

Where applicable, the Program program will integrate topics like LEED certification into targeted customer workshops, marketing and communications, building on a strong track record from the 2006-8 program cycle.

Third party programs at the utilities will further integrate resources. These third party programs will focus on specific customer segments offering a complete project package that will include integration aspects.

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g) Pilots

During the course of the ~~three~~two-year cycle, initiatives may be created based on the needs of the commercial customers.

The IOU's intend on implementing methods to gather and retain more detailed performance and usage data on a pilot basis to determine more effective methods and to achieve savings. Exploring incentives for sub-metering is an option as is expanding the tool library in lieu of incentives. For example, an "Office of the Future" activity is currently being reviewed for 2010. The program focuses on a partnership with property owners and managers to influence the tenant improvement process and facilitates tenant related actions. This project will implement the current and future recommendations of the Office of the Future Consortium as they demonstrate the path to ZNE buildings.

h) EM&V

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The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This

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plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. The IOUs plan to work together and with the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided here.

Because the segment approach is a significant change from recent commercial sector core programs, a preliminary process evaluation will be conducted during the first program year to determine how well the new program elements are operating, and to obtain recommendations on how to improve program operations. After the beginning of the last program year, a full process evaluation will address researchable issues based on the program theory and logic model. These issues will include, but not be limited to, the following:

1. Whether program incentive levels for the deemed savings and the calculated savings elements are sufficient, not enough, or more than necessary to motivate program participation, while minimizing free ridership.
2. Whether the direct install element is penetrating the intended markets.
3. Whether the integrated energy audit element is inducing customers to take advantage of other program offerings, like the rebates.
4. Whether the continuous energy improvement element is successful in getting corporate commitments to an EE strategic plan.
5. How well the commercial sector activities are supporting the Strategic Plan.
6. How well the core commercial activities are coordinated with other nonresidential program offerings, to leverage resources.
7. How well program marketing supports and complements the marketing efforts of other IOU demand side management programs.

To address these issues, the following major evaluation tasks will be completed:

- Logic model and program theory. The logic model and program theory will establish a starting point for all evaluation activities. The structure of the logic

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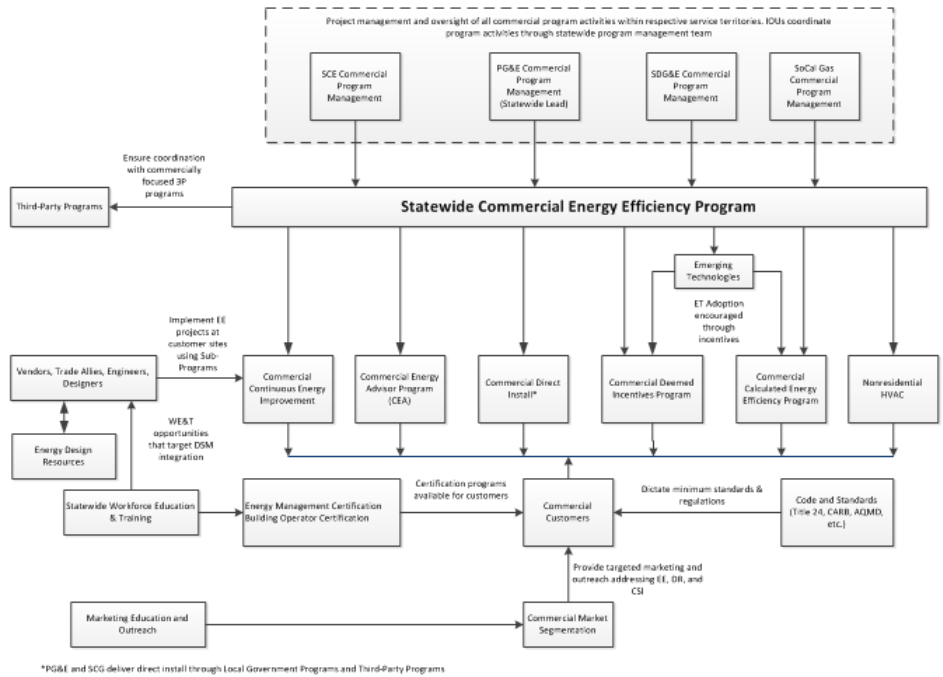
model, which links program activities and expected outcomes, will be a useful instrument for identifying specific program assumptions that can be tested using a survey or other primary data collection activities. The original logic model in the PIP will be refined to reflect the Commission approved program "as built."

- In depth interviews. In depth interviews will be conducted with program managers and other key staff members. Program staff members will clarify program goals and gauge program progress, provide valuable insight into daily operations, and proposed research topics to be addressed during the evaluation. The coordinated activities of the Account Management personnel and the EE Program Managers will be an important focus of this redesigned program approach.
- Participant survey. The primary data collection instrument will be a participant survey, fielded over the phone. Some will be conducted in person for selected key customers with large savings, complex projects, and multiple sites. The surveys will explore the participant experience with program services and address the research issues identified by the logic model.
- Program specific data collection and review. Another key evaluation activity will involve a comprehensive review of all program documents. In particular, this evaluation will assess the effectiveness of the program's marketing materials and will identify which specific recommendations have been implemented.

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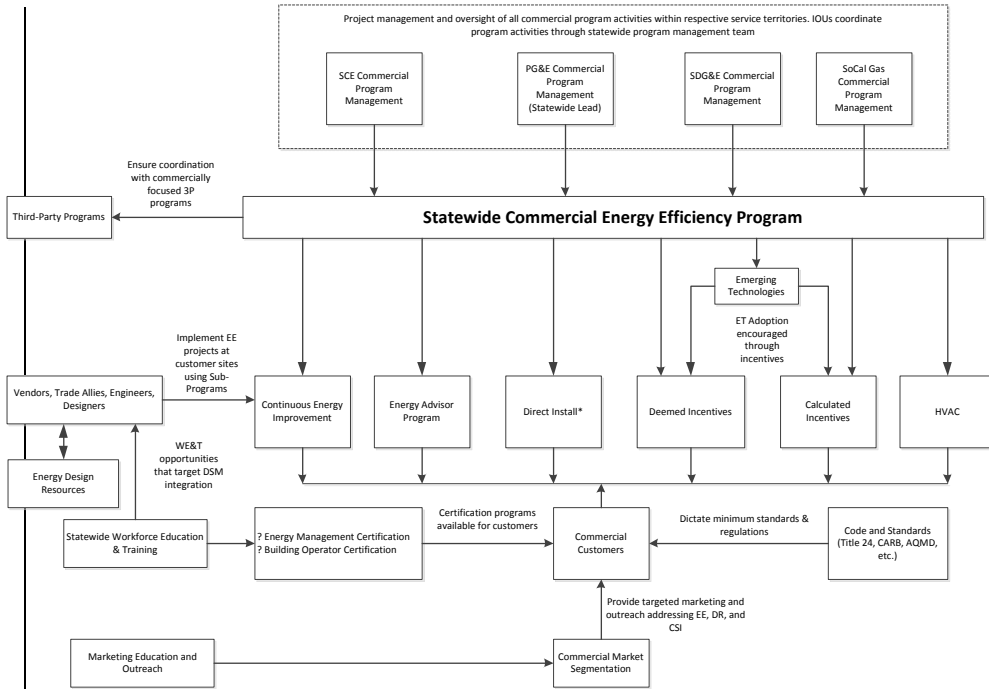
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7. Diagram of Program



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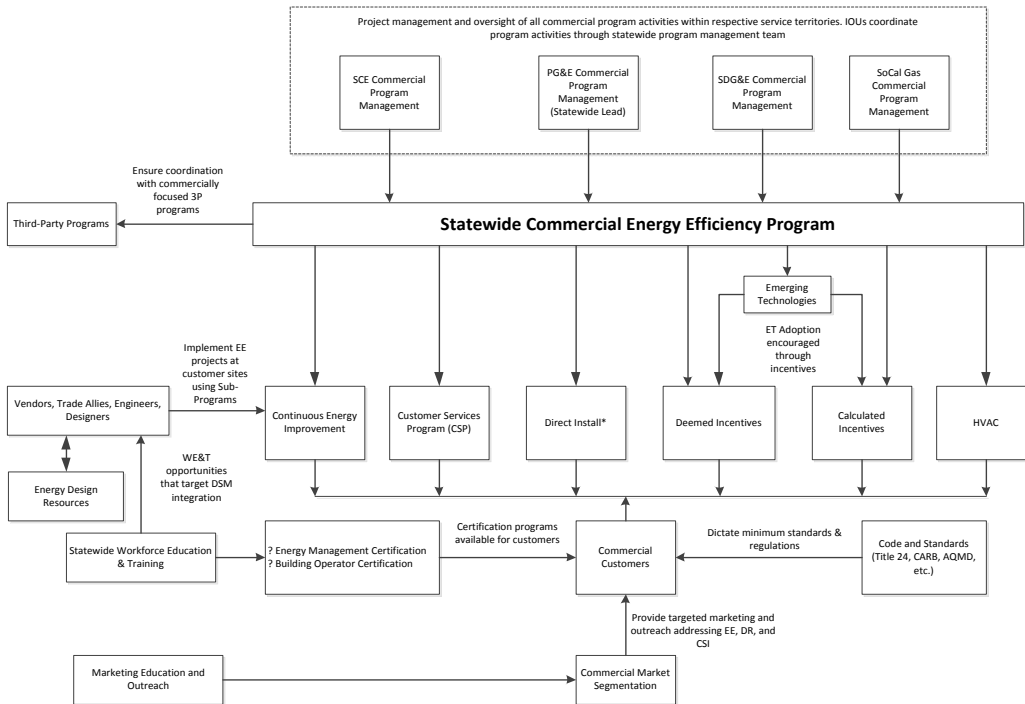
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*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs

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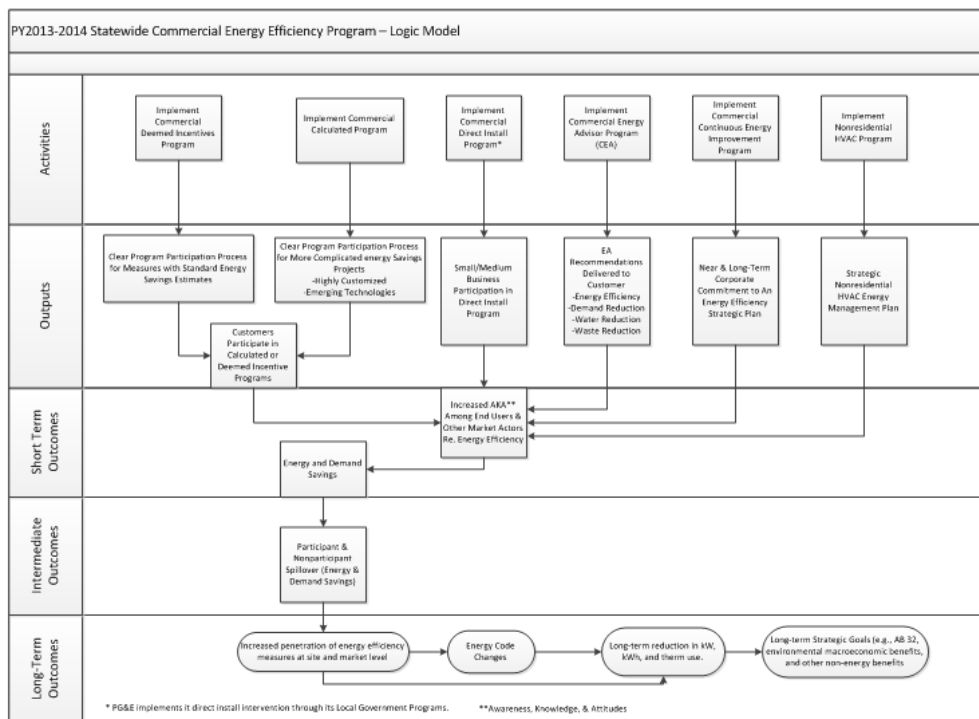
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8.8) Program Logic Model

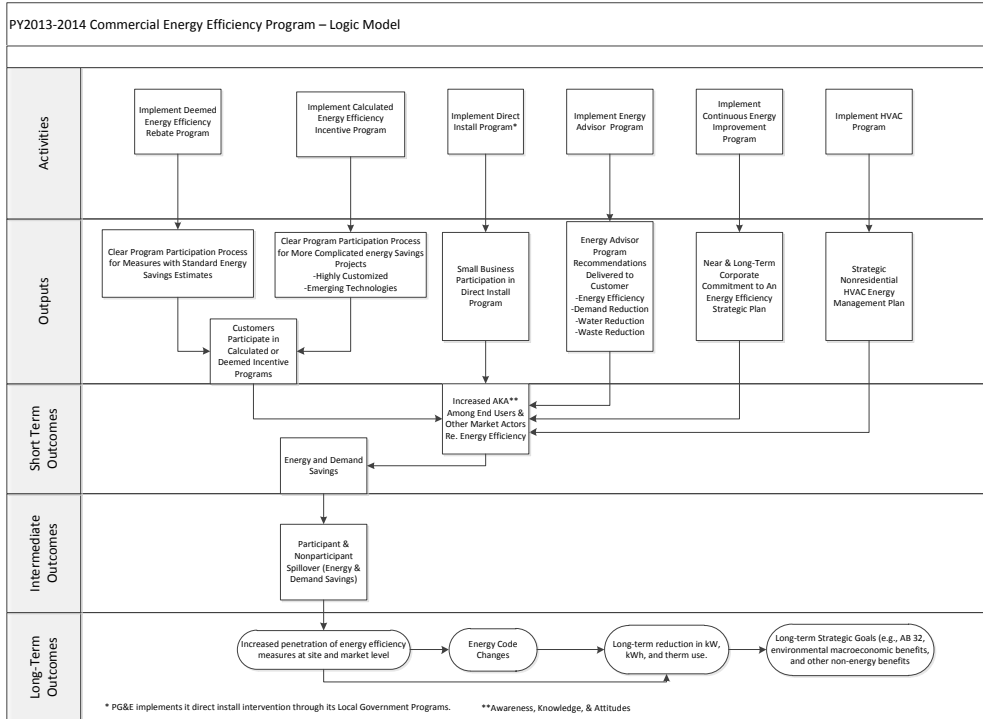
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On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Commercial Energy Efficiency Program.



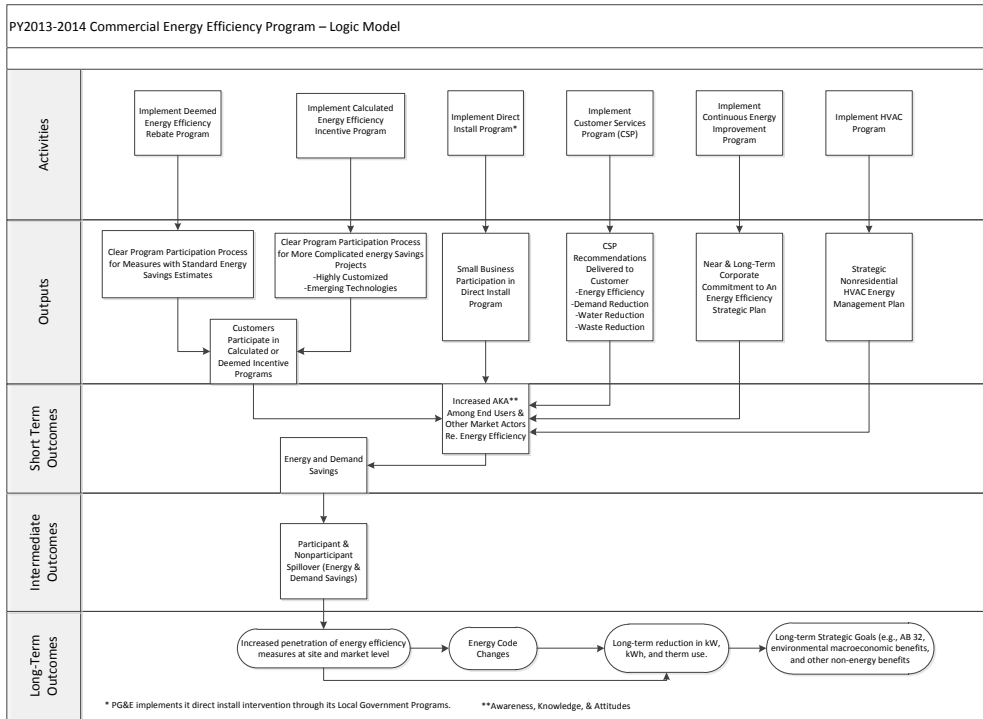
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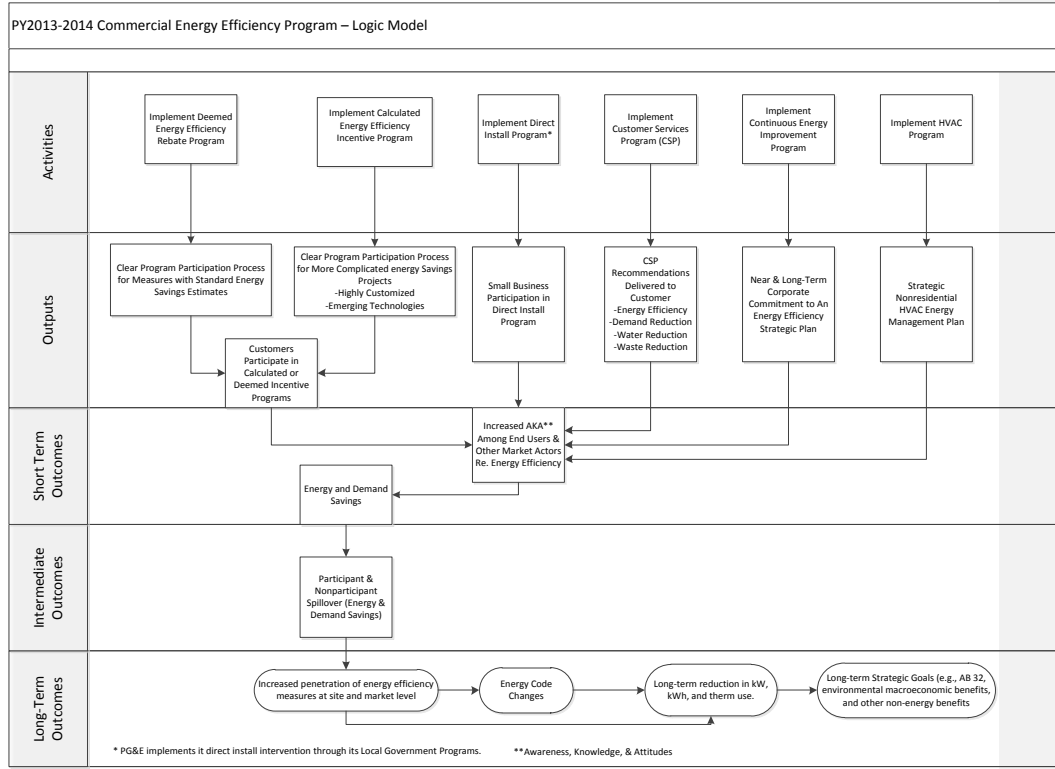
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Program Name: 1b2b) Commercial Customer Services Energy Advisor, – Nonresidential Audits Program, Core S sub-program

Program ID: –SCG - 3708

Program Type: –Statewide Core Program

2) Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3) Projected Program Gross Impacts Table – by calendar year

Table 2 – reference the overarching program for savings budget details–

4) Program Description

a) Describe Program

The Statewide Investor Owned Utilities (IOUs) have created the Customer Services Commercial Energy Advisor sub-program (CCSPEA) to bring together under one program all services offered to support customer education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

CCSPEA was created to provide a streamlined and coordinated assignment of right-sized customer solutions. The key is to start the process with an initial analysis of a customer's needs, determination from the analysis which audit will service the customer with the highest cost/benefit, identify additional program support and key indicators that will motivate the customer to implement energy saving recommendations

The utilities anticipate the restructuring of CCSPEA will affect the way audits are provided. CCSPEA will enhance the IOUs' ability to match customers' need(s) with the right audit service. This will result in an increased cost-effective delivery of these audit services with an increased expectation for customer adoption/installation of provided customer specific recommendations.

In its offerings, CCSPEA will place an emphasis in deep energy saving measures and emerging technologies where appropriate. When the technologies and customer opportunities are correctly aligned, the customer will become more open to the benefits these technologies offer to their business and will therefore increase their acceptance and adoption.

Together the CCSPEA offerings will work to support the achievement of Strategic Plan objectives across all non-residential segments.

The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

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The CCSPEA package consists of six (6) distinct offerings:

- **Benchmarking** is the first step for a customer to begin to understand the energy use of their building. Benchmarking is an initiative designed to educate and motivate customers to measure and track the energy use of their facilities, educate customers of the benefits of benchmarking their facilities and how they can track the impact of energy savings after implementing energy saving measures. To support the customer's efforts, the IOUs will offer technical support, hands-on workshops that will provide customers with information on how to benchmark, how benchmarking can be used as an energy management tool and what to do next after benchmarking.
The IOUs will develop or continue benchmarking initiatives that supports the customers' ability to comply with AB1103's benchmarking requirements (upon its implementation), utilizing ENERGY STAR Portfolio Manager and IOU supported Automated Benchmarking Services.

The IOUs will also continue to offer customers technical support ranging from email and phone hotlines, hands-on workshops and web-based benchmarking educational and instructional materials.

Support will continue to identify, evaluate and make information disposable about other benchmarking tools available.

The primary focus for benchmarking activities will continue to be centered on commercial buildings (in alignment with the target building type of AB 1103).

- **Online Energy Audit Tool (Small Business):** The online audit tool is an enhanced, customer friendly "do-it-yourself" web-based audit tool targeting small business customers. The online audit tool offers an integrated auditing approach providing energy efficiency, demand response and self-generation recommendation and education.¹

With large numbers of small business customers in each IOU's service territory, it is necessary to offer and test different cost-effective strategies that can help small business customers maximize their energy use.

The IOUs will confirm their implementation timelines and once their tool is rolled out, they will initiate a continuous improvement cycle to ensure the benefits and features of the tool are meaningful for customers use. As the timing is appropriate, the IOUs will initiate marketing campaigns to raise small business customer awareness of the tool's availability and benefits.

¹ The online energy audit tool is a continuation of the Universal Energy Audit Tool (UEAT) from the 2010-2012 program cycle and is also referred to in the Commercial Energy Efficiency Program logic diagram)

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Per the Final Transition Period Decision, IOU implementation timelines occurring beyond 2012 are listed below. Note: PG&E implemented its Residential tool, in compliance with CPUC directives, in Q1 2012.

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Audit Type	Description	IOU	Small Business	Residential
Online Energy Audit Tool	The web-based energy audit tool (also known as the Progressive Energy Audit Tool) provides Small Business and Residential customers with a customized audit designed to help customers understand their business and/or home energy use. The tool provides concrete customer suggestions about ways to maximize their energy efficiency (EE), demand response (DR) and distributed-generation opportunity.	SCG	Q2 2013	Q4 2012
		SDG&E	Q2 2013	Q4 2012
		PG&E	Q4 2012	Q1 2012
		SCE	Q1 2012	Q1 2012

- Continuous Energy Improvement (CEI)** Continuous Energy Improvement (CEI) is a consultative service aimed at helping customers (utilities will target CEI services in line with market segment potential in their service territories and resource availability) engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices which address energy savings, reduction of greenhouse gas emissions and water conservation, through high-level energy commitments from executive and board-level management.

CEI offers customers the pinnacle of audit offerings guiding executive management to levels of energy management self-actualization that makes energy and environmental issues a consideration in all management/business operational decisions and in long term energy planning. For additional information about CEI, please consult the [CEI Program Implementation Plan](#).

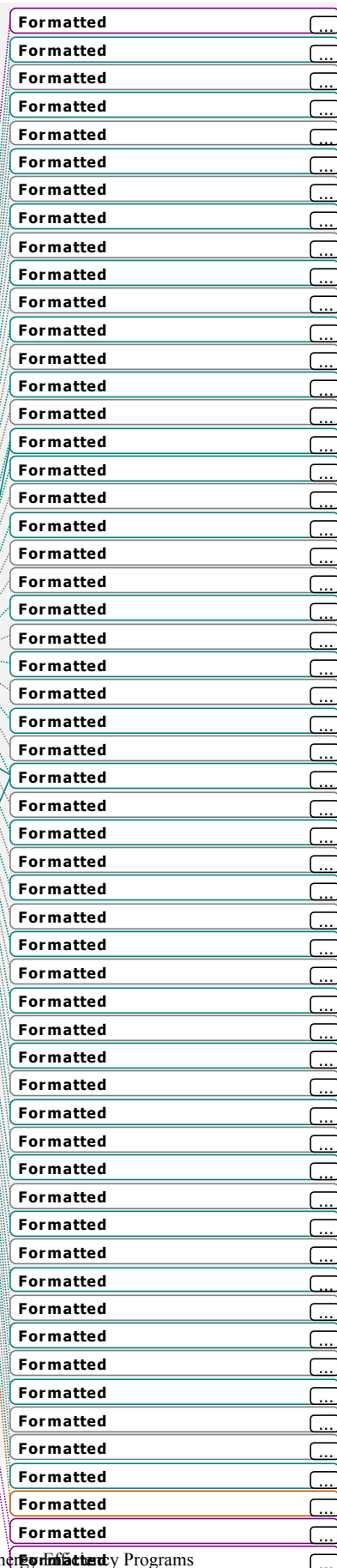
- **Non-Residential Audits (NRA)** for the Transition Period will provide [Integrated Comprehensive Energy Audits \(ICEA\)](#) that focus on customer energy savings, cost/benefits, and the targeted delivery of financial and technical assistance. Audit information must communicate complex information in a simple and understandable way to enable customers in identifying energy efficiency, demand response and distributed generation opportunities. Audits use “ex ante” deemed and calculated methodologies for energy savings analysis information.

As stated above, NRA offers two (2) categories of audits – basic and integrated.

Audit Type	Description	Detail	SCG	SDG&E	PG&E	SCE
Integrated Customer Comprehensive e-Energy Audit	The ICEAT audit is a customized audit specifically designed to help customers understand and identify their facility’s energy use and provide concrete suggestions to maximizing energy efficiency (EE) demand response (DR), and distributed-generation opportunity as defined by the customer’s need.	Phone	YES	YES	YES	YES
		Online (Web-Based)	YES	YES	YES	YES
		Onsite	YES	YES	YES	YES

This program cycle, emphasis will be given on meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), streamlining the audit process increasing its efficiency, lessening complexity, and increasing the effectiveness of influencing customer implementation actions through actions such as integration of the demand response technical audit component directly into NRAs offerings. In addition, the IOUs will investigate ways to implement meaningful financial measurements such as return on investment (ROI) and/or simple payback metrics. The key is ensuring financial tools selected provide the customers with meaningful information by ensuring cost assumptions are appropriate to the customer. Also, NRA will assume the audit and budget responsibilities for Demand Response’s technical audit services, as applicable. It is intended that these audits will be a critical component of the integrated comprehensive audit service offering.

- **Pump Efficiency Services** is designed to help commercial customers make informed decisions about improving inefficient pumping systems and operations through recommendations derived from pump test audit or direct observations of processes.



Pumping of water is estimated to account for more than 80% of the electric load and 73% of the natural gas requirement in California in the agricultural segment, and this load is growing as the state's water users increase their reliance on pumping water to meet their needs. Pumping is also estimated to account for 20 to 25% of energy usage within the nation.

The Pump Efficiency Services program element, implemented by a team of trained in house or third party contractors, aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, retrofit incentives, and targeted education, training and technical support for customers and pump companies. Each IOUs database of pump test results will be used in the near-term to target pumps in need of retrofit as a means to capture savings. However, pump performance data aggregation at the statewide level will contribute to the development of metrics and targets for pump improvements, in support of a statewide pumping focus across segments, in agriculture, commercial and industrial, supporting their strategies and objectives.

The IOUs will continue to offer pump testing services at no or low cost and pumping system efficiency workshops through their energy education centers or other event opportunities.

Retro-commissioning:

- The IOUs are planning to continue and enhance their core Retro-commissioning (RCx) programs. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments.

The RCx element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary adjustments to correct the deficiency. RCx is offered to agricultural, commercial and/or industrial customers based on the market segment potential and resources of the respective IOU. The range of projects may involve measures which reset, repair or replace existing system controls and components. Simple paybacks for these measures are usually short in duration and must meet customer expectations. Through the RCx assessment report, comprehensive projects are identified and referred to other sub-programs for completion (i.e., Commercial Calculated and Deemed Incentives). Energy savings from projects identified through RCx will be claimed in the Commercial Calculated Incentives sub-program.

Enhanced RCx program elements will explore and may include but not be limited to:

- Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- Continuous commissioning and monitoring-based commissioning;
- Solutions for small and medium commercial customers;
- Strategies to drive savings persistence;
- Appropriate alignment with retrofit activities;
- Overall program incentives, targeting, and delivery.

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The RCx program is a key offering in the Commercial Calculated sub-program and a more detailed description of the program is provided.

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The CCSPEA strategy focuses on simplifying the way audits are provided to customers. Through various assessment functions, the IOUs will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (i.e. primarily EE, DR, and SG).

It is anticipated CCSPEA will allow the expansion of audit serves across diverse class of customers, potentially across all segments and will interconnect the customer with the wide and diverse range of programs offered. From a customer perspective, the impact on customer time and resources will be reduced, the audit analyses will include DSM, greenhouse gas reduction information, provide water conservation recommendation all in a single report. The resulting report will identify comprehensive solutions that will simplify the customer decision-making process.

The primary program objectives for 2013-2014 are:

- Support the Strategic Plan by offering integrated audits across a wide selection that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed generation) focusing on customer facilities as defined by each IOU's market potential and resource availability.
- Provide a focus on the "MUSH" market (municipalities, universities, colleges, schools, and hospitals) to test ideas for deeper energy savings efforts.
- The continuation of delivering high value audit reports to the customer. Audit reports will be designed in such a way that they will provide the customer with information which motivates them to implement energy efficiency, demand response and consider renewable generation options.
- Enhance efforts to identify and provide financial analyses focused on deeper energy savings and technologies. Identify ways different financial metrics, such as return on investment (ROI) and/or simple payback, can be provided where the values presented have meaning to the customer.
- The IOUs will explore and evaluate the potential of enhanced customer incentive options that are contingent on a customer's receiving an audit prior to applying to incentive programs.
- Incorporate new and/or emerging technologies appropriate for the customer's facility.
- Develop and implement enhancements to current benchmarking workshops (targeting commercial buildings) and continue providing benchmarking and AB 1103 technical support through established and new delivery channels.
- Encourage statewide consistency by offering a similar energy audits with the ultimate goal of offer customers the best energy management practices and technologies.

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- Review and evaluate the CEC’s Building Energy Asset Rating System tool (BEARS) once the CEC has completed developing the tool. The successful implementation of testing the new BEARS audit tool will depend on its timely release. BEARS is currently slated for completion at the end 2012. If the release of the BEARS tool is significantly delayed then the implementation of a successful pilot will also be delayed.

- Enhance the **CCSPEA**’ offerings by including activities such as, but not limited to:

1. The highlighting of emerging technologies and deep energy savings opportunities and providing education on long term energy planning/project management strategies (in coordination with the Commercial CEI program).
2. Will continue existing water saving services and develop Leak detection services and strategies which will offer the service to customers in all customer segments as determined by the IOUs to provide customer benefits and cost-effective to administer. The services will, be offered through the use of audit teams, in house and/or contracted, and may be required as a service in the delivery of all integrated comprehensive audits.
3. CCSPEA will play a key role in exploring options regarding identifying deep energy savings, promotion of emerging technologies and providing the proper support to those customers who take advantage of more than three (3) measures from Commercial Deemed Incentive subprogram.
4. CCSPEA will develop processes to assist energy audit teams and customers identify facilities and services that will provide the greatest return on benefits from the audit. The IOUs may explore leveraging tools to complete energy audits, usage analysis, assessments and/or building performance benchmarking as the first step in determining a customer’s need.
5. CCSPEA may also enhance tracking and audit component capabilities to support customer needs analysis, reduce program application barriers, maximize recommendation follow up and streamlined audit report generation.

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The Nonresidential Audits sub-program features Basic Audits, Integrated Audits, and RCx audits. These audits consist of a technical survey of energy utilization throughout the customer facility, thereby providing a system view of equipment and processes that consume energy. In this holistic system view, four discrete components of the California Long Term Energy Efficiency Strategic Plan—Energy Conservation, Energy Efficiency, Demand Reduction, and Self Generation—are blended and evaluated in various combinations. Utilities are increasingly considering including other resources in audits such as water and GHG; planned training will increase focus integration of a range of energy and non-energy options. These various combinations will be reviewed for their societal benefits, logical order, and customer benefits, and then presented to the customer in the recommendations section of the Integrated Energy Audit (IEA) final report.

The table below summarizes the features, target segment, estimated cost, and funding model for each audit type.

Estimated Avg. Audit Cost	Funding Model
\$2000—\$3000	PPP and Procurement Funds.

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The technical assistance provided through the audit products help customers overcome barriers, including lack of technical resources and cost barriers, and guide customers to relevant IOU incentive and/or finance programs and beneficial non-IOU programs. Integrated audits for large customers summarize the effect of utility incentives on the first cost and lifecycle benefits of energy efficiency actions.

Cost effectiveness calculations enable the customer to make financial decisions to implement projects. Integrated audits for large customers will include ROI/IRR and payback with and without incentives. Current remote auditing tools provide customers with a simple payback calculation. The forthcoming Universal Energy Audit Tool (UEAT) will also have calculations for payback and simplified ROI. As a further enhancement, IOUs will explore the applicability of adding more detailed ROI calculations to UEAT.

To support the core utility programs, Nonresidential Audits will provide Savings Calculation Assistance (SCA), targeted to specific end uses and systems, to support a seamless customer experience. IOU engineers or contracted energy engineering firms will help customers submit accurate, technically complete nonresidential retrofit applications. This assistance will speed the process and reduce expensive, time-consuming rework later in the process.

RCx assessments offer a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that waste energy. Unlike retrofits, which focus on equipment replacement, or O&M, which focuses on routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified through other channels. O&M items with an effective useful life greater than 3 years will also be identified through this assessment. Additionally, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. Building on early RCx implementation for commercial segments, the program offering is being expanded into the Agriculture and Food Processing markets.

RCx will be offered as a bundle of products and services. RCx service providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Initial energy benchmarking
- Collecting data to quantify the owner's operational requirements
- Performing detailed on-site RCx assessments to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs
- Defining measures and quantifying implementation costs and savings
- Assisting customers with measure implementation
- Verifying completion of measures

- ~~Providing post-installation documentation and training as well as other activities in support of persistence~~
- ~~Conducting post-project energy benchmarking~~

~~IOUs will discuss and consider various options for customer engagement in energy audits and implementation of energy efficiency, demand response, and distributed generation recommendations. Such options may include co-payments, rewards, case studies, and additional incentives to promote desired outcomes.~~

~~The primary program objectives are to:~~

- ~~Support the Strategic Plan by offering integrated audits that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed generation);~~
- ~~Build upon established popularity and increased demand for audits to supplement delivery channel marketing efforts;~~
- ~~Implement innovative processes and establish an infrastructure that will distinguish NRA from past programs;~~
- ~~Maintain state-wide consistency by offering the same set of energy audits and using them as instrument to offer customer best energy management practices and projects; and~~
- ~~Offer additional products and services to bridge the gap between educating customers about energy and environmental issues and taking action. Guide and support customers as they implement technologies, processes and practices to achieve energy efficiency goals.~~
- ~~Provide a channel to recommend new and/or emerging technologies appropriate for the customer's facility (e.g., solid state lighting, lighting controls, and demand control ventilation).~~

b) List of Measures

The CCSPEA primarily offers non-resource, auditing services. It does not offer incentives, but ultimately influences the customer's implementation of energy efficiency, demand response, and self-generation opportunities in combination with incentive from the core commercial incentive programs (refer to the Commercial Deemed and Calculated Incentives sub-programs for specific information). However, each utility reserves the ability to offer incentives specific to CCSPEA's individual service offerings. The nonresidential Audit sub-program is a service program that does not offer measures/incentives, but provides an avenue for implementing measures through core commercial incentive programs (refer to the Commercial Deemed and Calculated sub-programs for specific information).

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c) List Non-incentive Commercial ~~Customer Services~~ Energy Advisor Services

All activities conducted under the nonresidential Audit sub-program are non-resource that with no associated incentives. Such activities include: marketing and outreach, retrofit project scoping, technical assistance, incentive application assistance, savings calculation assistance. The Commercial ~~Customer Services~~ Energy Advisor (CEA) sub-program (~~CSP~~) is designed to deliver a coordinated and customer specific service. CCSPEA features a statewide integrated demand side management customer specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer's need(s).

Such activities include, but are not limited to: energy management assessments, energy planning, marketing and outreach, baselining and benchmarking, project implementation support, technical support, energy savings calculations, process evaluations and report generation, and web-based energy resources.

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5.) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

See Attachment A - Table 3 – refer to the overarching program for quantitative baseline metrics

Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude “draft” metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program

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level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP. See Section 1a.5.a.

c) Program Design to Overcome Barriers

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The Commercial CSPEA offers services that address corporate/management cultures that prevent successful implementation of comprehensive energy policies. These offerings help overcome customers' lack of awareness of DSM opportunities by providing a customer focused, comprehensive package of energy solutions designed specifically to motivate the customer to implement recommendations. Information such as cost/benefit analysis (i.e. ROI or simple payback) and identification of appropriate IOU incentive and/or finance programs, programs can significantly enhance the financial benefit of the energy saving recommendation. Commercial CSPEA also provides customers with tools to measure the effects of implemented energy savings actions on their bottom line.

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CCSPEA brings together audits and related services to implement energy saving activities. The nonresidential Audit sub-program will help overcome customer's lack of awareness of DSM opportunities by providing comprehensive energy solutions that the customer can implement through relevant IOU incentive and/or finance programs. The audit results summarize the cost/benefit of identified projects and include the effect of utility incentives on the first cost of the facility upgrade. The sub-program also addresses the hassle or transaction costs that prevent customers from acting upon the audit recommendation. This barrier is reduced through the Savings Calculation Assistance, which facilitates the customer's completion of an incentive program application for their project(s).

d) Quantitative Program Targets

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The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5
[TARGETS FOR CSPEA SUB COMPONENTS ADDED HERE]

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<u>Influence Targets</u> <u>(Proposed)</u>	<u>Program Target by</u> <u>2013</u>	<u>Program Target by</u> <u>2014</u>
<u>Number of Audits</u>	<u>635</u>	<u>790</u>

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Influence Targets
(Proposed)

Program Target by
2013

Program Target by
2014

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Influence Targets
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Influence Targets
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e) **Advancing Strategic Plan goals and objectives**

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The CCSPEA is designed to promote DSM coordination and the integration strategies of the Strategic Plan. Foremost are recognition of the linkage between energy and environmental policy and the importance of integrating energy efficiency, demand response and distributed generation to support California's plan to reduce greenhouse gas emissions.

Specific near-term strategies proposed by the Strategic Plan that are addressed by the CCSPEA include:

- Facilitate all State-Owned and Leased Buildings having a Retro-Commissioning option

By offering a dedicated retro-commissioning program a mechanism is created whereby IOUs can facilitate the achievement of this goal as a coordinated effort with the IOU Government and Institutional Partnership Programs.

- Strengthen Tools and Practices for Building Commissioning

Based on the IOUs' experience with managing the Retro-commissioning program, lessons learned and best practices can be integrated into the 2013-2014 offering. To increase market adoption of these program best practices, the IOUs will work in cooperation with the California Commissioning Collaborative to disseminate relevant information to the retro-commissioning community and services may be extended to all segments as deemed appropriate by each IOU.

- Identify New and Improved Tools and Strategies to Reduce Energy Consumption in commercial facilities

Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the benchmarking, CEL, NRA and RCx, demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, commercial customer processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing facilities contribute to California's zero net energy goals. Once implemented, recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.

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● State/Local Governments and Major Corporations Commit to Achieve EE Targets

CCSPEA's offerings will seek to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop an actionable plan to achieve these goals; (4) guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

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● Develop Tools to Reduce Energy in Commercial Facilities

As part of the implementation of specific CCSPEA offerings, the IOUs will partner with energy industry peers, industry associations, and DOE/CPUC-sponsored labs and consultants to enhance the use of existing tools and explore new tools to help commercial customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

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- EPA EnergyStar Portfolio Manager Benchmarking Tool.
- Management Standard for Energy SME2000-2008.
- EPICDOE Superior Energy Performance.
- ISO-50001.

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● Develop Business Models to Deliver Energy Management Solutions

CCSPEA's offerings will address the fundamental purpose to influence decision making practices from commercial customers to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the agricultural market sector.

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In addition, CCSPEA's offerings promote acceptable practices of accounting, auditing, and evaluation by:

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- Offering integrated and focused audits, benchmarking, savings calculation assistance for retrofit and retro-commissioning opportunities, and simplifying the audit-to-project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action.
- Guiding and supporting customers as they implement technologies, processes and practices to achieve deeper energy efficiency savings.
- Long term energy planning support.

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The nonresidential Audit sub-program is designed to promote DSM coordination and the integration strategies of the Strategic Plan. Foremost are recognition of the linkage between energy and environmental policy and the importance of integrating energy efficiency, demand

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response and distributed generation to support California's plan to reduce greenhouse gas emissions.

Specific near-term strategies proposed by the Strategic Plan that are addressed by the nonresidential Audits sub-program include:

~~2-1: Ensure all State Owned and Leased Buildings are Retro-commissioned—By offering a dedicated retro-commissioning program a mechanism is created whereby IOUs can facilitate the achievement of this goal as a coordinated effort with the IOU Government and Institutional Partnership Programs.~~

~~2-5: Strengthen Tool and Practices for Building Commissioning—Based on the IOUs experience with managing the 2006-08 Retro-commissioning program, lessons learned and best practices can be integrated into the 2010-2012 offering. To increase market adoption of these program best practices, the IOUs will work in cooperation with the California Commissioning Collaborative to disseminate relevant information to the retro-commissioning community.~~

~~2-5: Identify New and Improved Tools and Strategies to Reduce Energy Consumption in Commercial Buildings—Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the audits demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, industrial processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing commercial building stock contribute to California's zero-net energy goals. Recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.⁴~~

In addition, nonresidential Audits promote acceptable practices of accounting, auditing, and evaluation by:

- ~~● Offering targeted audits, savings calculation assistance and simplifying the audit to project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action.~~
- ~~● Guiding and supporting customers as they implement technologies, processes and practices to achieve energy efficiency savings.~~

~~Energy saving results will be achieved by providing comprehensive follow-up with customers who have received an energy audit. Follow-up will include targeted, end-use energy analysis and implementation of "audit to project" conceptual work.~~

⁴ Note that recommended O&M solutions will be linked with Quality Maintenance principles established by the Statewide Residential and Commercial HVAC Program, thus supporting many of the goals of Chapter 6 of the Strategic Plan.

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6.) Program Implementation

- a) Assess and identify the best way to support the use of CEC's BEARS tool.
- b) Enhanced current benchmarking workshops and continue providing benchmarking and AB 1103 technical support through established and new channels.
- c) Emphasize and support integration in emerging technologies and deeper energy savings opportunities.
- d) In coordination with incentive programs, identify ways to streamline the end to end process for customers wanting to participate in utility energy saving programs.
- a)e) Continuation of Statewide IOU cCoordination

a) Statewide IOU Coordination

i. Program name: Commercial Customer Services ProgramEnergy Advisor

—

—Program delivery mechanisms

ii.

CCSPEA will employ a variety of delivery mechanisms or channels. Most of CCSPEA's offering will use IOU customer energy efficiency staff and contractors, service and sales representatives, website and/or marketing and outreach efforts. Other delivery channels may also be developed.

In addition, where applicable, Utility customer account representatives or program management staff will support this activity within the statewide commercial sector, as well as third parties, government partnerships, and local programs.

iii. Incentive levels

Not applicable./A

iv. Marketing and outreach plans

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs.

Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost effectiveness of reaching customer groups.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

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CCSPEA's energy recommendations will continue to recognize the regulations required by other bodies. For example, information about GHG reductions resulting from AB 32 may be incorporated into the customer recommendations and to factor into the project's cost-effectiveness and water conservation information will be included in the reports as appropriate.

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Program offerings will collaborate and support the CEC's AB 1103 mandate by assisting customer with technical and awareness activities. CCSPEA will advance the introduction of the BEARS and California Rating Tool where reasonable.

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CSPEA recognizes the efforts of the CEC's Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs and will leverage such activities to the customer's benefit.

a) Statewide IOU Coordination

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Maintaining state wide consistency in offering the same set of energy audits allows customers to benefit from the collective experience of the IOUs and receive best energy management practices. Specific areas of coordination include:

- ~~Development of an integrated audit tool and methodology: Currently, Remote Audits provided by the IOUs include education on various energy solutions. In an effort to enhance the offering, the IOUs will coordinate in the development and piloting of the. The tool will enable residential and small commercial customers to conduct their own energy audits from the comfort of their home or office by logging onto the statewide IOU Web portal. It will be the primary tool to provide energy conservation, energy efficiency, demand response and distributed generation information to customers with load less than 200 kW.~~
- ~~Implementation of IEAs (i.e., accounting guidance, regulatory interpretation).~~
- ~~Development of marketing, outreach and education strategy.~~
- ~~Strategies to support the Strategic Plan and various market transformations.~~
- ~~Development of innovative audit approaches (i.e., retro-commissioning).~~
- ~~Inter-utility coordination through regularly scheduled meetings to address concerns and problems that may develop during program cycle.~~

- ~~RFP process for development of audit tools: This process will focus on consultants that have developed a simplified process that allows for better understanding of energy efficiency technologies.~~

b) Program delivery and coordination

The sub-program will be coordinated with the following activities, as applicable:

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i. Emerging Technologies (ET) Program

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The IOU CCSPEA Management Team will stay abreast of and incorporate relevant emerging technologies into audit recommendations as appropriate. Constant two-way communication between the Emerging Technologies program and the Nonresidential Audits sub-program will accelerate implementation of initiatives for demonstrating promising new EE technologies and practices. Additionally, auditors will be enabled to seek potential applications among targeted customer segments so that ET may gauge potential for promising technologies. Incentives are available for customers who install emerging technologies under the Calculated sub-program.

ii. Codes and Standards Program

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CCSPEA implementation will include information about pending new codes and standards that may affect planning or prioritization of retrofit or new construction projects. Audits reports will include customer recommendations that are consistent with current governing codes. The Nonresidential Audits Program will work closely with Codes and Standards to recommend appropriate technologies and products to customers.

iii. WE&T efforts

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CSPEA implementation will integrate with WE&T efforts, as needed, by providing CSI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

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IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches, as required. To maximize its reach, the Nonresidential Audits sub-program, in conjunction with utility training centers, will offer training to interested third-party personnel and publicly owned utilities to develop a workforce that will implement energy efficiency products and practices. As an energy efficiency expert, PG&E can leverage the knowledge and experience it has built up over the years by sharing

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that information with other interested parties throughout California. PG&E's successful efforts over the past twenty plus years are evidenced by the industry that has sprung up to support existing audits and other educational efforts. Many third party engineering firms focus a large portion of their business on supplying the technical resources required by existing IDSM programs. To support the substantial ramp up of goals envisioned by the strategic plan, PG&E can increase the workforce available to California by increasing its training efforts.

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iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

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A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs.

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Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost effectiveness of reaching customer groups.

In 2013-2014, CSPEA marketing campaigns will provide a wide range of action-oriented solutions targeted specific segments and sub-segments of business customers. In addition, as

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A broad range of marketing activities will be used to promote audits and increase customer engagement, including actions recommended in past EM&V studies to enhance program performance. Such activities include direct personal marketing through Account Representatives and energy efficiency staff at customer facilities, education and training events, regional meetings, conferences and trade shows as well as through traditional marketing approaches such as web channels and integrated marketing collateral. Audits will also be an integral piece of Continuous Energy Improvement customer engagement, identifying the technical opportunities that can be used to populate energy action plans. As appropriate, marketing activities will be coordinated between IOUs and between DR and Distributed Generation departments within PG&E.

The central message in promoting audits will be that they provide customers a technical roadmap to reduce costs and improve performance, and that they identify utility and financial resources available to support projects.

To aid in future project targeting and marketing efforts, audit recommendations will be placed in a centralized audit database to enable follow up through appropriate delivery channels. Aggregated audit results and recommendations will also enhance ongoing market segmentation efforts.

v. Non-energy activities of the program

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Integrated audits are a key tool for identifying non-energy opportunities for specific customers. These opportunities will be pursued whenever possible.

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vi. Non IOU programs

CCSPEA reports will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated

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efforts. CCSPEA will partner with programs offered by CEC, ARB, Air Quality Management Districts, ENERGY STAR, and other government and quasi-governmental agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to commercial sector customers, as opportunities present themselves.

With respect to water conservation, utility program managers will continue to partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects (ESPM, BEARS, California Rating Tool, Water Agencies and others).

~~**Over the next three years, the IOUs will seek to increase their interactions with the POUs to better align IOU and POU nonresidential Audits programs. This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.**~~

vii. ~~**CEC work on PIER with EPIC**~~

CCSPEA implementation will continue collaboration efforts with the CEC and seek to promote adoption of new technologies developed through the CEC's processes and to educate customers to demonstration, research and/or pilot projects. Specific CSPEA offerings will encourage recommendations addressing new technologies, processes, and methods, as identified in CEC projects, which will enable customers to achieve energy efficiency "stretch" goals that produce significant energy savings beyond an established baseline in a cost-effective manner. See Section 6.b.1

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viii. CEC work on codes and standards

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CCSPEA will not be implemented with a direct linkage to codes and standards efforts. Although CCSPEA will reflect code and standards regulation in its energy savings calculations as deemed appropriate. See Section 6.b.ii

ix. Non-utility market initiatives

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Education about federal tax incentives for energy efficiency investments is an example of non-utility information and guidance that CCSPEA offerings will provide to customers. In addition, the IOUs will participate in state and national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

Not applicable; this is not a focus of this sub-program.

c) Best Practices

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The IOUs will continue to leverage best practices and lessons learned at regularly scheduled statewide program management meetings. These meetings are forums to discuss program design and implementation issues, and as appropriate provide statewide collaborated guidance in RFP solicitations and awareness of program offerings so customers operating multiple facilities across IOU service territories receive the same customer experience.

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Other best practices approaches apply the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the market sectors. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach will continue through the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers. One focus of the Nonresidential Audits program will be to improve the adoption rate of energy efficiency and demand side management audit recommendations made to IOU customers. As such, staff will provide comprehensive support and establish an extended follow up plan as follows:

- Customers who complete an online mass market audit (using the Universal Energy Audit Tool or UEAT) will be targeted for follow up through all available communication channels.
- Mailings and call scripts will be personalized for each customer and will reference specific audit recommendations, based on the customer's online audit report.
- Following on-site audits, assigned account managers, who are either target market experts or assigned account managers, will contact customers to discuss each recommendation and elicit customer feedback or commitments to implement measures.

The Nonresidential Energy Audits Program design is based on EM&V study results. Statewide IDSM program performance will be continually enhanced by iterative evaluations of EM&V study results. Lessons learned will be incorporated into best practices protocols, and EM&V results will be evaluated to identify delivery channels and measures that yield the highest energy savings.

d) Innovation

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For 2013-2014, the IOUs are identifying and evaluating program processes to increase effectiveness, simplification and increase the benefits the program delivers. Each IOUs set of lessons learned from these efforts will be shared and implemented to enhance energy savings benefits to all California IOU customers.

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CCSPEA will engage in a process of continuing improve as a new standard way of packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

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Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

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IOUs will discuss and consider various options for customer engagement in energy audits and implementation of energy efficiency, demand response and distributed generation recommendations. Such options may include co-payments, rewards, case studies, and additional incentives.

Integration with RCx

Energy efficiency measures recommended in audit reports comprise three categories defined by their relative cost for implementation: no cost, low cost, and capital projects. Integrated audits are a primary source of leads for potential RCx projects that assist customers with implementation of no cost and low cost EE measures. On the other hand, RCx contractors can also share their findings with the large targeted customer program and can recommend that customers pursue a full Integrated Audit before embarking on RCx efforts. In the 2010-2012 Nonresidential Audits sub program, cross-training and coordination between the two programs will be increased to encourage optimum effectiveness in achieving an integrated offering of retrofit and RCx projects.

Enhanced Resources

The IOUs will provide information and resources to customers, such as contractor lists, financial resources, and technical assistance, to make it easier for customers to take action in response to audit recommendations. Much of this information is available on IOU websites. Further, the IOUs will upgrade web resources to include such features as case studies, technical assistance for selected measures, and savings calculators.

Universal Energy Audit Tool

To implement the integrated audits for customers smaller than 200 kW, the IOUs are developing a Web-based audit (do-it-yourself or auditor-performed) that includes education on various demand-side management solutions. The UEAT will enable customers to conduct their own energy audits from the comfort of their home or office by logging onto the PG&E website. It will be the primary tool to provide energy conservation, energy efficiency, demand response, and solar/self-generation information and analyses to customers with less than 200 kW load. Customers will supply account information or a zip code, or telephone number, which will calibrate the tool for their specific microclimate. UEAT will specifically address potential measures that qualify for rebates and incentives and provide simple payback information. By implementing such features in UEAT, PG&E will extend the integration concept to broader audience, including residential customers.

Additional questions, presented through the latest online graphical interface, will provide robust customization of customer energy use (e.g., based on type of business, type of residential building, hours of operation, number of inhabitants). Audit reports will be available to customers through e-mail or U.S. mail delivery. PG&E plans to make modifications to its current audit tools, if technically feasible, as an interim solution until launch of the UEAT and to meet the requirements of solar audits under SB-1 and integrated program offerings.

Supporting integration, UEAT will provide preliminary calculations for technical feasibility and sizing of solar systems. This analysis will consider the impact of energy efficiency implementations. For more detailed analysis of solar systems, the tool will refer customers to the Statewide California Solar Initiative Calculator. When appropriate for particular measures, the UEAT will refer to other available tools, such as the SPC calculator, EQuest, and DOE 2.

The UEAT will provide a portfolio of audits that are easily accessible to PG&E program managers. It will provide them with unified data resources, a central repository of recommendations and algorithms, and an interface to enable customization of energy audit formats to meet specific customer needs.

Historical data from the UEAT, from previous energy audits and efficiency projects implemented at their own facilities, will be accessible to all residential and nonresidential PG&E customers and to auditors via Web-based tools. The data repository for UEAT will be designed in a format that complies with M&V requirements, and the data will be available to M&V consultants. As a table-driven software tool, UEAT allows customers/users to select measures most compelling to their situation.

All IOUs are discussing developing UEAT as a joint effort to ensure statewide consistency.

New Technologies

To boost the number of quick turnaround audits to customers and increase participation in deemed rebates, PG&E will use new technologies (i.e., wireless and PDA based checklists) to enhance productivity while targeting specific customer needs.

Engineering Support

The IOUs will contract with energy engineering firms to help medium and large customers, who will benefit from an enterprise wide plan for staged implementation of IDSM recommendations, develop IDSM implementation plans. Specialized engineering firms will supplement the customer's site and business specific knowledge with IDSM specific know-how. Together, the consultant and client will build a successful plan that results in an optimum installation of energy efficient equipment and processes that enhance the customer's productivity and competitiveness.

e) **Integrated/ Coordinated Demand Side Management**

CCSPEA will provide a comprehensive approach for integrated audit services. Its services will have the flexibility of meeting every level of a customer's audits needs from integrated comprehensive audits to targeted or focused audits, which centers on specific systems or processes, to assessments or general walk through audits or online "do-it-yourself" audits (currently for small business customers), which when properly applied can assist in identifying the areas of a customer's greatest energy interest, financial capabilities of the customer's ability to invest in improving its energy use, and identification of other programs that can be brought into the discussion to motivate a customer to move forward with the energy saving plan.

The scope of services offered can coordinate the audit to look for retrofit or retro-commissioning opportunities; with benchmarking tools, or long term planning. Audit reports can present a truly integrated analysis to customers, seamlessly providing them with information and recommendations regarding energy efficiency, distributed-generation, demand response, greenhouse gas emissions and water energy savings. Customers will be referred to other IOU programs that will help them implement the recommendations resulting from the audit report and thus will be given a complete picture of their energy usage and options for reducing costs and using energy more efficiently. The Nonresidential Audit sub-program is a core strategy of the IOU's integrated customer approach, featuring energy conservation, energy efficiency, time of use management, demand response and self generation, blended and evaluated in various combinations. These combinations are reviewed for their logical order, customer benefits, and societal benefits. Based on the customer's technical opportunities, as well as stated needs and wants, the auditor will craft an integrated solution that is tailored to customer specific business needs and requirements. The report's recommendations are optimized to achieve reduced energy consumption, reduced environmental impacts and increased productivity.

IOU programs offering additional technical assistance and project incentives, such as the Calculated sub-program, third party programs, demand response incentives or distributed

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generation incentives will be highlighted to encourage follow through on measure recommendation adoption.

The audit process, final report presentation, and follow up activities aim to minimize disruptions of customer core business activities while maximizing the benefits of audit recommendations and integrating with all applicable programs. For example:

- After an integrated audit is completed, eligible no cost/low cost energy conservation measures will be transferred to the Retro-commissioning (RCX) program for follow up.
- Capital investment measures selected by a customer will become subject to a more rigorous calculation of energy savings under the Calculated Sub-Program's Saving Calculation Assistance (SCA) service, which may later accompany the application for a project filed with the calculated retrofit program.
- Demand Response measures will be evaluated for their applicability for daily use (they may eventually become an energy efficiency measure), load shifting, and occasional response to demand response events.
- Eligible Demand Response measures accepted by the customer for implementation would be included in the same application as energy efficiency measures for a potential incentive under the Technology Incentive program for Demand Response.
- Distributed generation opportunities and benefits will be presented to the customer along with references to respective incentive programs and resources.

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Utilities understand the importance of the integrated solutions and benefits of measure recommendations to the customer. Current tools already indicate greenhouse gas benefits associated with recommendations. IOUs will explore adding modules to the UEAT tool to consider water conservation, GHG reduction, waste management, and other modules will be incorporated into an enhanced version of UEAT. IOUs are currently developing curriculum to provide training to enhance the integration skills of IDSM auditors.

The Nonresidential Audit sub-program will continue to provide targeted support to the Commercial, Industrial, and Agricultural programs by developing sector experts among the engineering firms, as well as by developing market sector specific intelligence into the UEAT. For large integrated audits, auditors will team with Account Representative and program specific project managers to ensure robust support is available to serve the customer's technical and programmatic needs.

The utilities will continue to partner with Government Partnerships by offering Integrated Audits to qualified governmental agencies as it has during the 2006-2008 Program. In the future this effort will increase the number of regional, county and city aggregated audits to establish a strategic plan for these customers and better integrate DR and self generation with energy conservation and energy efficiency. These customers often have multiple accounts that do not meet the demand threshold for on-site audits on their own, but when aggregated they can constitute one of the largest energy consumers in the area.

As appropriate, the IOUs will also provide training and guidance to Third Party program implementers to broaden their audit focus beyond their program offering in order to identify potential in other end use systems. In this way PG&E will minimize inefficient and redundant customer visits. Expanding the scope of third party program audits will provide customers with additional opportunities through combinations of equipment upgrades in conjunction with other third party program vendors.

All large Integrated Audits will provide leads to appropriate Third Party programs based on audit report recommendations. The new Integration Desk will provide this centralized service for the LTC, while the UEAT will provide potential opportunities via automated selection based on survey input.

f) **Integration Across Resource Types**

CCSPEA will focus on DSM integration.

CCSPEA implementation will include information on Non-IOU programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IOU CSPEA managers will partner with the appropriate programs, when applicable, with government agencies to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers.

Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote CCSPEA offerings, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, utility program managers will collaborate with the local water districts to produce marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects. A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the resource programs in order to maximize effectiveness, integrate offerings, and appropriate refer customers to relevant DSM programs. PG&E will also look to partner with interested public and governmental bodies to proactively promote energy efficiency and environmental green actions, in partnership with programs such as the local government partnerships and green communities. As noted above, an extensive training program is being planned to hone the ability of auditors to integrate other resources into energy audits.

The Nonresidential Audits sub program will serve as the foundation for integrated offerings by offering a truly integrated audit to customers, seamlessly providing them information and recommendations around energy efficiency, distributed generation,

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demand response, green programs, such as the ClimateSmart program, and other relevant programs.

Marketing collateral and messages for energy efficiency will be integrated with other PG&E programs. Through additional market segmentation and feedback from customers, PG&E will further adjust approaches based on the varied needs of targeted customers.

Services from the Nonresidential Audits program may also be available to low income energy efficiency and third party program staff and customers.

g) Pilots

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CCSPEA services may consider the development of test markets especially in the introduction of new energy benchmarking or saving tools.
Not applicable

h) EM&V

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The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many cases, after the program implementation has begun, since the plans need to be based on identified program design and implementation issues. The utilities plan to work together and with the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.

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Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

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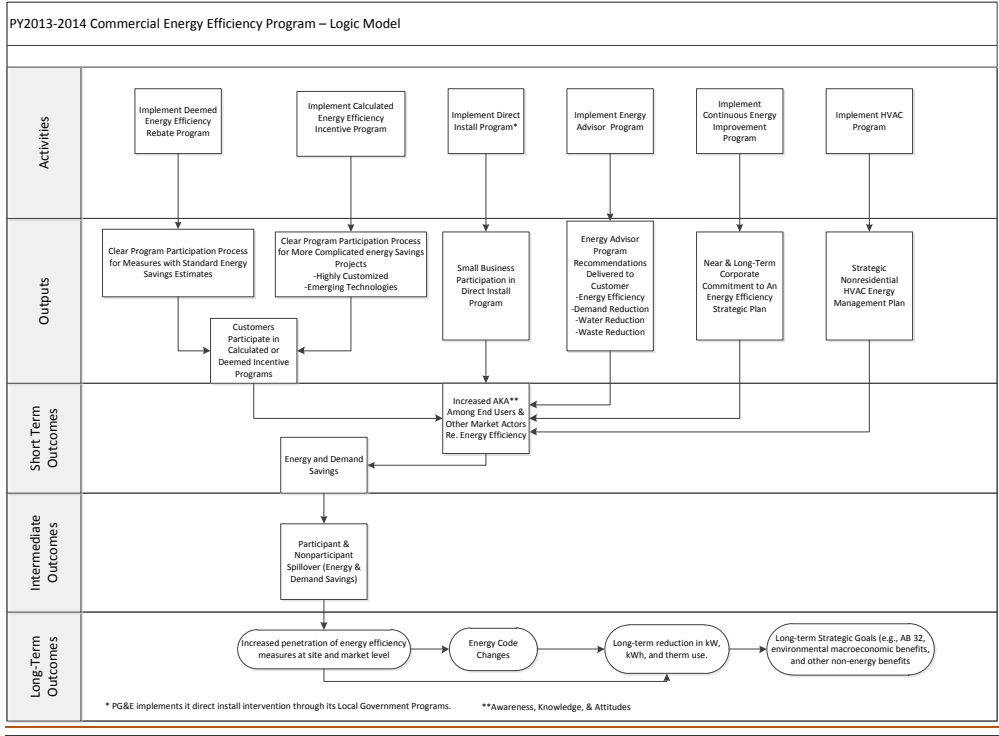
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7.2 Diagram of Program

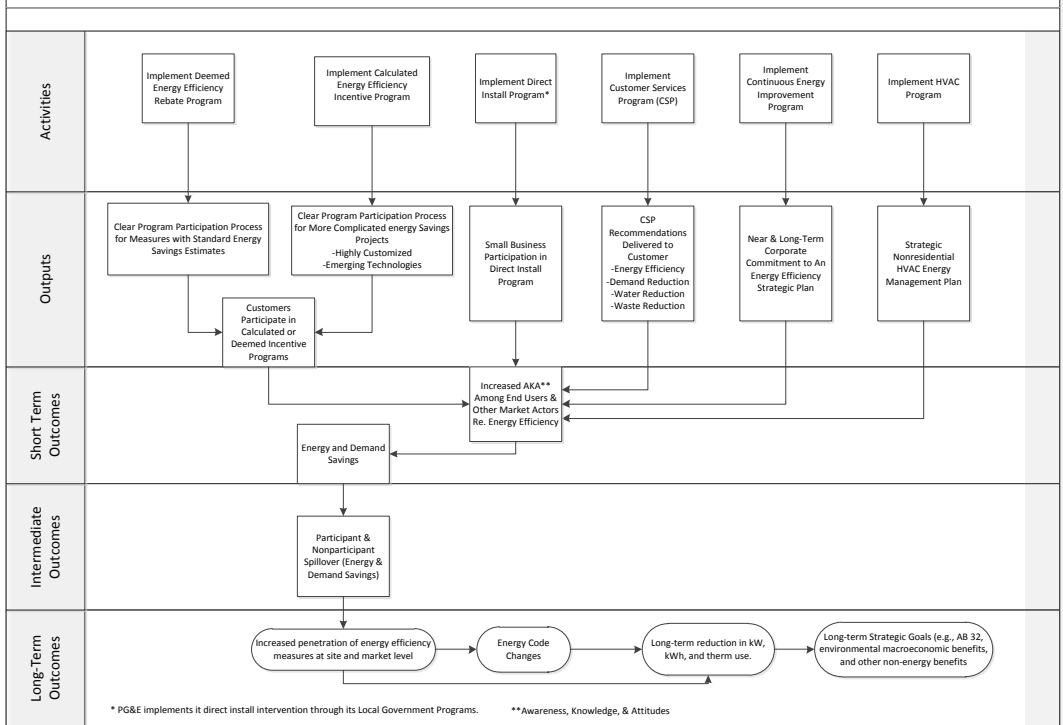
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PY2013-2014 Commercial Energy Efficiency Program – Logic Model

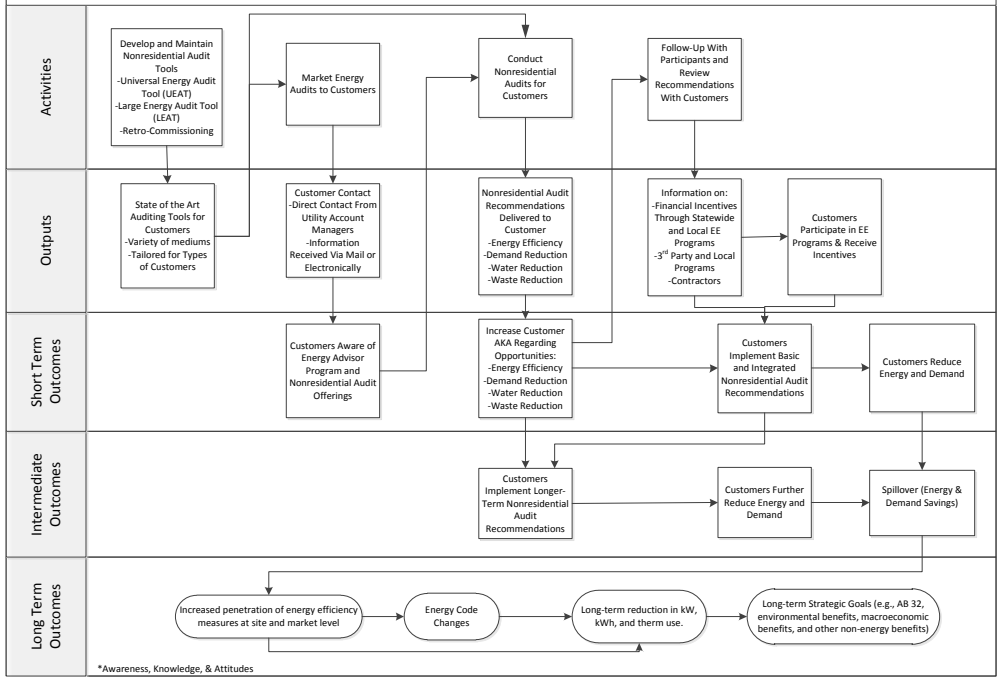


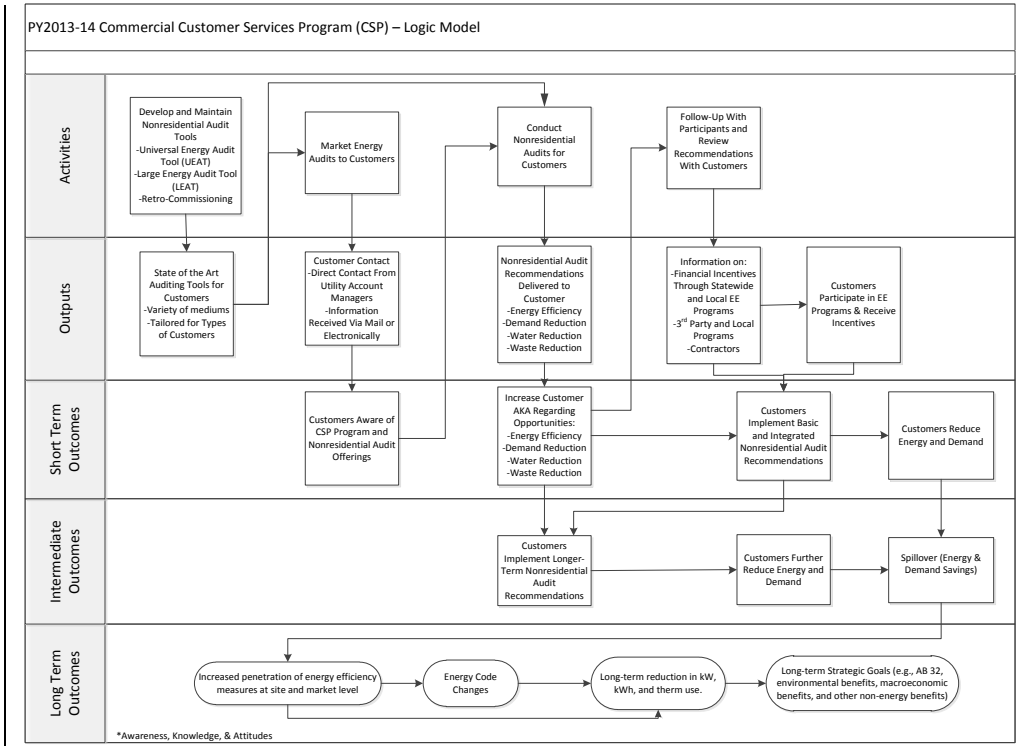
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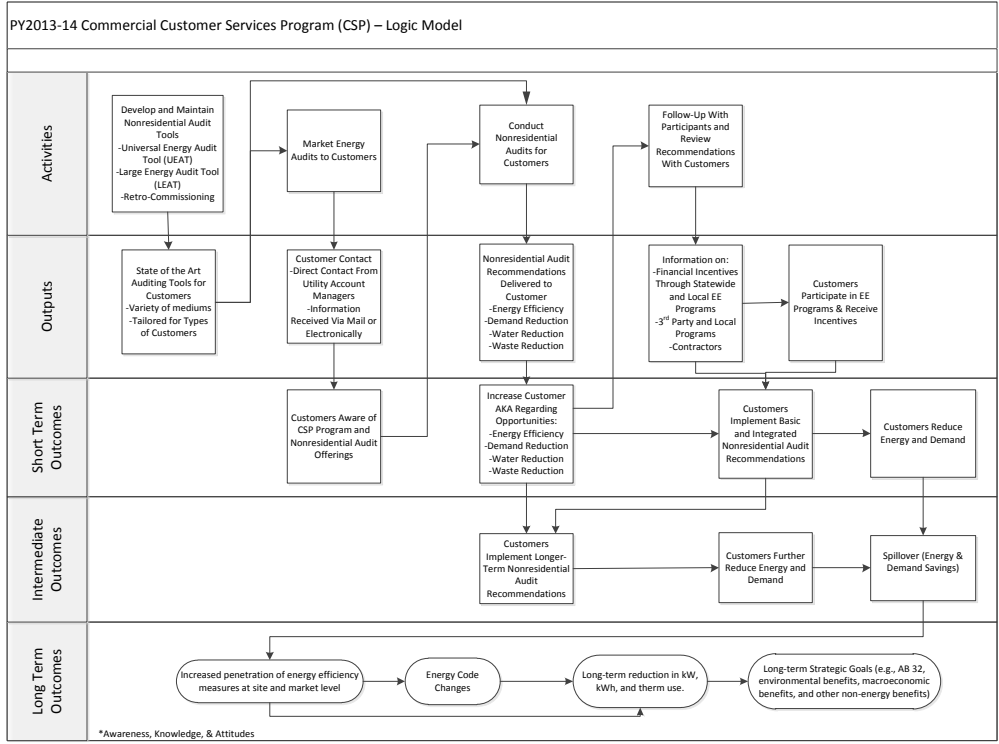
8.2 Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. ~~Below is the approved logic model for the Commercial Energy Efficiency Program.~~

PY2013-14 Commercial Energy Advisor Program – Logic Model







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~~1e)~~ Program Name: Commercial Calculated Incentives, Core S sub-program
Program ID: SCG - 3710
Program Type: Statewide Core Program

2. Projected Program Budget Table

~~T~~ Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

~~Table 2 – reference the overarching program for savings budget details–~~

4. 4) Program Description

a) Describe Program

The statewide ~~non-residential~~ Commercial Calculated Incentives sub-program provides customers technical and calculation assistance, as well as incentives based on calculated savings, to influence the design and installation of energy efficient equipment and systems in both retrofit and added load applications.

The Commercial Calculated Incentives sub-program is utilized for projects where a rebate is not available through the statewide Deemed program, where project conditions require customized calculations to provide the most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling. Because calculated savings estimates are based on actual customer operating conditions, pre-inspections (for retrofit projects) and post-inspections are typically required as part of each utility's project documentation.

An important element of the Commercial Calculated Incentives sub-program is the design assistance and calculation assistance provided by the IOUs to influence customers to select the most efficient design and equipment options. For both retrofit and added load projects, IOUs work with the customer and their project team to evaluate their proposed projects and provide a report recommending efficient design alternatives and detailing energy savings, CO2 reductions, and calculated incentives available for exceeding Title 24 code or industry standard practice baselines as appropriate. This information is also available to customers through the nonresidential Audit offering. The combination of technical support and the availability and commitment of approved utility incentive funds is an essential driver to overcome key customer barriers, including lack of technical resources and lack of capital for energy efficiency projects.

Customers and project sponsors (contractors, design teams, vendors, ESCOs) participating in the Commercial Calculated Incentives sub-program may also opt to complete their own calculations for submittal to the IOUs for review and approval. For this purpose, consistent statewide calculators are publically available to customers for use if desired. The statewide

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utility-created and maintained ~~CCT SPC~~ Calculator can be used for retrofits and is available online and through CDs. For whole building construction projects, IOUs accept both Energy Pro, available for license, and the utility-sponsored EQEST, available for free on the statewide Energy Design Resources website www.energydesignresources.com.

Depending on whether a project is a retrofit or added load project, and on whether Title 24 is triggered for a particular project, different baselines are applied to capture appropriate project savings. For retrofit projects, incentives are capped at 50% of the total project costs. For added load projects, incentives are capped at 50% of the ~~in~~total ~~remental~~ project cost.

b) **List of Measures**

[A broad range of measures is eligible for the Commercial Calculated Incentives Program. The current incentives are summarized in the following table. The incentives for these measures are standard across the utilities participating in the statewide Commercial Calculated Incentives Program.](#)

The following measure categories are eligible for Calculated Incentives:

- ~~— Lighting~~
- AC & Refrigeration
- ~~— Motors and others~~
- Gas measures

~~▲ The Calculated Incentives sub-program is a resource program that offers financial incentives for energy efficiency projects involving the installation of new, high-efficiency equipment or systems. The more kWh or therms saved by the energy efficiency project, the higher the incentive payment will be. The incentive options offered by the Calculated sub-program have seen high participation due to the program's flexibility in customizing appropriate energy efficiency solutions for a diverse range of customers. Below is a listing of all calculated measures grouped by measure category for all IOUs. Specific measures for each IOU are provided in the attached E3.~~

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#	MeasureName	Per kWh Incentive	Per kW Incentive
1	Air Compressor System Replacement / Upgrade	\$0.09	\$100
2	ASD - HVAC Compressor Motors	\$0.15	\$100
3	ASD - Others	\$0.09	\$100
4	Building Shell Improvements	\$0.09	\$100
5	Carbon Monoxide Sensors	\$0.09	\$100
6	Controls - Non-Lighting	\$0.09	\$100
7	Equipment - Other not specified	\$0.09	\$100
8	Extruder System Replacement / Upgrade	\$0.09	\$100
9	Fan and Pump System Upgrades	\$0.09	\$100
10	Furnace / Energy Efficient	\$0.09	\$100
11	Heat Recovery Equipment (Process)	\$0.09	\$100
12	Heat Recovery Equipment (Space Conditioning)	\$0.15	\$100
13	HVAC - Chiller	\$0.15	\$100
14	HVAC - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
15	HVAC - Heat Pump	\$0.15	\$100
16	HVAC - Other	\$0.09	\$100
17	HVAC - Package Unit	\$0.15	\$100
18	Injection Molding Machine Replacement / Upgrade	\$0.09	\$100
19	Insulation	\$0.09	\$100
20	Lighting	\$0.05	\$100
21	Lighting Controls	\$0.05	\$100
22	Motors Project (HVAC Compressor)	\$0.15	\$100
23	Motors Project (Non-HVAC Compressor)	\$0.09	\$100
24	Precooling Equipment	\$0.15	\$100
25	Process - Chiller	\$0.15	\$100
26	Process - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
27	Professional Wet Cleaning	\$0.09	\$100
28	Pumping System Replacement / Upgrade	\$0.09	\$100
29	Rapid Closing Door	\$0.09	\$100
30	Refrigeration - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
31	Refrigeration - Other	\$0.09	\$100
32	Series to Parallel Street Lighting	\$0.09	\$100
33	Special Window Glazing & Glazing Treatments	\$0.09	\$100
34	Vacuum Systems	\$0.09	\$100
35	Window Replacement	\$0.09	\$100

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c) **List Non-incentive Commercial Customer Services Energy Advisor Services**

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The Commercial Calculated Incentives sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical and calculation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd the project through the process.

5) **Program Rationale and Expected Outcome**

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

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Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude “draft” metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

b) Market Transformation Indicators (MTIs)

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By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics (See Section 1a.5.a-)

c) Program Design to Overcome Barriers

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The Statewide Commercial Calculated Incentives sub-program offers customers incentives to implement energy efficiency measures that have been identified primarily through

standard utility energy efficiency audits, in-depth facility/process assessments or retro-commissioning studies.

Other avenues used to identify energy efficiency opportunities include Programs that provide Education and Outreach, Workforce Education and Training, or through IOU Emerging Technologies Programs.

The Commercial Calculated Incentives ~~sub~~Sub-program addresses and eliminates a significant number of barriers to energy efficiency for commercial customers such as:

- A high percentage of the time, developers, building owners, building managers and building contractors build or retrofit to current standards (i.e., Title 24). On the Architect and Engineering Firm side, design engineers specify what they know or what they are familiar with. The Commercial Calculated Incentives sub-program encourages or rewards developers, building owners, building managers, contractors, and A&E Firms to “push the efficiency envelope” and exceed Title 24 requirements, or to exceed industry accepted baseline standards when retrofitting existing buildings or systems by providing up-to-date information on emerging technologies and providing incentives to bridge the “chasm” which typically prevent emerging technologies from being adopted by the market.
- In several instances, high efficiency Emerging Technologies are viable, but are unknown to facility owners and system designers and thus, are slow to penetrate the market, causing energy efficiency opportunities to be “lost.” The Commercial Calculated Incentives sub-program helps speed market penetration and associated energy savings for Emerging Technologies by offering, when appropriate, “premium” incentives for emerging technologies that are “proven” but not widely employed in the markets for which they are intended (e.g., solid state lighting, advanced lighting controls).
- Across all nonresidential customer segments, a significant barrier mentioned is “Access to Information”. This can be a lack of awareness of operating “best practices”, lack of awareness of energy efficiency opportunities, difficulty accessing industry relevant technical assistance, inadequate availability of qualified industry specialists or lack of personnel resources to fully assess a building, system or process. Also, in many instances, customers are not sure of how a specific energy efficiency project will impact their emissions, resource consumption or waste discharge streams.
- Multi-tenant buildings have a unique and significant barrier. Most typically referred to as the principal-agent or tenant-landlord split incentive, this issue is characterized by the natural separation of tenant energy efficiency savings and capital expenditures by building owners. The commercial program will incorporate market research and/or market tests to better understand potential programmatic offerings that can help reduce the barrier. Some examples of strategies that might warrant testing include combinations of education and creative tenant/landlord incentives or credits for centralized system or building shell upgrades.

These barriers are overcome by providing:

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- Highly skilled Energy Management Professionals that perform basic and integrated facility assessments;
- IOU Workforce Education and Training seminars through the Energy Centers;
- Web-based information and energy management tools that assist with identifying DSM opportunities;
- In-depth plant or system assessments such as the assessments jointly provided by the IOU's and the U.S. Department of Energy (DOE), that focus on improving production and optimizing energy efficiency;
- Incentives based on energy savings quantified through technical assessments or basic audits that help customers overcome internal financial hurdle rates;
- Incentive mechanisms that reward implementation of advanced technologies;
- Integrated solutions that conserve energy and reduce GHG emissions; and
- Statewide SPECCT Estimator that provides energy savings calculation for most popular and common retrofit projects and measures, assists in filling out program applications, and simplifies its processing.

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The Commercial Calculated Incentives sub-program delivers a consistent message statewide to commercial customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer. This eliminates the barrier often run into by commercial customers of getting incorrect or out-of-date information from local networks.

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The Commercial Calculated Incentives sub-program not only brings IOU incentive information to customers, but in many instances also provides additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, Tax incentives or other local sources of project funding.

d) Quantitative Program Targets

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The targets provided herein are best estimates, but nonetheless are forecasts.

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Table 5

<u>Program Name</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>Projects</u>	<u>TBDxx</u>	<u>TBDxx</u>

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e) Advancing Strategic Plan Goals and Objectives

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The unifying objective of the Strategic Plan is to employ market transforming strategies to encourage marketplace adoption of energy efficient measures to a point that public investment in energy efficiency is no longer necessary (Section 1, page 4). The Calculated Incentives

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sub-program will support this effort by employing two of the five market transformation policies identified in the Strategic Plan. Specifically, the Program will offer “carrots” in the form of financial incentives to help pull the marketplace towards energy efficiency. The Calculated Incentives sub-program will also provide education and informational resources through marketing and program outreach efforts. Therefore, these program elements will work in concert to transform the market towards sustained, long-term energy savings.

The program will help to achieve the following near-term strategic goals as identified in Chapter 3 of the Strategic Plan:

- ↳ 2-3: Ensure compliance with minimum Title 24 codes – The Calculated Incentives sub-program only provides incentives for projects that exceed current Title 24 minimum baselines. Incentive mechanisms will be created to ensure deeper levels of energy reductions, potentially including implementation of the Office of the Future Consortium’s Phase 2 recommendations, “The 25% Solution”, which seek to reduce energy usage 25 percent below Title 24-2005 baselines.
- ↳ 2-5: Develop tools and strategies to reduce energy consumption in commercial buildings – The Calculated Incentives sub-program directly supports this effort by collecting data and conducting energy use and efficiency studies that, when collected over multiple IOU service territories, will be very helpful in supporting statewide efforts to establish a robust and useful knowledge base for the commercial sector.
- ↳ 2-7: Develop business models that deliver integrated energy management solutions – The Calculated Incentives sub-program will implement incentive mechanisms that will “reward comprehensive energy management retrofits” and “energy efficiency projects” such as incentives for reaching certain stretch goals that produce significant energy savings beyond an established baseline.
- ↳ 2-8: Improve utilization of plug load technologies – The existing incentive structure pays for energy reductions through plug load measures. Additional incentives that encourage greater penetration of plug load technologies may be developed, required and will be developed to support technologies recommended by PIER, the Office of the Future Consortium.

6) Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process, described in detail in the Statewide Commercial Energy Efficiency Program, will ensure continuous improvement and consistent implementation of all of the sub-programs. The discussion below will focus on how the IOUs will coordinate the Commercial Calculated Incentives sub-program specifically.

The Statewide IOU Coordination process for the Commercial Calculated Incentives sub-program will be as follows:

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- Hold Regular Program Manager Meetings – The ~~Calculated sub-program~~Commercial Calculated Sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will unify, to the extent possible, the implementation of program aspects such as Program name, Program delivery mechanisms, Incentive levels, Marketing and outreach plans, and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges. Therefore, the regular meetings will focus on issues specific to the ~~Calculated sub-program~~Commercial Calculated Sub-program only.
- Designate an IOU Program “Lead” – One of the sub-program managers that participates in the regular meetings will be the designated Calculated Program IOU “Lead”. The IOU lead will represent the sub-program at the regular Statewide Steering Committee meetings.
- Participate in Regular Steering Committee Meetings – The IOU lead will be responsible for attending the regular Steering Committee Meetings and sharing Calculated Incentives sub-program innovations, experiences and challenges that have the potential to impact multiple sub-programs or the core Commercial Energy Efficiency Program as a whole.
- Adopt Program Enhancements - Once the Steering Committee agrees that a specific innovation or implementation policy has merit on a statewide level; the IOU lead will distribute the information to the ~~Calculated sub-program~~Commercial Calculated Sub-program managers by email or at the next regular meeting for adoption and integration. Therefore, the IOU lead will act as a conduit feeding ~~Calculated sub-program~~Commercial Calculated Sub-program-specific information up to the statewide Steering Committee and distributing measures for adoption back to the ~~Calculated sub-program~~Commercial Calculated Sub-program managers.
- Evaluate Program Enhancements – To complete the adaptive management loop, the ~~Calculated sub-program~~Commercial Calculated Sub-program managers will track the success of the adopted statewide enhancement or implementation policy and report any challenges or concerns at the regular Commercial Calculated Incentives sub-program meeting. The IOU lead will report any challenges that transcend the Commercial Calculated Incentives sub-program to the Steering Committee, who will determine whether further course corrections are needed.

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By following the process stated above, the Calculated Incentives sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the three year implementation cycle. Sub-program innovations and challenges will also feed productively into the higher-level Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

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The coordination and unity of all program aspects, such as Program name, Program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions, will be handled through this statewide coordination framework. However, these aspects will start off at a high level of statewide consistency. In rare cases, there will be IOU-specific deviations. Such instances where one IOU will favor a different approach

than the other IOUs will be called out in italicized text throughout the Calculated Incentives sub-program.

Additional areas of program coordination include:

i. Program Name :

i. Commercial Calculated Incentives

ii. Program Delivery Mechanisms

The **Commercial** Calculated Incentives sub-program for will be delivered consistently across IOUs using the same application materials and energy savings calculation to ensure consistency. Both retrofit and added load projects for commercial customers are eligible for incentives.

iii. Incentive Levels

Incentives will be ~~as follows:~~

- ~~Lighting, \$0.05/kWh and \$100/kW~~
- ~~Air Conditioning & Refrigeration I, \$0.15/kWh and \$100/kW~~
- ~~Air Conditioning & Refrigeration II, \$0.09/kWh and \$100/kW~~
- ~~Other, \$0.09/kWh and \$100/kW~~
- ~~Therms, at \$1.00/therm, s, Capped at 50% of project cost.~~

The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division and market direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Calculated Incentive sub-program.

iv. Marketing and outreach plans

The In 2013-2014, the IOUs will continue to target customers for calculated incentives based upon segmentation research and messaging. Large Commercial customers make up a significant portion of the audience for Calculated Incentives and these customers will not be targeted by the SW ME&O campaign. Due to the complexity of aligning Calculated Incentives with customer operations and highly individualized energy management needs, the sales cycle for these deeper retrofit measures tends to be longer and require significant one-to-one contact at the local level. Customer workshops and other account management support are all important parts local marketing and the consultative selling process for Commercial Calculated Incentives.

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The Commercial Calculated Incentives sub-program will be marketed through IOU Account Executives, as well as through third-party programs, trade allies, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and e-mail support will be provided.

The IOUs plan to monitor and optimize local marketing campaigns and when possible, will share best practices and coordinate efforts for statewide consistency.

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~~In 2010-2012, the IOUs will implement segmentation research and messaging. Marketing campaigns will provide a wide range of action-oriented solutions targeted to "personas" identified through segmentation research. In addition, marketing efforts will be "bundled". That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment, the IOUs will be better able to communicate with and serve customers.~~

~~Marketing efforts will incorporate a variety of marketing tactics/activities to promote the Calculated Incentives sub-program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.~~

~~The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described above.~~

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v. IOU program interactions

The Commercial Calculated Incentives ~~sub~~Sub-program managers will partner with the appropriate programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector's customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated

by or interested in more than one resource issue, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers ~~Calculated sub-program~~ Commercial Calculated Sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vi. Similar IOU and POU programs

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The IOUs will be delivering many third-party programs that utilize the Commercial Calculated Incentives infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program Delivery and Coordination

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The program will be coordinated with the following activities:

i. Emerging Technologies program

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The long-term EE vision of California can only be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the sub-program will consider higher initial incentives for technologies being newly introduced to the market place through the Emerging Technologies Program. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. ~~is poised to adopt the efficiency potential of new technologies through its programs.~~ In addition, portfolio staff actively works to incorporate promising emerging technologies from IOU or PIERCEC-funded projects.

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ii. Codes and Standards program

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The program relies on the Codes and Standards program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into codes and standards. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward

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“low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., solid state lighting LEDs) made available as these technologies transition from research and development to the mainstream.

iii. **WE&T**

WE&T is a portfolio of education and training programs that showcase energy efficient equipment found on the list of measures offered in the program. The education and training takes place through energy centers, technology test centers, and education and training program offerings. In addition to providing the education and training the classes also address how customers engage the energy efficiency program offerings relative to the class. An Energy Efficiency representative Ambassador will be present at appropriate all relative classes to provide detailed information on the application process to the relevant Energy Efficiency program.

Specific workforce development efforts supporting the Commercial Calculated Incentives sub-program which include training on topics, not limited to as follows:

- Audits – Training will be developed in an effort to promote a consistent approach and format to facility audits.
- Financing
- Soft skills and Business training (including customer service, sales, and marketing).
- Benchmarking
- Program-specific training – Training will be developed to promote increased familiarity with the program’s eligibility requirements, application, processes, etc).
- IDSMS

The IOUs will explore voluntary incentive-based approaches to encourage contractors and other industry professionals to complete the full bundle of Commercial – Calculated workforce development training. For professionals who complete the pre-requisite courses and pass a high-road skill standards test, such approaches may include (as applicable):

- Allowing marketing or advertising differentiation;
- An incentive bonus; and/or
- Providing preference to these professionals during bid evaluation process.

Commercial – Calculated workforce development training will be coordinated with the statewide IOU WE&T program. In addition to the trainings described above, SW IOU WE&T programs will continue to offer building-block courses that educate professionals on the concepts that form the foundation of Commercial calculated programs. Those concepts include:

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- [Green building techniques](#);
- [Codes and standards \(Title-24\)](#);
- [Lighting and HVAC technologies](#);
- [Energy cost management](#); and
- [Food service equipment](#).

[Contractor recruitment efforts will be conducted primarily by SW WE&T program implementers through:](#)

- [The network of contractors already participating in EE programs](#);
- [Direct outreach through industry organizations with locally active memberships \(e.g. IHACI, U.S.G.B.C., IFMA, AIA, BOMA, etc.\)](#);
- [Workforce development departments \(to target unemployed general contractors\); and](#)
- [Community Based Organizations with a proven track-record of effective outreach to the hard-to-reach workforce.](#)

iv. Program-specific marketing and outreach efforts

Market outreach to raise awareness of EE programs available will use a number of strategies, including:

- Account representatives will make a regular and consistent customer calling effort to key customers within this sector;
- Utility representatives, Energy Efficiency program management representatives, and field engineers will be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the Commercial Market Sector;
- Attendance at the key trade shows for each high priority sub-segment within the Commercial Market Sector;
- [Utility-sponsored training events at the IOUs Customer Training Centers and other convenient locations within the IOUs service territory](#);
- [Online content and integration of marketing materials and campaigns with online tools such as audits and other energy demand and usage assessments](#)
- Hosting of utility-sponsored Webinars that provide sub-segment training and program adoption; and
- Written collateral pieces that provide an overview of the IOUs Energy Efficiency programs will be linked into the appropriate IOU DSM web page.

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v. **Non-energy activities of program**

Integrated Energy Audits (described in the Commercial nonresidential Audit Customer Services Energy Advisor sub-program) is the primary vehicle to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies). ~~The results of the ongoing Water Efficiency Pilot Program will identify potential opportunities to reduce water use and the potential for associated Energy Efficiency savings. Since some customers within the program sectors are major water users, this sector is well positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Programs.~~

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vi. **Non-IOU Programs**

The Program will continue to engage with Air Quality Management Districts, CEC, ARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

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vii. **CEC work on PIER with EPIC**

As of June 2012, PIER no longer exists. However, The the Program program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects in coordination with the applied technology research of EPICCEC. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

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viii. **CEC work on codes and standards**

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services. See Section 6.b.ii.

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ix. **Non-utility market initiatives**

The ~~sub~~ program will support, educate customers, and ~~or enforce~~ facilitate such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, ISO 50001 California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

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c) **Best Practices**

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Such changes have been and will be targeting ease of program understanding and participation, measures eligibility, increase of customer ~~economic~~ economic benefits and policy restrictions that will be identified as barriers to

participation. IOUs are implementing such process based on market studies conducted on the subject and preceding discussion of the policy change. Among modifications that would be potentially discussed and implemented are incentive caps, redesign of measure/equipment early retirement according to the CPUC concept and other.

IOUs are planning to ~~consolidate~~ explore appropriate consolidation of various calculating software such as ~~CCT Calculator, SPC Software~~, Engage and other measure specific calculating tools to standardize our calculating methodology. This will ensure that calculations will be more uniformed and consistent amongst all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures. The IOUs also plan to continue exploration of emerging software tools that have the potential to enable significant advances in comprehensive energy efficiency at both the system and whole building levels.

IOUs are also planning to elaborate and utilize positive experience obtained using Savings By Design and Energy Design Resources tools and extend it to energy efficiency retrofit projects. Such tools substantially reduce application processing and review time, minimize number of hand-offs, not sacrificing accuracy of energy saving calculations.

Leveraging best practices from past program cycles, the Commercial Calculated Incentives sub-program information will also be made available through industry organizations such as The Building Owners and Managers Association (BOMA), and through advertising in industry and trade publications. Trade associations and vendor allies have historically delivered substantial energy savings through previous calculated program models.

d) Innovation

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Innovative aspects of the program are aiming major program performance indicators such as accuracy of energy saving calculation, higher realization rate, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrated energy management.

For the new program cycle California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During ~~2010-2012~~2013-2014 program cycle new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance.

An additional example of innovation is aimed at the strategic plan's transformational vision and goals around energy user behavior, market transformation and deeper energy savings. PG&E intends to provide upfront payments for installation of system-level controls (e.g. lighting, HVAC etc.) and/or energy management and information systems (EMIS). Customers receiving the payments would be enrolled in a statistically based pre- and post-measurement evaluation of data, using whole building measurement and verification protocols, from which savings will be determined and claimed.

Where possible, IOUs will use integrated approach to addressing DSM opportunities. Innovative aspects such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retro-commissioning and/or Calculated program, processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

The IOUs are planning to continue and ~~expand-enhance its their~~ core Retro-commissioning (RCx) program in multiple target markets. ~~Retro-commissioning RCx~~ is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments ~~to correct the system~~. Measures may involve resetting, repair or replacement of existing system controls and components, and in general are low-cost projects with simple payback periods of less than 4 years.

The RCx program is a key offering in the Calculated Sub-program. The audit components of the RCx program are also described in the non-residential audit section above. Enhanced RCx program elements will explore and may include but not be limited to:

- Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- Continuous commissioning and monitoring-based commissioning;
- Solutions for small and medium commercial customers;
- Strategies to drive savings persistence;
- Appropriate alignment with retrofit activities;
- Overall program incentives, targeting, and delivery.

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After energy audit is complete and applicable no-cost/low-cost measures are identified the scope of work will be handed-off to RCx implementer who, in-turn, will follow RCx program protocols, execute the scope of work (measure implementation, M&V plan, incentive payment for energy savings) and report final results to the core program office.

e) Integrated/coordinated Demand Side Management

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As the primary incentive vehicle that customers have for implementing efficiency projects, the Commercial Calculated Incentives sub-program is the logical choice for implementing greater demand side integration. Appropriate incentive mechanisms will be developed and implemented during the ~~2010-2012~~2013-2014 program cycle to reward customers who implement comprehensive DSM programs.

The first step on the path towards DSM integration ~~may be~~ is to introduce incentives for kW demand reduction, which as shown in Section 4.b ~~will be available immediately~~. This will provide additional incentives for demand reduction strategies such as lighting controls.

f) Integration Across Resource Types

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Integration across resource types (e.g., energy, water, and air quality) will be explored. Examples include working with Water Agencies to co-promote Food Service appliances that save water and energy and working with Air Quality Management Districts to co-promote Boilers and Water Heating measures that save energy and improve air quality.

g) Water/Energy Nexus Strategy

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SoCalGas supports improving the efficiency of water systems as one of the most critical strategies to capture water/energy nexus benefits in the energy efficiency programs. SoCalGasSCG plans to focus its efforts in areas that use gas engines as the energy source to deliver and treat water. For water agencies within SoCalGasSCG's territory, we plan to issue an RFP to utilize a contractor to implement leak-loss detection and remediation and pressure management services applicable to storage, pumping and distribution through SoCalGas'EG's core or 3rd Third Party Program. SoCalGasEG will explore new project ideas for the water/energy nexus, as well as the calculation of ancillary water benefits (e.g. "embedded" energy savings). SoCalGasEG will accelerate the expansion of cost-effective water-energy nexus programs by coordinating with the other utilities, water agencies, and municipalities to study the cost effectiveness and the embedded energy savings for water/energy efforts. Our intent is to continue to offer measures and services to the water sector through the "calculated" and audit programs. SCG will also explore for new direct energy measures that can be incented under the calculated program.

Additionally, we will increase our efforts to capture the water-energy nexus and sustainability in the agriculture, industrial, and commercial segments.

g) Commercial New Construction – Savings By Design

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As a single fuel utility, SoCalGas will work collaboratively in conjunction with the other IOUs to implement the SBD offerings statewide where SoCalGas jointly shares service territories. SoCalGas will not offer a standalone Whole Building Approach.

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The Savings By Design (SBD) component aims for significant energy efficiency improvements in the nonresidential new construction industry, and is designed to overcome customer and market barriers to designing and building high performance facilities. Since 1999, SBD has provided statewide consistency, program stability and savings. SBD seeks to protect and preserve natural resources by advancing the design and construction of sustainable communities and promoting green building practices. The program is designed to overcome customer and market barriers to designing and building high performance facilities.

California's Title 24 requirements set some of the most stringent energy regulations in the nation. Exceeding these standard energy performance levels requires a high degree of design expertise, technical knowledge, and motivation. The requirements also can be

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complex and sometimes confusing. Because many in the design field are unaware of the potential savings from energy efficient design or perceive budgetary constraints, they are reluctant to implement energy-efficiency strategies. As a result, energy efficiency is often a lost consideration, abandoned in favor of pursuing the “lower initial cost” option. SBD strives to avoid lost opportunities by assisting customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings.

Through an integrated design approach (a whole building approach that encourages performance significantly better than Title 24 code by offering a variety of financial incentives) as well as a systems approach for simpler facilities where integrated opportunities are limited, SBD encourages energy efficiency and green building practices in new commercial buildings. These financial incentives are supplemented by a variety of other support activities, including feasibility studies and pilot projects, training and education, conferences and workshops, scholarships, and program marketing activities. In the 2013-2014 portfolio period, SBD will advance a broader palette of technical and financial resources to aid the proactive design of new facilities in accordance with the most cost-effective energy and resource efficiency standards. SBD will incorporate several new approaches towards integrated design and green building certification in support of the Strategic Plan.

SBD provides the nonresidential new construction industry with a broad palette of technical and financial resources to aid the design of new facilities in the most cost-effective energy and resource efficiency standards.

The SBD program will continue to offer two existing program components to its customers with new construction or major remodel/renovation projects, and will add a simplified approach for smaller projects.

- Whole-Building Approach or WBA (Integrated Design) - existing
- Systems Approach - existing
- Simplified Approach - new

SBD will offer financial support for design teams to undertake an integrated design process. Additionally, sustainability incentives will be offered to building owners to perform building commissioning during design and construction, and monitor building performance through End Use Monitoring. These sustainability incentives are designed to encourage new buildings to be as well designed as possible, be built as well as they are designed, and be operated as well as they are built.

The program will continue to incorporate new approaches for 2013-2014 to advance integrated design and green building certification in support of the Strategic Plan.

Tools and Expertise: California’s Title 24 requirements establish some of the most stringent energy regulations in the nation. Exceeding these standard energy performance levels requires a higher level of design, technical assistance, and motivation. The requirements also can be very confusing. SBD provides the assistance, tools and expertise

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necessary to help customers and designers exceed compliance with the requirements and achieve long-term energy- and cost-savings.

Zero Net Energy Design Assistance: To date there are very few Zero Net Energy Buildings in California. According to study published by the New Buildings Institute¹, only twenty one buildings in the United States have a measured performance of zero energy. This information provides ample proof that ZNE buildings are extremely challenging to achieve and will continue to require substantial support from utility incentive programs. Savings By Design is best positioned to accomplish this task by encouraging higher levels of energy efficiency through higher levels of incentives. When successful, these buildings can be labeled as Zero Energy Capable Buildings (ZECB) that is one step from ZNE status. The missing component then is the self-generation component that is encouraged through other programs offered by the utilities. To get buildings to this ZEC state, Savings By Design will offer a soup to nuts whole building integrated design assistance, which would include analysis on natural ventilation, through energy efficiency, Computerized Fluid Dynamics, self-generation cost analyses, plug load analysis, building compliance analyses, and whole building energy modeling services.

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Long-Term Energy-Efficiency: It has been firmly established in SBD program evaluations that the integrated design process, when implemented correctly, can lead to highly cost-effective energy savings for most projects. Because many in the design field are unaware of the potential savings, do not understand the design process, or perceive budgetary constraints, they are reluctant to implement energy-efficiency strategies. As a result, energy efficiency is often a lost consideration, abandoned in favor of pursuing the “lower initial cost” option. SBD strives to avoid lost opportunities by assisting customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings.

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Comprehensive Integrated Building Design Training: In conjunction with the Workforce Education and Training program, Savings By Design will proactively offer integrated building design training to architects, engineers and other design professionals. Training might encompass highly technical building modeling techniques for use in the selection of cost effective energy efficient measures. In addition, SBD will offer “lunch and learn” sessions to architectural and engineering firms interested in learning about utility energy efficiency programs.

¹ Getting to Zero 2012 Status Update: A First Look at the Costs and Features of Zero Energy Commercial Buildings

List of Measures

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The Savings By Design Program aims to achieve the deep levels of market transformation described in California’s Strategic Plan, primarily by offering meaningful financial incentives directly to key participants in the building community. Incentives and/or assistance may be targeted to builders, designers, and energy analysts. Various organizations involved in developing green building and sustainability standards may also be actively supported.

In addition to providing the traditional sliding-scale incentives calibrated to energy savings exceeding standard energy performance code, SBD will offer a flat incentive for peak kW reduction and financial support for design teams to undertake an integrated design process. Additionally, sustainability incentives will be offered to building owners to perform building commissioning after construction, and/or establish and follow a building measurement and verification (M&V) plan after occupancy. These sustainability incentives are designed to encourage new buildings to be as well designed as possible, be built as well as they are designed, and be operated as well as they are built.

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Program Performance Metrics (PPMs)

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On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Savings by Design Sub-program of the New Construction Statewide Program

Table 3 – Program Performance Metrics

Sub-program: Savings By Design

<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
<u>1. Average site energy install, ex-ante (kBtu/sq ft-yr and demand (kW/sq ft) for participating commercial new construction by building type and climate zone</u>	<u>2b</u>
<u>2. Percentage of committed participating Whole Building Approach projects that are expected to reach a minimum of 40% less energy than 2008 T24 codes requirements</u>	<u>2b</u>

Market Transformation Information

Description of the non-residential new construction market

Non-residential new construction is one of the BBEES programmatic initiatives to accelerate market transformation toward greater adoption of energy efficiency. Successful market transformation efforts in the commercial building market must occur at multiple levels across the design and construction supply chain and through building owners and building occupants. This transformation must establish the relevance of energy efficiency among market actors and institutionalize the high efficient building practices².

According to a 2001 study on energy efficiency in new construction³, the non-residential building industry is a series of linked industries arrayed along a value chain. The study identified the following six major industry groups involved in this highly diverse market—providers of capital, developers, design delivery firms, community/political/regulatory interests, real estate service providers, and users. The market structure reflected in this study remains relevant for today’s non-residential new-construction market. An emerging group in this market structure is the design build firm. The design build firm offers a complete design and construction package to the entity pursuing a new project. The building development process brings these groups together to deliver a building product that meets capital, land, and user requirements. Developers orchestrate the development process and bring together the disparate groups during the various phases of the project build. Community, political, and regulatory interests shape what can be built through zoning, codes, review and other public processes. Real estate service providers offer marketing, sales, produced by architects, engineers, and contractors in the design and delivery group. The leasing, investment, management, and operations services represent the interests of many market actors. Building users are the firms and organizations that occupy the buildings on lease or owner-occupied bases.

The complex and interrelated linkages of the market participants need to be studied further as recommended by a recent SCE Savings By Design Market Characterization Study⁴ (“CADMUS Study”). The utilities are interested in engaging in such work during this and subsequent program cycles. The utilities also draw upon available information, past Savings By Design evaluation studies, and the long experience of the program managers and staff to articulate the market transformation process for the non-residential new construction market.

Finally, the new construction market value chain is slowly showing signs of interest in Zero Net Energy. As indicated earlier in the SBD PIP, New Buildings Institute (NBI) has found very few buildings in the nation that can be labeled as Zero Net Energy. NBI also

² http://eec.ucdavis.edu/ACEEE/2002/pdfs/panel04/15_239.pdf

³ Market Structure and Energy Efficiency: The Case of New Commercial Buildings by Loren Lutzenhiser and Nicole Woolsey Biggart July 2001

⁴ Commercial Building Market Characterization for Savings by Design Program Final Report June 20, 2011 Study ID: SCE0312.01

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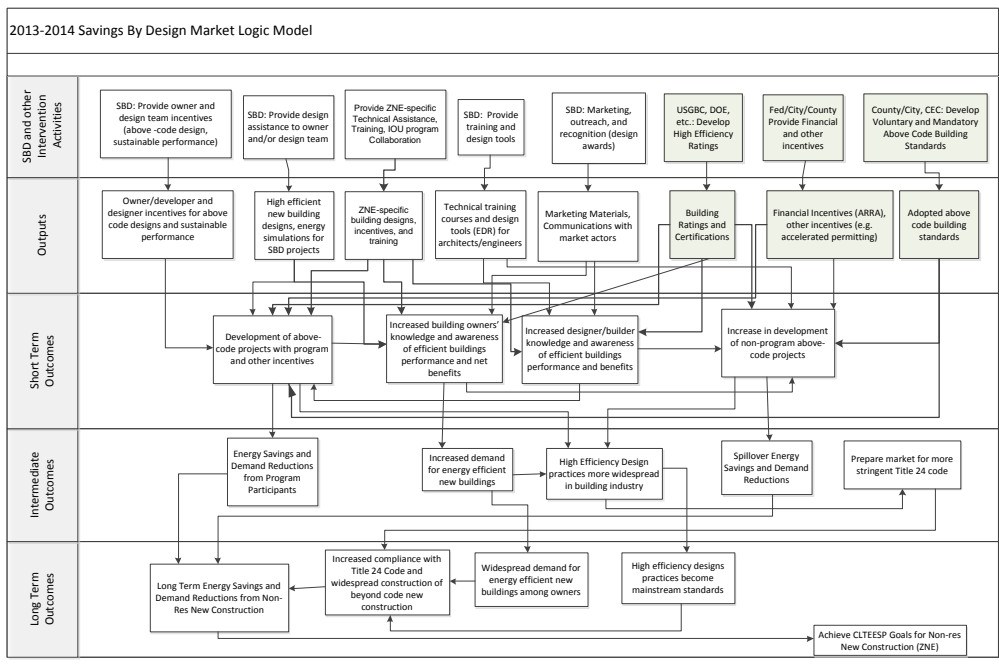
found that a slightly larger number, although also very few as compared to existing building stock, can be labeled as ZNE capable (ZECB) buildings. From this perspective, Savings By Design will face ever increasing needs for expert consultations in unique ZNE projects, like Computerized Fluid Dynamics that analyzes a design for its effectiveness in a natural ventilation scenario. The emergence of ZNE in the commercial space will undoubtedly spawn new challenges and barriers in the new construction market.

Program Logic model

Developing a program logic description can assure that everyone concerned with the program has a clear understanding of what the program seeks to achieve. Included below is the program logic that addresses specific program interventions related to market barriers, while acknowledging that multiple interactions in the market of various entities and market actors makes the non-residential new construction market quite complex. The full market depiction for the purpose of understanding the market transformation of this market will need to be developed with the input from the market stakeholders, CPUC, and other entities.

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Evaluation plans, market transformation indicators and PPMs

Due to the need to comply with the Decision's timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects

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statewide evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section “18.1. Evaluation Budget” in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation: Market Effects. The market transformation program’s theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program’s scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program “spillover” and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program’s direct outputs.

Market Transformation Indicators (MTIs)

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in “Attachment H” are approved for this sub-program as applicable.

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Prah (MT Workshop, Nov 2011) suggest that declaring the program’s strategic intent through the market transformation initiative’s theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a “preponderance of evidence” approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a “Shared Mission” of meeting the CPUC’s very aggressive Strategic Plan goals. We

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do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

The building industry in California continues to be pinned down in one of the worst slumps in decades. In a buyer's market, builders are looking to differentiate themselves from competition. This presents a great opportunity for Savings By Design to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state's and utilities' goals for the reduction of greenhouse gas emissions and utility source demand.

Other SBD best practices include the following:

Systems Approach

The systems approach is a performance-based method utilizing energy analysis tools for energy modeling to analyze efficiency choices. This approach is used for projects that do not present sufficient opportunities to warrant the labor intensive assistance services offered through the WBA. The systems approach is designed to make it easy for designers to look at the interaction of systems within their project, rather than individual equipment or fixtures. The systems approach is used for simple facilities where integrated opportunities are limited, as well as projects where program intervention may come in too late in the design phase to effect sweeping programmatic changes to the design.

For 2013-2014, SBD will continue to offer the same incentives by measure end-use as the non-residential calculated retrofit program (known in 2006-2008 as Standard Performance Contract, or SPC).

Traditional Incentives

For 2013-2014, the statewide owner's incentives for electrical energy savings offered by the WBA will start at \$0.10 per kWh at 10 percent better than Title 24 code and increase in a straight line to \$0.30 per kWh at 30 percent better than code. For projects that exceed 30 percent better than code, the electric incentive will be \$0.30 per kWh saved. The incentives will be capped at 75% of incremental cost or \$150,000, whichever is lower. For a limited number of projects, Utilities may decide to pay larger incentives if the projects are deemed worthy to receive the larger incentive.

If SBD provides design assistance services to a project that achieves high performance without incurring incremental equipment cost (due to the intrinsic benefits of the integrated design process), an owner incentive will not be awarded due to the incremental cost cap. In these cases, SBD will still claim the resulting energy and demand savings.

h) Local Element (Negotiated Incentive Option)

SoCalGas will provide a local component which will include incentives for energy-efficient retrofits, systems new construction, or replacements of existing equipment at

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SoCalGas customer sites. Participants may be either customers or energy-efficiency service providers (EESP's) acting as project sponsors for activities at customer sites. To qualify, a project must save a minimum of 1,000,000 therms per year. Associated energy, resource such as water, sewerage and emissions, and Greenhouse gas (GHG) emissions savings will be considered when evaluating a project for funding. A project may consist of a single project at a single site, or may be aggregated from multiple projects belonging to a single customer, and may include a variety of measures.

This local element is designed to serve the largest non-residential customers within the SoCalGas service territory. Non-residential customers in this group are comprised of but not limited to the following industry sub-segments: Government/Utilities, Manufacturing/Processing Industries and Institutional. Each sub-segment has distinct energy use patterns, differences in equipment and facility design, and various management structures and decision-making processes. Because each industry sub-segment is unique, this option LNRP will use a customized, customer-focused approach. Participating customers, taking into account their individual energy and resource conservation opportunities as well as internal hurdle rates, will propose or "bid" to SoCalGas the incentive level needed to enable large EE and Resource savings projects. This ensures that LNRP this option will be adaptable to the unique needs of each market segment.

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The program is designed to be flexible and cost effective: The project sponsor proposes a project and desired incentives. Incentives may cover up to +950% of the incremental project costs less any additional funding received from other sources. Measurement and verification (M&V) is required for all projects. As a performance-based incentive program, the approved M&V report will ultimately determine the energy savings for each project. The total sum of incentives paid for a project may not exceed the amount "bid" by the customer and agreed to by SoCalGas.

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i) **Pilots**

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ii) **EM&V**

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many cases, after the program implementation has begun, since the plans need to be based on identified program design and implementation issues. The utilities plan to work together and with

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~~the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.~~

~~Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions.~~ However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

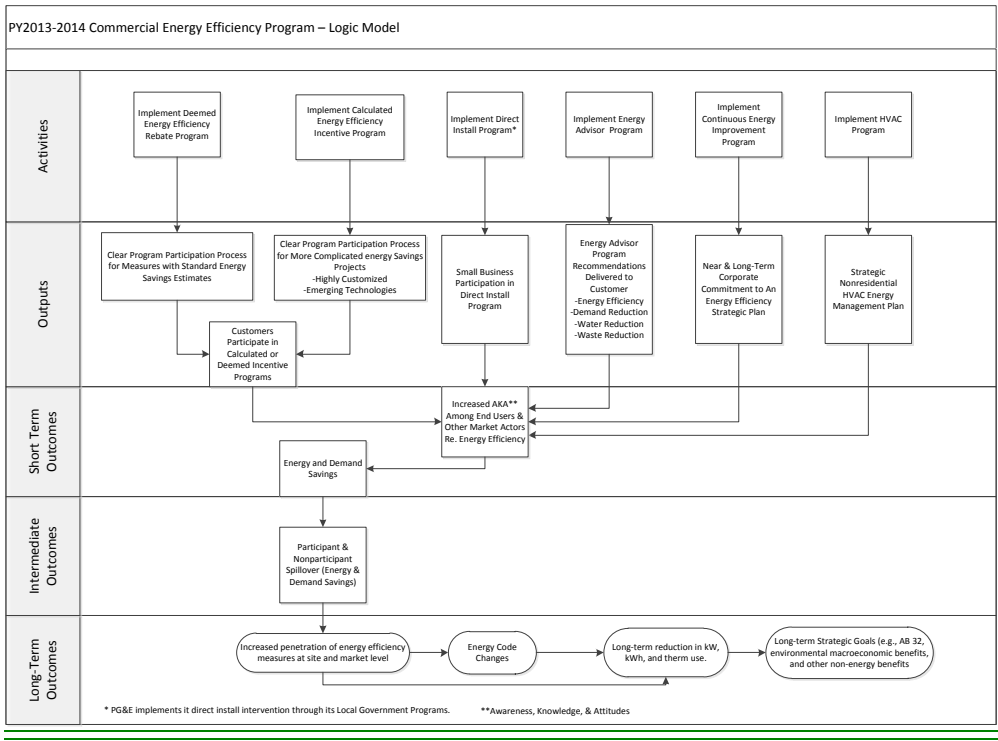
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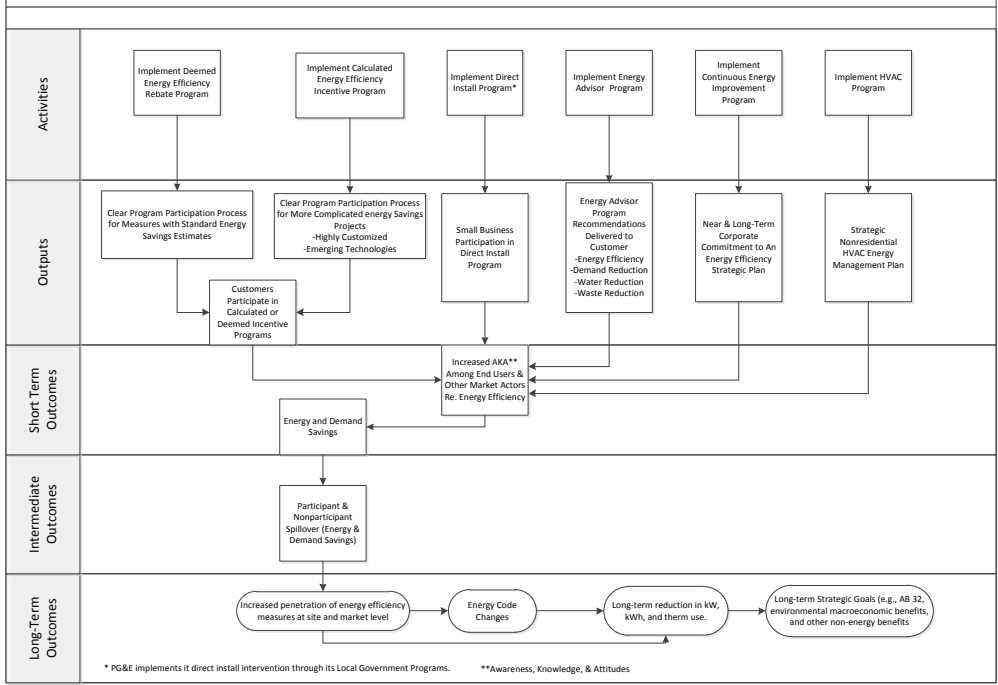
7. Diagram of Program

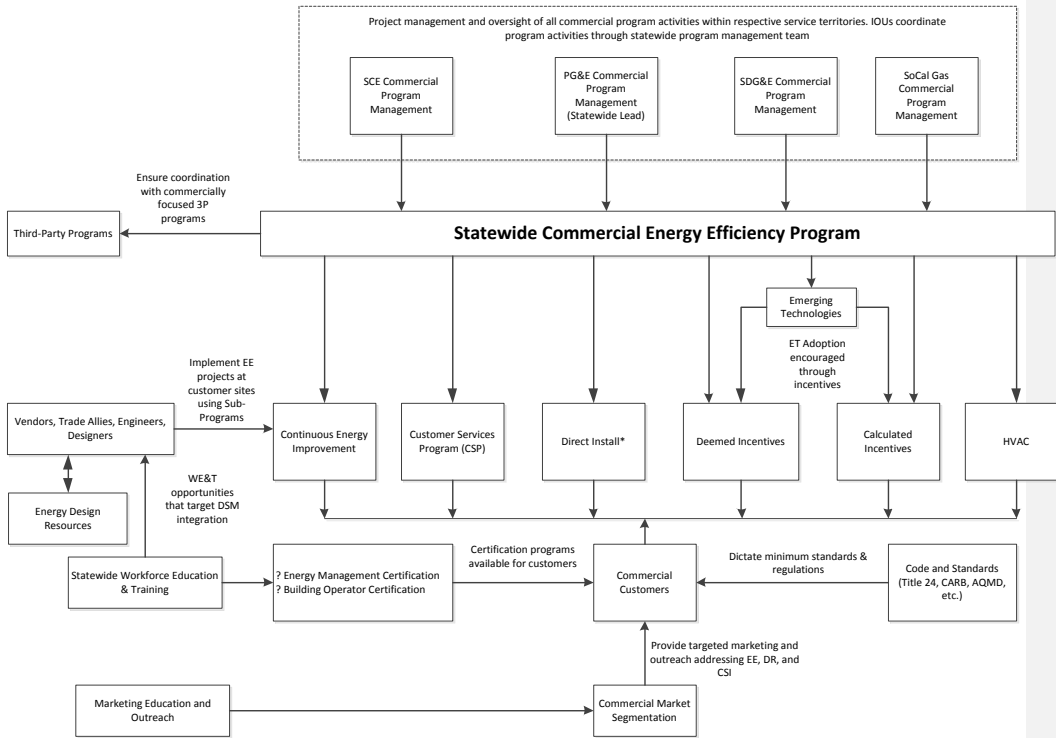
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PY2013-2014 Commercial Energy Efficiency Program – Logic Model





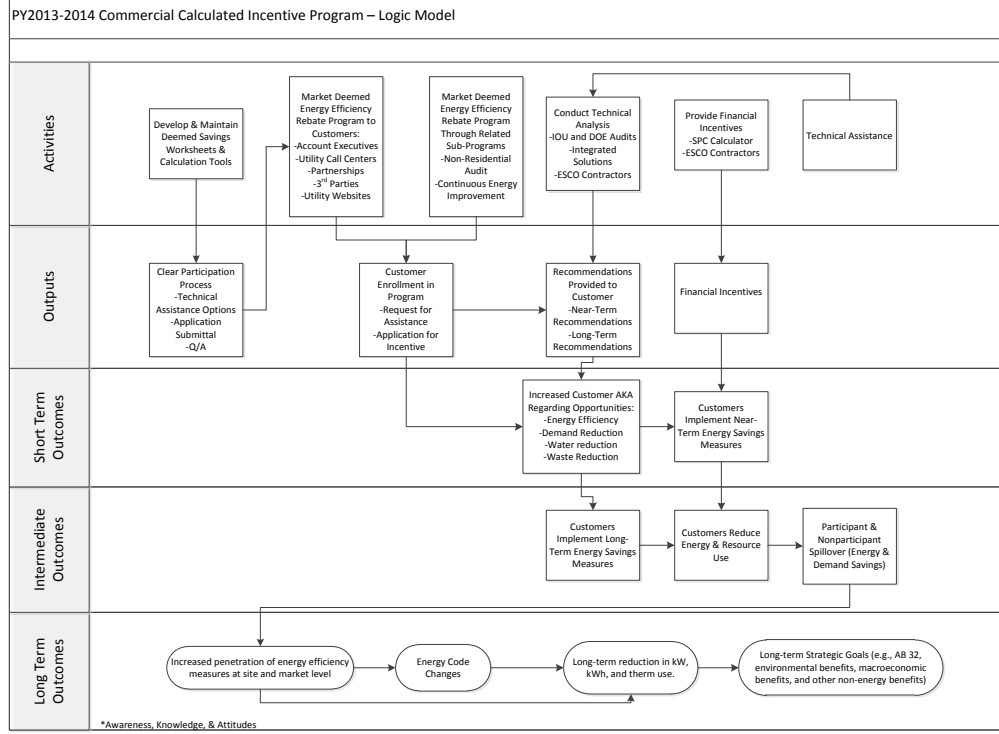
*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs

8.) Program Logic Model

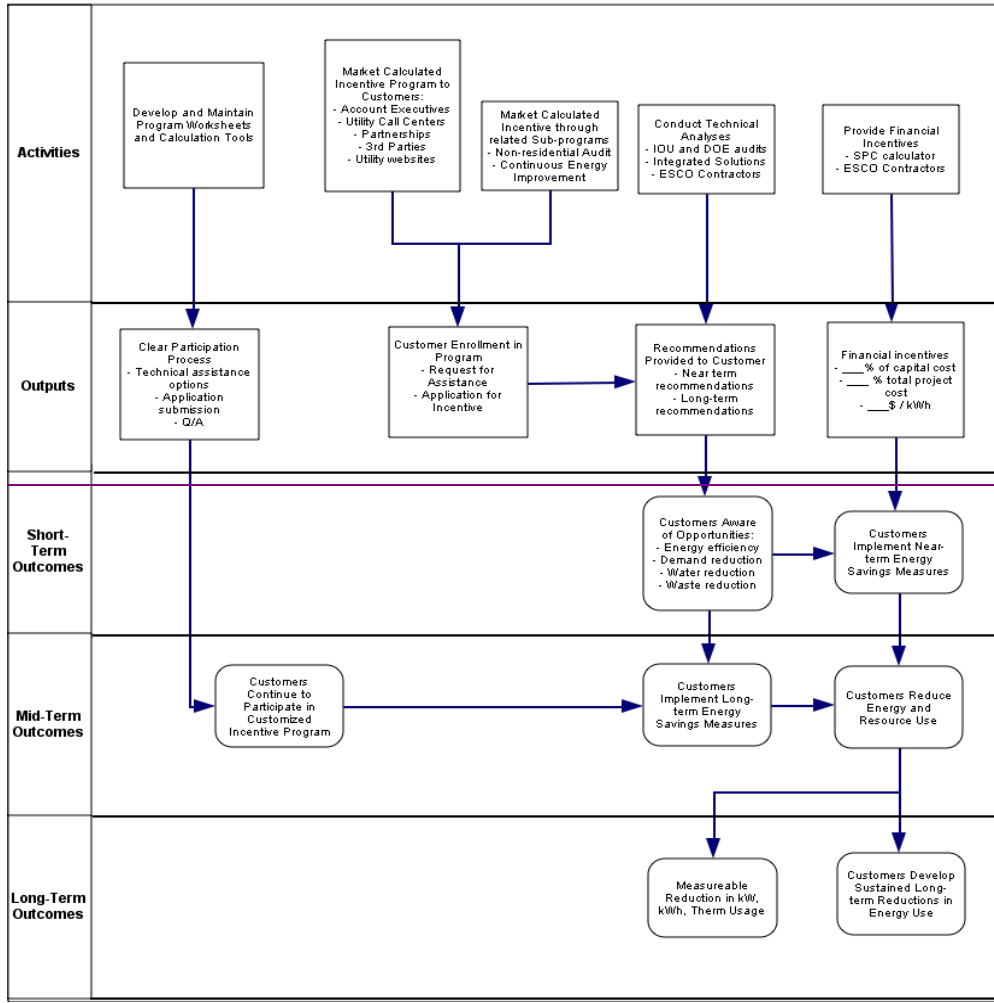
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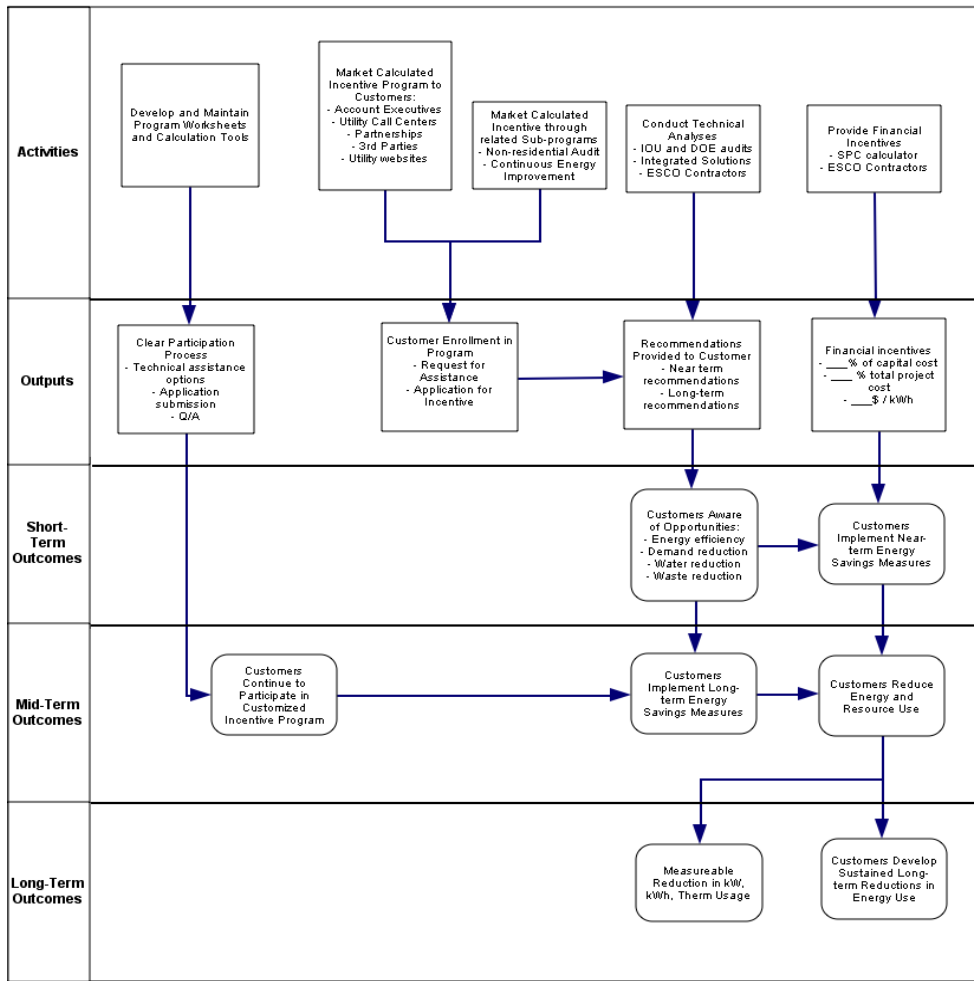


Calculated Incentive Program



Field CodeChanged

Calculated Incentive Program



Commercial New Construction – Savings By Design

4) Program Description

Describe Program

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The Savings By Design (SBD) sub-program aims for significant energy efficiency improvements in the nonresidential new construction industry, and is designed to overcome customer and market barriers to designing and building high performance facilities. Since 1999, SBD has provided statewide consistency, program stability and savings. SBD seeks to protect and preserve natural resources by advancing the design and construction of sustainable communities and promoting green building practices. The program is designed to overcome customer and market barriers to designing and building high performance facilities.

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e) List of Non-Incentive Customer Services Energy Advisor

The Saving By Design Program will be active in a number of non-incentive areas as well. Several non-incentive customer service energy advisor components are incorporated in the sub-programs, including the following:

- Technical support to energy analysts and design teams
- Economic modeling/measure selection support to builders and construction managers
- DSM coordination (PV, DR, AML, ET) for builders to maximize demand-side reductions

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- Feasibility studies and pilot program components as needed to develop new approaches to more effectively engage new and targeted non-residential market segments
- Training and resource enhancements (WE&T and Statewide Websites)
- Conferences and workshops to develop tools and concepts that will help the program expand its educational efforts
- Educational institution collaboration; sustainability lectures to students

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Market Transformation (MT) metrics should neither be used for short-term analyses nor for specific program analyses. Rather, should focus on broad market segments.

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”²⁵ The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies²⁶.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures²⁷. Markets are social institutions²⁸, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing

behavior, attitudes, and market supply chains²⁹ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress³⁰. According to York³¹, “Market transformation is not

²⁵ California Public Utilities Commission Decision, D.98-01-063, Appendix A.

²⁶ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

²⁷ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

²⁸ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee2001/Panel_2/p2_7/Paper/

²⁹ Sebald, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly-Funded Energy Efficiency*, p. 6-4. Available at www.calmae.org.

³⁰ Gibbs, M., and Townsend, J. (2000). *The Role of Rebates in Market Transformation*.

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likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.²²

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate—particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation²³. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory²⁴, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades²⁴. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects²⁵. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many

Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

²⁴ York, D. (1999). "A Discussion and Critique of Market Transformation". Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

²² Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy Efficient Economy. Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

²³ Rogers (1995) *Diffusion of Innovations*, 5th Ed.

²⁴ Example in bottom chart of this graphic from NYTimes:

http://www.nytimes.com/imagepages/2008/02/10/opinion/10op_graphic_ready.html

²⁵ Sebald et al (2001) p. 6-5.

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~~lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. “The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)”³⁶ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts³⁷, but also reflects the CPUC’s directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.~~

~~Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions³⁸. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin’s guide for MT program developers³⁹ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.~~

Program Performance Metrics (PPMs)

~~On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric~~

~~Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.~~

³⁶ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

³⁷ CPUC (2008) Strategic Plan, p. 5.

³⁸ Nadel, Thorne, Sachse, Prindle & Elliot (2003).

³⁹ Palozo & York (1999).

Below are the approved PPMs and metric types for the Savings by Design Sub-program of the New Construction Statewide Program

Table 3— Program Performance Metrics

Sub-program: Savings By Design

<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
<u>1. Average site energy install, ex-ante (kBtu/sq ft-yr and demand (kW/sq ft) for participating commercial new construction by building type and climate zone</u>	<u>2b</u>
<u>2. Percentage of committed participating Whole Building Approach projects that are expected to reach a minimum of 40% less energy than 2008 T24 codes requirements</u>	<u>2b</u>

b) Market Transformation Information

Description of the non-residential new construction market

Non-residential new construction is one of the BBEES programmatic initiatives to accelerate market transformation toward greater adoption of energy efficiency. Successful market transformation efforts in the commercial building market must occur at multiple levels across the design and construction supply chain and through building owners and building occupants. This transformation must establish the relevance of energy efficiency among market actors and institutionalize the high efficient building practices⁴⁰.

According to a 2001 study on energy efficiency in new construction⁴¹, the non-residential building industry is a series of linked industries arrayed along a value chain. The study identified the following six major industry groups involved in this highly diverse market—providers of capital, developers, design-delivery firms, community/political/regulatory interests, real estate service providers, and users. The market structure reflected in this study remains relevant for today’s non-residential new construction market. An emerging

⁴⁰ http://eec.ucdavis.edu/ACEEB/2002/pdfs/panel04/15_239.pdf

⁴¹ [Market Structure and Energy Efficiency: The Case of New Commercial Buildings by Loren Lutzenhiser and Nicole Woolsey Biggart July 2001](#)

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group in this market structure is the design build firm. The design build firm offers a complete design and construction package to the entity pursuing a new project. The building development process brings these groups together to deliver a building product that meets capital, land, and user requirements. Developers orchestrate the development process and bring together the disparate groups during the various phases of the project build. Community, political, and regulatory interests shape what can be built through zoning, codes, review and other public processes. Real estate service providers offer marketing, sales, produced by architects, engineers, and contractors in the design and delivery group. The leasing, investment, management, and operations services represent the interests of many market actors. Building users are the firms and organizations that occupy the buildings on lease or owner-occupied bases.

The complex and interrelated linkages of the market participants need to be studied further as recommended by a recent SCE Savings By Design Market Characterization Study⁴² (“CADMUS Study”). The utilities are interested in engaging in such work during this and subsequent program cycles. The utilities also draw upon available information, past Savings By Design evaluation studies, and the long experience of the program managers and staff to articulate the market transformation process for the non-residential new construction market.

Finally, the new construction market value chain is slowly showing signs of interest in Zero Net Energy. As indicated earlier in the SBD PIP, New Buildings Institute (NBI) has found very few buildings in the nation that can be labeled as Zero Net Energy. NBI also found that a slightly larger number, although also very few as compared to existing building stock, can be labeled as ZNE-capable (ZECB) buildings. From this perspective, Savings By Design will face ever increasing needs for expert consultations in unique ZNE projects, like Computerized Fluid Dynamics that analyzes a design for its effectiveness in a natural ventilation scenario. The emergence of ZNE in the commercial space will undoubtedly spawn new challenges and barriers in the new construction market.

Market characterization, key barriers and DSM opportunities

Through collaboration with a wide array of market actors and provision of technical support, training, and financial incentives, SBD is positioned to help reduce many of the

most prevalent barriers to building greater levels of high efficiency nonresidential new construction. Although the 2011 Cadmus study referenced in this Market Transformation section was conducted for the Southern California Edison service territory, it is assumed that some of the broader determinations are likely to be common to all IOU service territories. Some key market barriers identified in the 2011 Cadmus study for SCE include the following:

Lack of information among new building owners and designers/builders of beyond code energy efficiency benefits and opportunities to achieve such benefits

Lack of financing options for high efficiency buildings

⁴² Commercial Building Market Characterization for Savings by Design Program Final Report June 20, 2011 Study ID: SCE0312.01

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- Uncertainty in projected performance of efficient buildings
- Split Incentives

The Cadmus study also identifies other obstacles to energy efficiency in nonresidential buildings that include the following:

- Upfront costs, including energy modeling costs and green certification costs
- Capital constraints
- Lack of sub metering in multiple tenant buildings
- Added difficulty getting plans through review process

The findings below from the Cadmus study allude to factors that may drive increased DSM opportunities in the nonresidential new-building market:

— Increasing desire among owners to reduce building utility costs as a component of operating costs, particularly in the current market with higher vacancy rates

— Building energy codes such as CALGreen and rating systems such as Energy Star and LEED are significant motivators for building owners that want to market the buildings as promoting “sustainability”

— Benefit-cost analyses based on energy modeling and economic analysis is often effective in convincing the new building owner of the long-term benefits of energy efficiency

— Increasingly building owners and tenants are driven by company core values or views of social responsibility to reduce energy usage and greenhouse gas emissions

— Market actors that are developing buildings for their own occupancy or to lease are more likely to invest in highly efficient building.

Finally, Zero Net Energy projects perhaps present the best opportunity for DSM, because energy efficiency can be driven into all aspects of a building, i.e. lighting, plug loads, HVAC and envelope. While this may be true, there can also be significant challenges, both technological and financial, to encouraging the building community to develop these projects. Some barriers include:

- Lack of comprehensive software tools to enable design
- Lack of expertise in the architectural and engineering community to offer these services to owners and developers
- Significant first costs for energy efficiency and for renewable generation
- A desire on the owners’ or organizations’ part to pursue a ZNE facility
- Overcoming the technological challenges to design and build multi-story ZNE facilities

Proposed SBD interventions to address market barriers and intended results

While most of the proposed market support mechanisms are well-known SBD approaches, the intent of the SBD market interventions are to redirect its efforts on multiple levels to

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engage market actors and integrate energy efficiency into the mechanisms the building market is already using. The market-based approach for the program is to focus specifically on targeted sectors in the building industry to understand the sector's business processes, motivations, and barriers and to develop specific strategies to motivate the interest and investment in energy efficiency.

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Southern California Edison's 2011 CADMUS Study analysis of 2004-2008 building construction data on square footage of new floor space completions indicates that the SBD has enrolled between 19% and 28% of the new floor space added each year. The program's penetration in the market exceeded 20% for six categories of buildings over the period 2006 through 2008.

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Currently, Pacific Gas and Electric is pursuing a market characterization study and its information will added to this MT section if available by the next PIP update. The program will address the following market barriers:

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a) Lack of Information in the building owner community and building industry to pursue EE design and construction practices

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The SBD program is well positioned to inform architects, energy analysts, and builders about the benefits of incorporating energy efficiency early into the design process for new buildings. Through design assistance services and training opportunities, the program will work with market actors in the building industry to adopt Integrated Building Design practices and increase the technical knowledge base for energy efficient design across the industry. In addition to the design assistance, SBD provides incentives to building owners and designers to buy down some of the costs of pursuing above code designs and to encourage further use of the efficient design practices.

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Lack of information about the energy efficiency benefits also prevails in the renovations and retrofits building market. The building facility manager and building engineer typically pushes for energy efficiency and have a big influence on the owner's decision; however, these market actors are hard to reach for participation in energy efficiency programs. It is much more difficult to get in at the design phase of these projects which, combined with cost, makes it harder to influence owners to install non-lighting measures. The challenge is finding ways to inform such potential participants early enough about the Program, learn about future projects, and find points of entry. Again, the utilities' SBD staffs will aim to reach these and other hard to reach areas and continue to take steps in 2013-14 to engage in projects earlier.

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Another hard to reach segment is the building owners, the majority of whom do not understand the full extent of potential savings, program opportunities, and cost savings that can be achieved. Energy modeling is often what is needed to convince owners to make efficiency changes by educating the owner on the long-term financial benefits and the upfront cost effectiveness after making adjustments for rebates, and showing how energy efficiency affects the bottom line. A collaborative approach is needed between the owner, contractor, and architect early in the design process. The program's outreach efforts can inform these players on the benefits of energy efficiency improvements through focusing on

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the utility bill savings produced by such improvements and the resulting competitive advantage of energy efficient buildings in the market as the businesses continue to look for ways to trim costs.

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b) Uncertainty in projected savings

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This barrier is related to lack of information in terms of savings that result from the energy efficient new construction buildings. Through the Design Assistance Services, SBD provides or assists in developing building performance simulations that are capable of estimating lifecycle energy savings benefits of efficient building design. The 2011 Cadmus Study showed that such analysis was beneficial in the early decision making for a new efficient building. This performance uncertainty barrier is also being addressed by the California Energy Commission (CEC) and DOE that has collaborated with other out-of-state research entities to develop and market innovative performance testing and diagnostic tools and training for commissioning agents and building owners. Additionally, rating systems such as LEED and Energy Star work to address this market barrier by setting guidelines that send signals to the market about expected building performance for efficient buildings.

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e) Split Incentive

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Energy efficiency is often not a priority in buildings built to lease either because of the split incentive between owner and occupant and the situation depends on who pays the utility bills. Leased buildings present barriers to energy efficient operations and efficiency upgrades and the reason for this lies in the lease structure and issues related to sub-metering. If the tenants split the utility bill or if spaces are sub-metered and paid for by the occupant, the owner will be less inclined to consider efficient performance of the building in early project decision making because much of the operations cost is borne by the tenant.

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In the 2013-2014 transition cycle, IOUs will be engaging in pilot activities within the SBD framework that seeks to uncover innovative ways of addressing the barrier. The "Office of the Future" pilot activities will work with building owners and tenants to identify areas where outreach, training, and incentives — both financial and non-financial — will be offered for motivate investments in reducing the portions of the energy usage paid for by occupants. In an important step, SBD has moved to increase the incentives offered for those projects that include an M&V component in their projects that would entail monitoring end uses.

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Program Logic model

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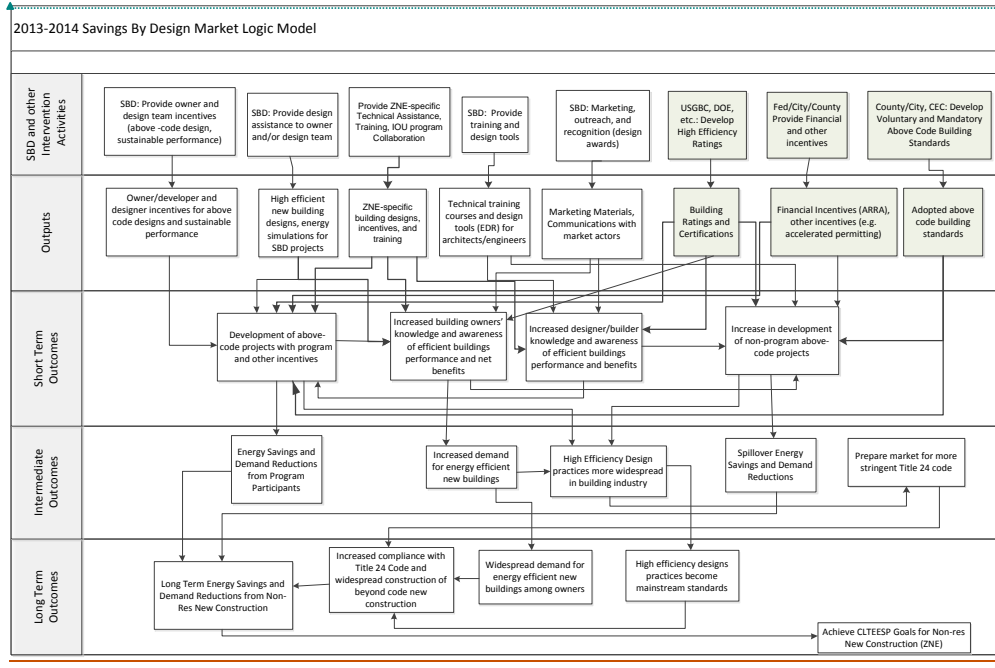
Developing a program logic description can assure that everyone concerned with the program has a clear understanding of what the program seeks to achieve. Included below is the program logic that addresses specific program interventions related to market barriers, while acknowledging that multiple interactions in the market of various entities

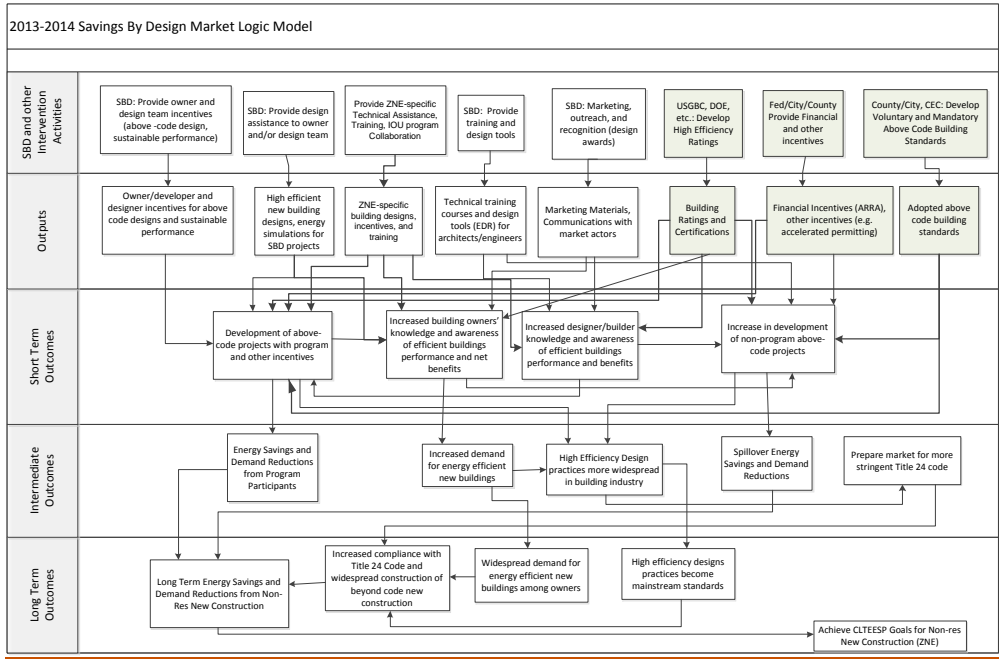
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and market actors makes the non-residential new construction market quite complex. The full market depiction for the purpose of understanding the market transformation of this market will need to be developed with the input from the market stakeholders, CPUC, and other entities.

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Evaluation plans, market transformation indicators and PPMs

Due to the need to comply with the Decision's timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects statewide evaluation plan be developed during the formulation

of the Joint EM&V Plan as described in section "18.1. Evaluation Budget" in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation: Market Effects. The market transformation program's theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program's scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program "spillover" and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

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The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program's direct outputs.

<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
<u>1. Average site energy install, ex ante (kBtu/sq ft yr and demand (kW/sq ft) for participating commercial new construction by building type and climate zone</u>	<u>2b</u>
<u>2. Percentage of committed participating Whole Building Approach projects that are expected to reach a minimum of 40% less energy than 2008 T24 codes requirements</u>	<u>2b</u>

Market Transformation Indicators (MTIs)

Market transformation indicator results shall be reported, as available, by Energy Division or the IOUs, depending upon who conducts the necessary market studies. (Res. 4385, 12/2/10)

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Prah (MT Workshop, Nov 2011) suggest that declaring the program's strategic intent through the market

transformation initiative's theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a "preponderance of evidence" approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a "Shared Mission" of meeting the CPUC's very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

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c) Program Design to Overcome Barriers

The Savings By Design program will address the following barriers, some of which are common across the different market segments:

- Building Code Changes: Effective January 1, 2010, California's Title 24 standards have been revised and updated. Financing: Financing of energy efficiency upgrades continues to be a barrier in achieving full savings potential. This is critically important for the small and medium size builders who have limited access to capital financing. To this end, SBD will begin to explore ways to leverage the EE Statewide Financing Program established in the 2013-2014 Transition Period.
- Small Project Market Penetration: SBD has historically achieved very high penetration rates with mid-sized and especially large new construction projects. However, barriers continue to exist to deeply penetrating the small project market due to extensive level of design assistance required in SBD projects. To help overcome this, SBD will expand the use of a web-based simplified system for projects that meet the above criteria.
- Program Presentation: Gaining a full understanding of program offerings can be difficult for some customers, especially in the case of nonresidential building participants. Collaboration with demand response and distributed generation programs, as appropriate, to combine program offerings into a customer friendly and easy to navigate suite of materials is essential for effective communication of integrated offerings.

The building industry in California continues to be pinned down in one of the worst slumps in decades. In a buyer's market, builders are looking to differentiate themselves from competition. This presents a great opportunity for Savings By Design to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state's and utilities' goals for the reduction of greenhouse gas emissions and utility source demand.

d) Quantitative Program Targets

SBD aims to achieve the following broad program targets:

Table 5

<u>Savings By Design</u>	<u>2013 Target</u>	<u>2014 Target</u>
<u>Increase # of Participants in SBD Sub Program[#]</u>	<u>10%</u>	<u>12%</u>

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<u>Integrated Whole Building Training to Architects and Engineers</u>	<u>2</u>	<u>2</u>
<u>Increase Partnerships with Industry Groups</u>	<u>2</u>	<u>2</u>
<u>Increase # of Design Team Participants[#]</u>	<u>10%</u>	<u>12%</u>
<u>Increase Whole Building Design Approach[#]</u>	<u>10%</u>	<u>15%</u>
<u>SBD Sub Program — Incentives Delivered</u>		

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e) Advancing Strategic Plan goals and objectives

The SBD Program is designed to enable the achievement of several goals and strategies identified in the Strategic Plan. Additionally, the SBD Program will facilitate implementation of the mandates of AB32 (California Global Warming Solutions Act) for carbon reduction, as well as the State of California's Green Building Initiative. The State of California's Green Building Initiative⁴³ requires that state agencies, departments, and other entities under the direct executive authority of the Governor, cooperate in taking measures to reduce grid-based energy purchases for state-owned buildings by 20 percent by 2015, through cost effective efficiency measures and distributed generation technologies.

Commercial building owners are also encouraged to take aggressive action to reduce electricity usage by retrofitting, building, and operating the most energy and resource efficient buildings by taking measures described in the Green Building Action Plan.

SBD supports the voluntary portions of this legislation through improved new construction in the commercial sector as well as the mandates in the government sector.

The California Global Warming Solutions Act of 2006 (AB 32) created a state-mandated program to reduce greenhouse gas (GHG) emissions in California to 1990 levels by 2020, specifically including emissions of GHG from the generation of electricity delivered and consumed in the state.

SBD supports efforts to enhance the public's understanding of AB 32 by relating the carbon reduction effects of energy efficiency programs to program participants.

The Strategic Plan spells out a variety of strategies to address energy reduction in California for homes, offices, factories, and farms. SBD advances CLTEESP's comprehensive energy efficiency goals with:

- Integrated design approach
- Support of commissioning and End Use Monitoring
- Support training activities

With respect to commercial new buildings, the Strategic Plan calls for laying out a path to zero net energy by 2030; it envisions a dramatic growth of innovative technologies, and enhanced building design and operating practices through a combination of whole building programs, technology development, market pull, professional education, targeted financing and incentives, and codes and standards. Specifically, the Strategic Plan lays out the following goal for Commercial New Construction.

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⁴³ Per Executive order S-20-04, dated December 14, 2004, http://www.energy.ca.gov/greenbuilding/documents/executive_order_s-20-04.html

~~Goal #1: Commercial new construction will increasingly embrace zero-net energy performance (including clean, on-site distributed generation), reaching 100% penetration of new starts in 2030.~~

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~~SBD utilizes a holistic integrated design approach that reduces market barriers and results in high performance buildings. Examples of this integrated design include:~~

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- ~~— Architect and engineer training;~~
- ~~— Energy Design Resources;~~
- ~~— Case studies;~~
- ~~— Energy efficiency integration awards;~~
- ~~— Design team incentives;~~
- ~~— Commissioning and End Use Monitoring Kickers~~

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~~Further, the elements of SBD are designed to advance the Strategic Plan's comprehensive energy efficiency goals. By offering a set of tools and expertise, as well as financial incentives (traditional sliding scale incentives tied to building design performance, peak reduction incentives that encourage load reduction, Design Team Incentives that ensure intervention at early design phases) that support long-term energy efficiency improvements, as well as training and education to the design professionals and architects, SBD plans to accelerate commercial building design practices towards ZNE by offering increased incentives and design assistance for innovative buildings and through case studies to showcase ZNE projects. SBD will partner with green-focused organizations and local governments to advance the ZNE concept. The IOUs will leverage the IOU partnership programs to meet with, inform and advise local governments and other key entities of activities and opportunities to participate in ZNE pilots, as well as lessons learned. These strategies and the IOU action plans are further elaborated in the SBD PIP for Savings By Design), as well as in the Statewide Commercial PIP~~

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~~The State of California's Green Building Initiative⁴⁴ requires that state agencies, departments, and other entities under the direct executive authority of the Governor cooperate in taking measures to reduce grid-based energy purchases for state-owned buildings by 20 percent by 2015, through cost-effective efficiency measures and distributed generation technologies. Commercial building owners are also encouraged to take aggressive action to reduce electricity usage by retrofitting, building, and operating the most energy- and resource-efficient buildings by taking measures described in the Green Building Action Plan. SBD supports the voluntary portions of the Green Building Initiative through improved new construction in the commercial sector as well as the mandates in the government sector.~~

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~~6) Program Implementation~~

~~SBD plans to undertake a variety of marketing and outreach activities, which could include the following:~~

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⁴⁴ Per Executive order S-20-04, dated December 14, 2004, http://www.energy.ca.gov/greenbuilding/documents/executive_order_s_20_04.html

Cross Promotion

For 2013–2014, SBD program information will be included with marketing materials of other programs/services as appropriate. This will extend the reach of the program and reduce customer confusion as to program availability.

Partnership Synergies

Savings By Design has established close relationships and memberships with other groups involved with the commercial new construction industry. These relationships make it possible to provide comprehensive services to our customers. These groups include:

- American Institute of Architects (AIA)
- California Council of American Institute of Architects (CAIACC)
- Illuminating Engineering Society (IES)
- American Society of Heating and Refrigeration Engineers (ASHRAE)
- United States Green Building Council (USGBC)
- Green Building Consultants
- Collaborative for High Performance Schools (CHPS)
- California Commissioning Collaborative (CCC)
- California Energy Commission (CEC)

SBD seeks out partnerships and opportunities to help educate building owners, building design teams, and other industry participants in order to promote whole building, energy efficient, sustainable design in new construction.

Awards Sponsorship

SBD co-sponsors (with AIA California Council) the annual Energy Efficiency Design Awards. These awards are designed to raise the awareness of successful high-performance facilities within the design professions.

Internet

Comprehensive information about SBD can be found on savingsbydesign.com. In addition, SBD case studies are posted on the Energy Design Resources (energydesignresources.com) website. In the future, Web Based Training (WBT) might be considered for both websites mentioned above.

Utility websites will continue to advance Savings By Design by providing Utility specific program information.

Print Media

Articles and press releases submitted to specialty publications targeting developers, building owners and design professionals.

Outreach

SBD will continue to seek out speaking opportunities at conferences and provide “Lunch and Learns” for architects and engineers. In addition, Utilities will consider holding and

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attending conferences to promote and build awareness surrounding their energy efficiency programs, although this might only be offered when resources permit.

Non energy activities of the program

SBD will be engaged in a number of non energy activities, including the following:

- Market characterization studies conducted through the Evaluation, Measurement and Verification programs
- Feasibility studies and pilot program components as needed to develop new approaches to more effectively engage new and targeted market segments.
- Training and resource enhancements in concert with the Energy Design Resources component Conferences and workshops to develop tools and concepts that will help the program expand its educational efforts to encompass sustainability issues, and work towards coordinated delivery of Demand Response, self generation, water conservation, and enhanced gas savings.
- Scholarships for students to attend the UC/CSU's Sustainability Conferences. The annual conference presents the architectural students with the rare opportunity to see first hand that sustainability issues are growing in importance. Sponsoring Scholarships also provides SBD with a participatory role on a panel that answers questions regarding the SBD program and the compliance characteristics of potential customer projects. In addition, as part of this conference, SBD will sponsor a student design competition through funding from Energy Design Resources.
- Educational Institution Collaboration will help ensure the development of curricula and adequate preparation of students for opportunities in energy efficiency. Sustainability lectures to students are also expected to help in their development.

Subcontractor Activities

Including other industry experts in certain program implementation processes enhances and extends the value of program benefits that customers can receive. In recognition of this, appropriate consultants will be selected through competitive bidding processes for some or all of the following activities:

- Project specific energy simulation design assistance for WBA projects.
- Integrated energy design support, such as charrette facilitation and process training.
- Program marketing and delivery in technically specialized, hard to reach industries.
- Complex computational analyses required for the achievement of Zero Net Energy projects, as called for in the Strategic Plan.

a) Statewide IOU Coordination

The IOUs will jointly participate in California's efforts to achieve real market transformation in the commercial new construction market segment. In order to accomplish this task, the IOUs will use the principles of adaptive management and follow a structured process to continuously update and enhance the Sub programs throughout the three year implementation cycle. The process will include the following key elements:

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- Designate an IOU Program Lead: Each IOU will designate a Lead for Savings by Design. The leads will investigate new innovations, special accomplishments and challenges faced by the Sub-program within their own IOU. Where such innovations or challenges offer some potential for improving the Savings By Design Program, the Program Leads will present such information in regularly scheduled New Construction Program Management Team meetings.
- Hold Savings By Design Program Management Team Meetings: At this regularly scheduled meeting, individual innovations and accomplishments experienced in one IOU will be presented to all IOUs. The team will evaluate the innovations and accomplishments of the individual IOUs, consider ideas for course corrections and overcoming challenges, measure the Savings By Design Program's progress against statewide metrics and goals.
- Adopt Program Enhancements: Once the Savings By Design Program Management Team agrees that a particular idea or innovation has merit on a statewide level, the leads will disseminate the information to their constituents for adoption and integration.
- Evaluate Program Enhancements Against Statewide Targets: To complete the adaptive management loop, the Program Management Team will track the program's accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Program Management Team will determine whether future course corrections are needed, and if so, "activate" a fresh start of the adaptive management cycle to generate the improvements necessary to stay on track.
- Additional areas of program coordination include the following:
- Program names: The Savings By Design name will continue to be used by all the IOUs uniformly and used in their communications consistently. This will ensure better communication across the utility service territories and ensure uniformity and long-term continuity of program offerings.
- Program delivery mechanisms: The SBD Program is deployed through the sub-program activities discussed in more detail later in this PIP and summarized above in Section 4.a. The IOUs will deliver these SBD through a combination of delivery channels such as account executives/managers, third-party vendors and internal program management staff. The program will be delivered using existing industry infrastructure and the individual utility's organizational structure, in order to enhance their local effectiveness.
- Incentive levels: To the extent possible, the IOUs will retain uniformity in the incentive structure of the sub-programs.
- IOU program interactions: Strategy [1-2] outlined in the Strategic Plan is to create a better linkage between the CEC's Title 24 compliance efforts with the IOUs' energy efficiency programs. In order to achieve the market transformation goals of the Strategic Plan, the Program Management Team will ensure coordination with the efforts of the CEC, Codes and Standards and Emerging Technology.

b) Program delivery and coordination

The Savings By Design program will be coordinated with the following statewide and local activities. The individual IOUs are responsible for ensuring communication and cooperation with the entities listed below on an as-required basis. The Program

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Management Team will ensure such communication occurs on a regular basis from a statewide perspective.

— Emerging Technologies program

Coordination of Savings By Design Program with the Codes and Standards and Emerging Technologies activities will be realized through the Program Management Team (consisting of the appropriate program managers from the four IOUs) that meets on a regular basis to discuss program integration and implementation issues. The SBD sub-program is expected to interact extensively with the ET Program to ensure new and emerging technologies are showcased and/or piloted, including any ZNE promoting technical potential studies and roadmaps.

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— Codes and Standards program

Close coordination with the Statewide Codes and Standards team is essential for tracking and implementing changes initiated by the Title 24 standards. The Savings By Design Program goals are closely tied to Title 24 standards, and it is imperative to track and implement changes to the program on an as-needed basis. Savings By Design, Codes and Standards and Emerging Technologies activities will be coordinated through the Program Management Team.

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— Workforce Education & Training efforts

The workforce education and training (WE&T) needs for the Savings By Design program are unique to the industry and close coordination with WE&T will be necessary. SBD program staff will coordinate with the WE&T program management team to ensure its training and education needs are met.

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— Program-specific marketing and outreach efforts

Each utility will develop and execute specific marketing and outreach plans to engage the industry in its own particular market transformation objectives. The Program Management Team will explore opportunities for extracting synergies in developing collateral materials, common program websites that could be utilized by builders and designers, exchange of builder contact information, joint presentations at trade shows, expos, and other industry events.

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— Non IOU Programs

The Program will remain engaged with CEC, DOE and other government agencies responsible for various aspects of New Construction in California.

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— Non-utility market initiatives

California utilities have established relationships with a number of other groups in the building industry. The Savings By Design Program will continue to seek out and coordinate synergies with, but not limited to, the following groups:

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— Environmental Protection Agency (EPA)

— California Building Industry Association (CBIA)

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~~Green Building Consulting Organizations (Build It Green, California Green Builder, Global Green)~~

~~IQUs are keenly interested in the efforts of Green Building organizations that are engaged in developing industry-wide qualification standards, and will coordinate with the relevant organizations to ensure appropriate standards are developed and adopted.~~

~~e) Best Practices~~

~~The Statewide Savings By Design Program demonstrates several examples of programmatic best practices. The team continues to utilize information from the process evaluations of the 2006-08 programs. Interviews with various market actors and focus groups from the design community had yielded several recommendations to improve the program. Based on that feedback, several enhancements will continue to be offered in the 2013-2014 Transition Period. Some of these are providing early design charrettes to explore “out of the box” ideas, promoting high efficiency standards (LEED certification), expanding energy credits for unconventional measures, establishing tracks for cutting edge projects, providing early design team incentives, and expanding the incentives for commissioning and M&E projects.~~

~~Additionally, SBD will extend the potential of targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach. A customized approach will focus on market segments such as hospitals and clean room facilities, and other market segments as identified.~~

~~The Statewide Savings By Design team has completed process evaluations of the 2006-2008 programs and is currently participating in the 2013-2014 process evaluation. Based on interviews with various market actors and focus groups from the design community in the 2006-2008 program cycle, several consistent themes emerged on recommendations to improve the program. Consequently, several enhancements were added to the program.~~

~~Process Evaluation Recommendations:~~

- ~~Provide Early Energy Charrettes—The objective of the charrette would be to review all of the potential energy efficiency aspects of the project, and to explore all feasible “out of the box” ideas that could conceivably be incorporated into the project at an early stage.~~
- ~~Promote High Efficiency—Participants were skeptical about LEED and its value, yet they all acknowledged that higher levels of energy efficiency were valuable.~~
- ~~Expand Credit for Unconventional Efficiency Measures—As SBD becomes increasingly ambitious, it will become necessary to update the analysis methods to credit measures that lie outside the T-24 compliance domain, for example, natural ventilation and un-air-conditioned buildings.~~
- ~~Establish Track for Cutting-Edge Projects—Some of the designers suggested that there be a track specifically established to encourage cutting-edge projects that significantly diverge from conventional energy efficiency solutions, and which could demonstrate substantial new opportunities for advanced energy efficiency.~~

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- Provide Early Design Team Incentive Payment— Designers value the design team incentives and would like to have them earlier in the design process. Because the typical design team incentives arrive so late, often years after the extra design effort was expended, the link between the reward and the behavior it encourages is lost. If it were easier for designers to receive a portion of the incentive earlier, it would likely be more influential and give SBD a more prominent role in their projects.
- Expand Incentives— Incentives could encourage both commissioning activities and the end use monitoring of projects. Commissioning especially is perceived as adding costs, so incentives are offered to offset the perception.
- Benchmarking— Newly constructed buildings do not have one year’s worth of data to effectively utilize the Energy Star Portfolio Manager benchmarking tool. Consequently, SBD will funnel completed projects into benchmarking programs that exist at individual IOUs, where the buildings will be queued for benchmarking after one year’s data are available. Feedback from these follow up evaluations will be shared with the building owner and the other IOUs.

Implementation of some of these recommendations is discussed below or in the Innovations section.

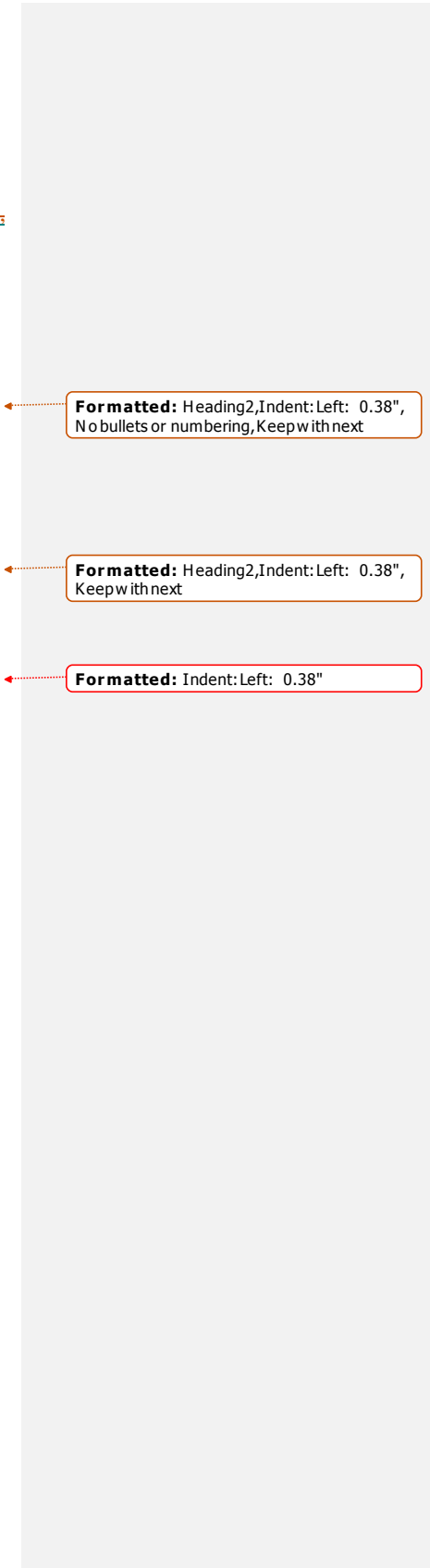
Other SBD best practices include the following:

Whole Building Approach

The Whole Building Approach (WBA) is SBD’s preferred avenue for achieving energy efficiency in new construction because it enables a design team to consider integrated, optimized energy efficiency solutions. This customized approach requires a high level of building energy simulation and interactive feedback, which generally leads to much more efficient design decisions. The key to maximizing energy choices, using this type of collaborative effort, is intervention at the earliest phase of building design.

Systems Approach

The systems approach is a performance based method utilizing energy analysis tools for energy modeling to analyze efficiency choices. This approach is used for projects that do not present sufficient opportunities to warrant the labor intensive assistance services offered through the WBA. The systems approach is designed to make it easy for designers to look at the interaction of systems within their project, rather than individual equipment or fixtures. The systems approach is used for simple facilities where integrated opportunities are limited, as well as projects where program intervention may come in too late in the design phase to effect sweeping programmatic changes to the design.



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For 2013–2014, SBD will continue to offer the same incentives by measure end use as the non-residential calculated retrofit program (known in 2006–2008 as Standard Performance Contract, or SPC).

Traditional Incentives

For 2013–2014, the statewide owner's incentives for electrical energy savings offered by the WBA will start at \$0.10 per kWh at 10 percent better than Title 24 code and increase in a straight line to \$0.30 per kWh at 30 percent better than code. For projects that exceed 30 percent better than code, the electric incentive will be \$0.30 per kWh saved. The incentives will be capped at 75% of incremental cost or \$150,000, whichever is lower. For a limited number of projects, Utilities may decide to pay larger incentives if the projects are deemed worthy to receive the larger incentive.

If SBD provides design assistance services to a project that achieves high performance without incurring incremental equipment cost (due to the intrinsic benefits of the integrated design process), an owner incentive will not be awarded due to the incremental cost cap. In these cases, SBD will still claim the resulting energy and demand savings.

Alternative Delivery Methods and Targeted Approaches

SBD will continue to build on the successful Alternative Delivery Method, which invites third-party market players to implement program goals in specific hard-to-reach niches such as facilities with dominant refrigeration loads. For 2013–2014, the program will continue to explore a similar effort to more effectively extend the reach of the program into hospitals, and possibly the arena of leased commercial spaces with high turnover rates. Other niche markets that may respond to a higher level of technical support will also be considered as they are identified.

In addition to working with individual building owners, SBD has interfaced aggressively with large retail chains to promote energy efficiency and sustainability.

When each chain proposes opening a series of stores across California, SBD will continue to work directly with their design teams helping them incorporate energy efficiency measures into their new prototype, utilizing a whole building approach. SBD models that prototype across all 16 climate zones in California, to clearly identify energy savings and potential incentives for these customers. With these chains now beginning to focus on green/sustainable stores with renewable energy as part of the design this activity will continue to grow during the 2013–2014 Transition Period.

SBD will extend the potential of targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach. For example, simplified approaches to working with the segment of rapidly designed and constructed building types would consider such facilities as quick service restaurants. A customized targeted approach will focus on market segments such as hospitals and clean room facilities, and other market segments as identified.

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d) Innovation

The Statewide New Construction Program features a number of new program elements that reflect innovative out-of-the-box thinking. These innovative features originated from the IOUs' desire to extend their resources in order to achieve the ambitious goals of the program by tapping into heretofore unexplored markets. Some examples include:

- Simplified SBD for smaller projects, which will offer web-based advice on common energy saving strategies.
- Performance Bonus adds for sustainability measures designed to move the market towards very high levels of energy efficiency.
- Program implementation that will emphasize fuel neutrality: a whole building, performance-based incentive approach that focuses on overall building efficiency rather than individual measures.
- On the basis of recommendations resulting from the EM&V review and other experience, SBD will initiate a number of innovations, including the following:

The Zero Net Energy Campaign

Many building owners and their design teams are interested in higher performance buildings, but the costs and risks of going beyond known design practice can be substantial. Learning how to design, build and operate the next generation of buildings will continue to challenge current thinking.

Already, approximately 50%—70%⁴⁵ of the square footage of new building stock participates in the SBD program (according to SDG&E data)—the program is reaching the customers. Now, using Zero Net Energy (ZNE) benchmarks, SBD will work closely with each IOU's internal sustainability and Zero Net Energy offerings to develop an overall strategy needed to move toward the goals established in the CLTEESP for commercial buildings in achieving the ZNE performance targets.

In addition to SBD, marketing for the ZNE program will be leveraged through other IOU programs, e.g. Sustainability PIP at SCE. The campaign will focus on subsectors and climate zones having the most potential in achieving ZNE targets in a cost-effective manner.

These innovative projects will require additional design time, innovative technologies, creative design solutions, and higher funding levels to achieve these results.

Program Goals Pertaining to Zero Net Energy

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⁴⁵ Data from San Diego Gas and Electric

—Creating a demand in the marketplace for super-efficient, green, LEED+ and/or solar ready, high performance buildings will be a priority. ZNE’s aggressive program goals include the following:

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- Buildings will use a minimum of 40% less energy than Title 24 codes requirements
- A new kBtUs per sq. ft. by building type performance metric will be adopted (e.g. to encourage inclusiveness of strategies (e.g. buildings operations and occupant created loads)
- Up to 5% of SBD projects will comply with ZNE goals and outcomes.
- For ZNE pilot projects, the WBA incentives may range up to \$0.50 per kWh plus the standard kW incentive.

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Incentives

Reaching ZNE’s goal of energy efficiency 40% below Title 24 will require innovative incentives. ZNE building innovators may be eligible for utility funding such as:

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- Advanced computational modeling
- Higher incentive targets
- Additional technical/design team assistance
- Financial assistance for natural ventilation strategies and on site renewable energy systems design— either utility or customer owned.

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Training

The SBD Program, through the WE&T Program will offer advanced design training for architects, lighting designers, to advance the opportunities in Zero Net Energy. The training, covering subjects including natural ventilation systems and daylight lighting, will take place in workshops and “lunch and learns.”

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Program Evaluation Through End Use Monitoring and Benchmarking

Influencing the decision makers as early as possible is crucial in addressing the need for sub-metering/advanced metering to track a building’s performance in key areas such as lighting and plug loads. Those devices then help create feedback loops for the owner and the utility.

Newly constructed buildings do not have one year’s worth of data to effectively utilize the Energy Star Portfolio Manager benchmarking tool. Consequently, SBD will funnel completed projects into benchmarking programs that exist at individual IOUs, where the buildings will be queued for benchmarking after one year’s data are available. Buildings that appear to have performance problems will receive additional review and/or services to improve performance, e.g. re-commissioning.

Following the completion of each project, a comprehensive process evaluation and/or internal program reviews will be conducted to determine:

- Successful incentive strategies
- Successful technical/design integrations

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— Key marketing/business case messaging

Lessons learned from these evaluations will be applied to the net zero pathway that will improve SBD performance over time.

To analyze the success of this campaign, it is important to not only evaluate each project upon completion, but energy efficiency performance must be monitored for several years following completion. The building owners need to be apprised of the follow up results so they know how their building is performing. Elements of these follow up evaluations will include metering for:

- Plug load
- Lighting
- HVAC
- Other loads (process loads deemed important)

The SBD program may offer incentives towards the cost of installing metering to measure energy use in these areas or for sub-metering tenant spaces.

Case Studies

Case studies will be produced for ZNE projects to capture lessons learned and to highlight the elements, design, and performance of ZNE buildings. These case studies, to include information gathered in the follow up program evaluations, will broaden the market interest, knowledge, and skill sets to make ZNE buildings a reality.

Market Transformation

The ZNE program seeks to encourage high performance building and transform the market by:

- Identifying, demonstrating, building familiarity and lowering costs of energy savings strategies so that they are more likely to be codified
- Training design professionals on advanced energy savings strategies
- Providing business case related information (financial benefits, leadership benefits, non-energy benefits) to support owner interest in adopting corporate policies related to green and high performance buildings.

Internal Program Coordination

SBD ZNE activities will be coordinated very closely with Emerging Technologies (ET) Programs to profile their technologies. ET will help fund the monitoring, verification and provide studies related to ZNE projects and benefit from lessons learned from the process evaluations.

Coordination with Codes and Standards can help develop reach codes for Title 24.

External Program Coordination

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This program would work with various external organizations that are interested in driving ZNE buildings. These organizations will help promote the “success stories” of early adopters.

Peak Reduction Incentives

SBD will offer an incentive for peak demand reductions, consistent with the CPUC’s methodology for determining peak kW reductions. The rationales for directly incentivizing peak reductions are two fold:

- Adding a direct demand incentive will encourage measures that may have little or no energy savings, but significant demand reductions. California values energy savings and permanent demand reductions equally. Therefore, the indirect demand reduction incentive currently offered by the WBA, through tying the energy incentive rate to the Time Dependent Valuation (TDV) based compliance margin, does not offer sufficient visibility to the importance of achieving peak demand reduction.
- A flat incentive for peak demand reductions, in addition to the energy incentive, addresses two industry concerns. To achieve the same magnitude of energy savings as under the previous Title 24 code versions. There is also widespread recognition in the CLTEESP that achieving the state’s aggressive goals will require increased incentive levels to offset the effects of diminishing returns.

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Design Team Incentives

SBD offers Design Team Incentives (DTI) for WBA projects to support the extra effort on the part of design teams for integrated energy design and to reward exceptional design accomplishments within the framework of the WBA. In addition, SBD will continue to develop a mechanism by which design firms are offered extensive technical support in building their in-house energy modeling capabilities. This assistance is intended to help design firms overcome the initial learning curve barriers that have kept many from undertaking energy modeling for energy efficiency measure alternatives analysis when programming buildings.

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By forming alliances with design firms to ramp up their internal energy modeling resources, SBD will achieve increased market penetration for the WBA. SBD will support the long range vision of the CLTEESP by encouraging the design community to consider energy efficiency as an equally important component of every building’s programming.

For 2013-2014, the Design Team Incentives will equal one-third of the owner’s incentive. The threshold for design teams to begin earning a DTI is the same as that of the owner: 10 percent better than code. Additionally, 50 percent of the DTI will be paid to the design team upon acceptance of the Owner Agreement and all supporting analysis and documentation. The design team will be required to conduct energy modeling with comparison of alternatives. These analyses will be contained in a report prepared by the design team that is presented to the project owner and accepted by the utility. The DTI will be capped at \$50,000.

If a design team elects not to perform energy modeling for the DTI approach on a WBA project, SBD will provide comprehensive energy modeling services to the customer and their design team. These Design Assistance (DA) services have proven successful over the past years in providing energy calculations, design facilitation, and energy recommendations that provide the guidance and information building owners need to make well-informed design and construction decisions for their facilities. In many cases building owners find that design assistance is the main influence in their including energy-efficient options in their building—even more influential than a direct incentive. In all such cases, SBD will track and report such results toward its program goals. If design assistance services are provided, Design Teams become ineligible for incentives or their own.

Simplified Approach for Small Projects

Continuing into 2013-2014, SBD will further develop and if ready offer a mass-market simplified approach for small projects to participate in the program. SBD has historically achieved very high penetration rates with mid-sized and especially large new construction projects. However, numerous barriers exist to deeply penetrating the small project market. Such barriers are typically centered on the extensive level of design assistance provided to SBD projects. From the customer's perspective, small projects often do not warrant the high level of involvement and documentation that participating in the standard systems approach or WBA requires. For the SBD program, these small projects are not cost-effective to deliver the extensive suite of design assistance services typically provided to all SBD projects.

To overcome these barriers, the simplified approach will offer web-based advice on common energy efficiency strategies applicable to customers' project types through an internet portal. The customer's Title 24 compliance documentation will be accepted as documentation for implementing these strategies. A project size threshold will be set to prevent overlap between the simplified approach and the systems approach. Incentives will be designed to overcome the capital cost barriers typically present on projects in this size range.

Initially, small offices, religious facilities, elementary schools, and strip malls have been identified as customer segments that will directly benefit from a simplified SBD approach. The simplified approach will target these projects first, adding in other segments as they are identified as having high potential to benefit.

Elementary school projects that apply too late in the design process to participate in SBD will be directed to Third Party New Construction programs as applicable.

Sustainability Incentives

SBD offers additional financial incentives beyond direct energy and demand reduction incentives to systems approach and WBA projects that perform building commissioning (Cx) during design and construction, and/or install end-use monitoring equipment to trend building performance in the lighting, plug load and HVAC areas.

An incentive for building commissioning directly supports the realization of the energy savings that were modeled in the package of energy efficiency recommendations presented by SBD and chosen by the customer for the project. An incentive for Cx ensures that the facility is operated in a manner consistent with achieving the maximum benefit from the installed energy efficiency measures. This helps to ensure that the state will receive the full benefit of the installed measures.

The Sustainability incentives will take the form of a multiplier, i.e. Commissioning incentive is 1.1 and End Use Monitoring incentive is 1.2, to be applied to the owner's base incentives. Whole Building Approach and Systems Approach projects are eligible for these incentives. Projects participating in the Simplified Approach method are not eligible for Sustainability incentives.

Financing of energy efficiency upgrades continues to be a barrier in achieving full savings potential. To help overcome the barrier of financing higher efficient equipment in Savings By Design projects, the program will explore leveraging the Statewide EE Financing program as directed by the CPUC in 2013-2014.

e) Integrated/coordinated Demand Side Management

At a minimum, all marketing materials developed to support energy efficient design process will cross promote demand response to educate customers on the availability of IOU DR programs. Additional work will take place during the three year program cycle to evaluate closer linkages between EE and DR.

Integrated Design

The integrated design process encourages facilities to be designed with energy efficiency included as an objective from the start. When done correctly, it is likely that the overall cost of construction for the energy efficient building will not exceed the cost of the building at minimum code compliance. The focus of this offering is to provide an incentive to design teams at the earliest stages of the design process.

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f) Integration across resource types

The Savings By Design Program is designed to be implemented with fuel neutrality. Wherever possible, program management staff will highlight potential water savings and work with the local water utilities to incorporate water savings into the program. SCE and SCG have signed a joint agreement to exchange terms and electricity savings derived from projects they have been able to secure, so lost opportunities are minimized.

Industry Integration

SBD field delivery staff will develop a full spectrum of energy use and sustainability program offerings by collaboratively working with applicable electric, gas, water and other industry groups. Issues such as energy savings associated with water use efficiency and

embodied energies in building materials and transportation will be explored and analyzed to identify potential new sources of energy savings.

SBD will interact with the California Lighting Technology Center to encourage aggressive lighting recommendations which revolve around LED task lighting, LED down lights, effective day lighting and various outdoor lighting applications such as parking garages, exterior lights, walkway and parking lot lighting.

Program Integration

SBD field delivery staff will collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer friendly and easy-to-use program. Technologies, such as building-integrated photovoltaic systems and energy management systems that are flexible enough to respond to new demand response strategies, are obvious strategies that can be integrated into a whole-building approach to educate designers in the benefits of their adoption in new construction.

SBD will continue its integrated partnership with the Emerging Technology group in bringing new and innovative technologies and designs into the mainstream commercial new construction market. One of the highlights of this partnership is the *Office of the Future*, a program designed to address new ideas for energy efficiency in the commercial buildings market.

Office Of The Future is geared primarily to impact the tenant improvement process for existing office space but is also viable for new construction projects and new tenant improvement projects occurring in Class A office building shells. In addition to high quality, energy efficient lighting, *Office of the Future* also addresses plug loads, HVAC performance, advanced metering technologies for performance verification, and demand response thermostats.

The program is being re-designed to be user friendly so it will be welcomed by the leasing/tenant improvement market and perceived as a business benefit, both from an environmental standpoint and from the potential incentives perspective.

g) Pilots

Not Applicable

h) EM&V

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program

implementation has begun, since the plans need to be based identified program design and implementation issues. The utilities plan to work together and with the Energy Division to develop a complete plan for 2013-2014 studies and budgets after the program plans are finalized and filed. EM&V efforts will be an important component as the IOUs move forward with the demonstrations of deeper energy efficiency, whole building demonstration projects. In an effort to explore the appropriateness of various measures of whole building savings — many using interval meter data — the IOUs will consider parallel EM&V with such demonstration projects; a key component to successful evaluation of these new approaches.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics;
- Work with ED to resolve market baseline and transformation issues;
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

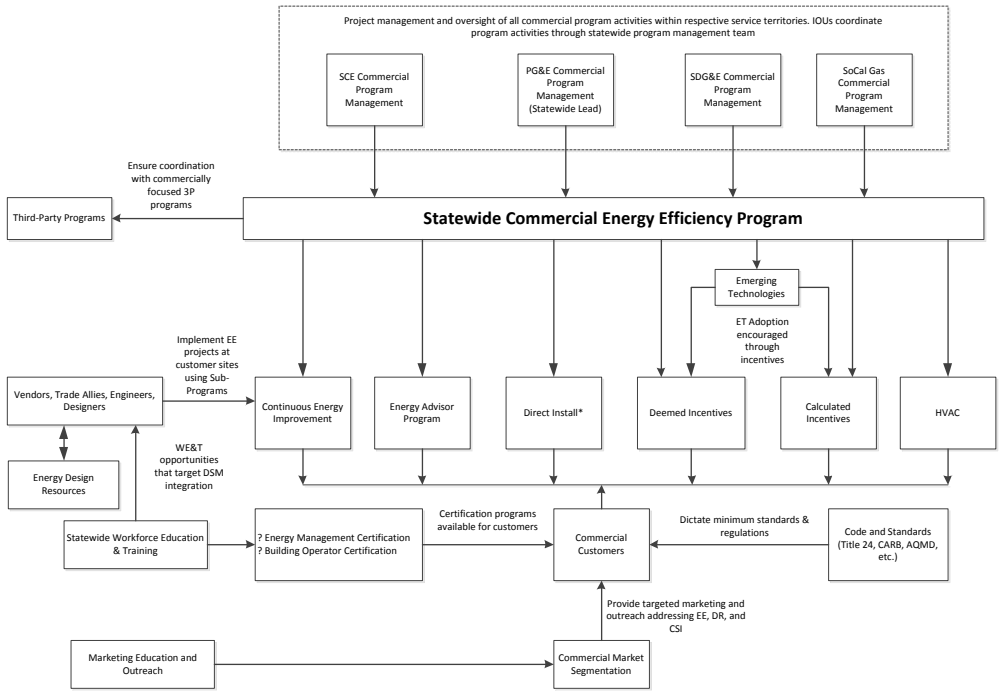
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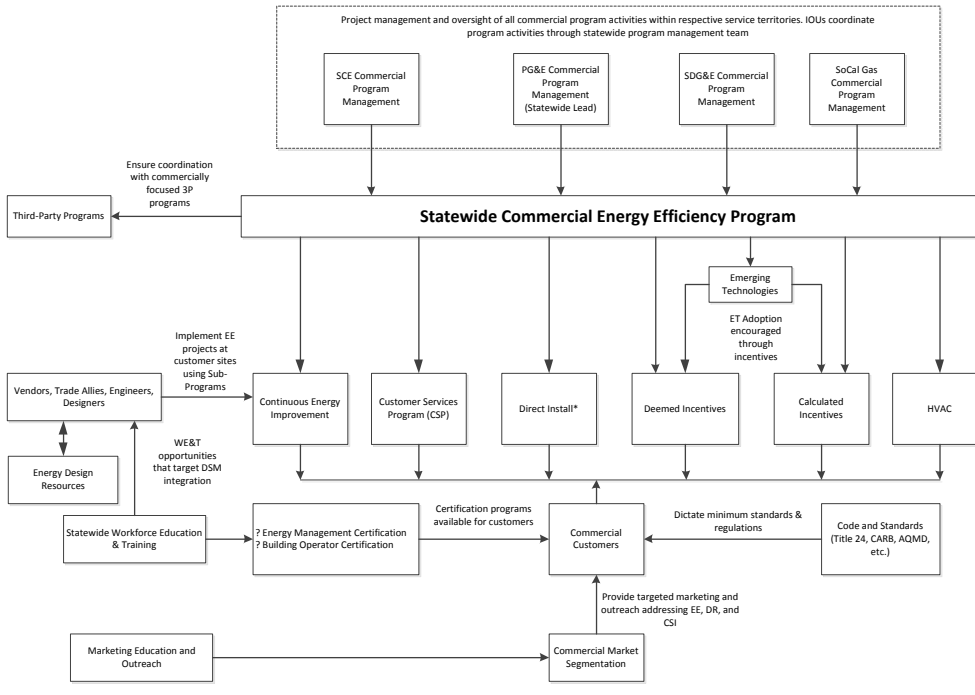
7.) **Diagram of Program**

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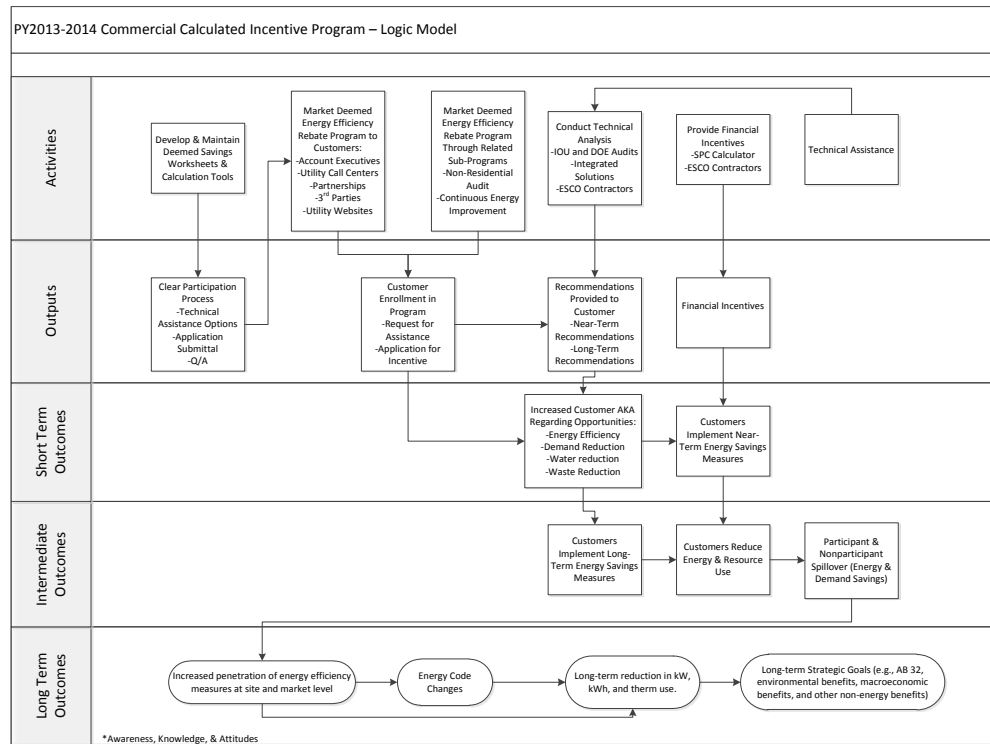
*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs



*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs

8.) Program Logic Model

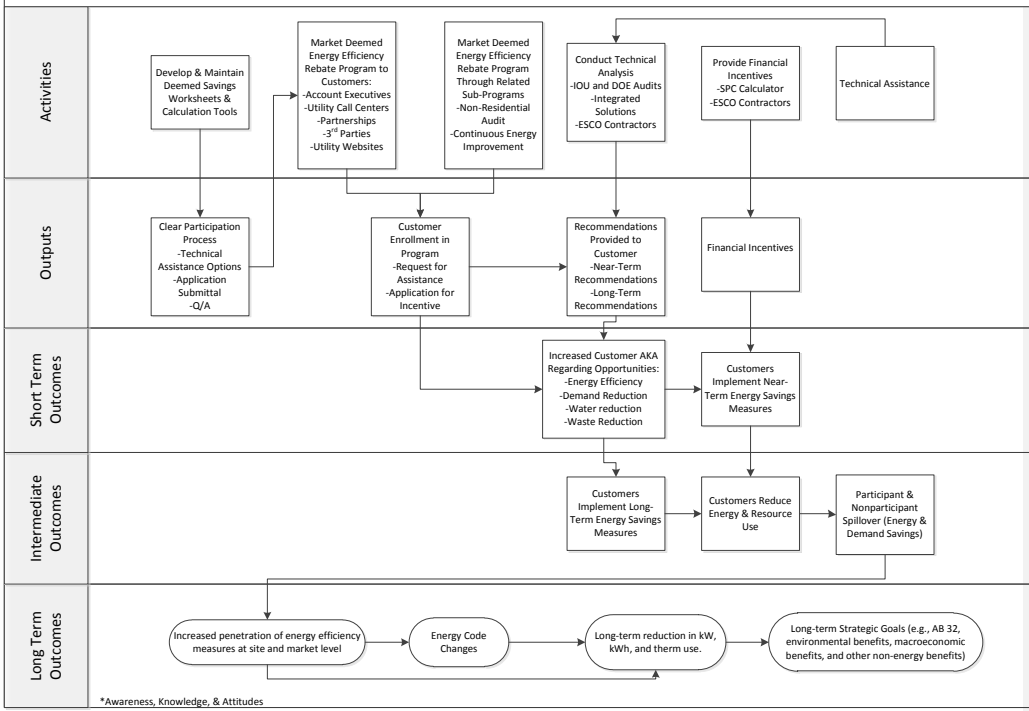
On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. As there were no revisions to the original logic model for the Commercial Calculated Incentives Program, this logic model is left unchanged.



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PY2013-2014 Commercial Calculated Incentive Program – Logic Model



1. ~~1.2.d~~ Program Name: Commercial Deemed Incentives, Core Sub-program

Program ID: SCG - 3711

Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 – reference the overarching program for savings gross impact details

4.) **Program Description**

a) **Describe program**

The statewide ~~commercial~~ Commercial Deemed Incentives sub-program provides rebates for the installation of new energy efficient equipment. Deemed retrofit measures have prescribed energy savings and incentive amounts and are generally intended for projects that have well defined energy and demand savings estimates (i.e., T12 to T8 replacements). The Commercial Deemed Incentive mechanism is designed to help influence the installation of energy efficient equipment and systems in both retrofit and added load applications by reducing the initial purchase costs of such equipment and reducing the “hassle” of participating in utility rebate programs by offering a simple application process.

The Commercial Deemed Incentives sub-program directly addresses key market factors that lead to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a “per-wadget” rebate that reduces the cost of retrofitting outdated and inefficient equipment. This sub-program makes it attractive for customers to spend money in the short-run in order to achieve lower energy costs in the long-run.

b) **List of Measures**

The following measure categories are eligible for Commercial Deemed Incentives:

- Lighting
- Air conditioning equipment
- Food service equipment
- Refrigeration
- High efficiency water heating
- Plug load

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Audits are an important tool for marketing and increasing the uptake of EE measures. Nonetheless, an audit is not a prerequisite for deemed incentives. In fact, deemed incentives are specifically designed for ease of use—and the goal is to decrease, rather than increase, any administrative burden on customers opting for deemed incentives. Utilities are exploring higher deemed incentives for customers completing an audit as part of their application.

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Deemed ~~Energy~~ ~~energy~~ ~~Efficiency~~ ~~efficiency~~ ~~Rebates~~ ~~rebates~~ for ~~Businesses~~ ~~businesses~~ will be part of the integrated strategy to promote energy efficiency with non-residential customers. The Statewide Commercial Deemed Team will hold regular conference calls and in-person meetings to share successes challenges, and best practices in delivering energy efficiency via deemed incentives. When appropriate, the Commercial, Industrial, and Agricultural segments will meet as a statewide entity to share successes challenges, and best practices in delivering energy efficiency to each market sector and associated sub-segments.

~~Deemed Energy Efficiency Rebates~~ Commercial Deemed Incentives will work with the other sub-programs to design customer facing marketing materials that integrate EE offerings into a complete energy savings package that is focused on individual market segments. ~~In the high efficiency water heating category, PG&E has a higher per MBtu rebate than does Sempra due to the differences in the markets.~~

c) ~~List of Non-incentive Commercial Customer Services~~ Energy Advisor Services

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The Commercial Deemed Incentives sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical consultation and application preparation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

5) Program Rationale and Expected Outcome

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a) Quantitative Baseline and Market Transformation Indicators (MTIs)

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By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

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See Attachment A - Table 3 – refer to the overarching program for quantitative baseline metrics

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~~Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been~~

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~~given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.~~

~~The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude "draft" metrics at this time and instead suggest a means of developing meaningful indicators.~~

~~The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application, using funding provided for Evaluation, Measurement & Verification.~~

~~We expect that the baseline studies should (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.~~

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

See Attachment A - Table 4 – refer to the overarching program for quantitative baseline metrics

See Section 1a.5.a.

c) Program Design to Overcome Barriers

The Statewide Commercial Deemed Incentives sub-program offers customers rebates to implement energy efficiency measures that have been identified primarily through standard utility energy efficiency audits, in-depth facility/process assessments or retro-

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commissioning studies. The sub-program is designed to help commercial customers overcome barriers to adopting energy efficiency program measures by reducing financial costs to the customers for the implementation of energy efficient measures that address major end-uses (e.g., lighting, HVAC, plug loads). Additionally, the easy-to-use online and paper application process reduces that hassle and transaction costs generally associated with ~~commercial deemed incentives~~incentives, where engineering calculations and pre- and post-monitoring may be required.

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Furthermore, to ensure equity to all business customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

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Incentives and savings payouts will be based upon deemed measures in the DEER database or through work papers.

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The Commercial Deemed Incentives sub-program delivers a consistent message statewide to commercial customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer. This eliminates the barrier often run into by commercial customers of getting incorrect or out-of-date information from local networks.

The Commercial Deemed Incentives sub-program not only brings IOU incentive information to customers, but in many instances also provides additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, Tax incentives or other local sources of project funding.

In several instances, high efficiency Emerging Technologies are viable, but are unknown to facility owners and system designers and thus, are slow to penetrate the market, causing energy efficiency opportunities to be “lost.” The Commercial Deemed Incentives sub-program helps speed market penetration and associated energy savings for Emerging Technologies by offering “premium” incentives for emerging technologies that are “proven” but not widely employed in the markets for which they are intended (e.g., solid state lighting, advanced lighting controls).

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d) Quantitative Program Targets

The targets provide herein are best estimates, but nonetheless are forecasts.

Table 5

<u>Program Name</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>Projects</u>	<u>TBD</u>	<u>TBD</u>

e) Advancing Strategic Plan goals and objectives

iii. The unifying objective of the Strategic Plan is to employ market transforming strategies to encourage marketplace adoption of energy efficient measures to a point that public investment in energy efficiency is no longer necessary (Section 1, page 4). The Deemed Incentives sub-program will support this effort by employing two of the five market transformation policies identified in the Strategic Plan. Specifically, the Program will offer “carrots” in the form of financial incentives to help pull the marketplace towards energy efficiency. The Deemed Incentives sub-program will also provide education and informational resources through marketing and program outreach efforts. Therefore, these program elements will work in concert to transform the market towards sustained, long-term energy savings.

The program will help to achieve the following near-term strategic goals as identified in Chapter 3 of the Strategic Plan:

- 2-3: Ensure compliance with minimum Title 24 codes – The Commercial Deemed Incentives sub-program only provides incentives for projects that exceed current Title 24 minimum baselines. Incentive rates will be created to encourage the implementation of advanced technologies (e.g., solid state lighting) to ensure deeper levels of energy reductions including implementation of the Office of the Future Consortium’s Phase 2 recommendations, “The 25% Solution”, which seek to reduce energy usage 25 percent below Title 24-2005 baselines.
- 2-5: Develop tools and strategies to reduce energy consumption in commercial buildings – The Commercial Deemed Incentives sub-program directly supports this effort by collecting data and conducting energy use and efficiency studies that, when collected over multiple IOU service territories, will be very helpful in supporting statewide efforts to establish a robust and useful knowledge base for the commercial sector.
- 2-7: Develop business models that deliver integrated energy management solutions – The Commercial Deemed Incentives sub-program will implement incentive mechanisms that will “reward comprehensive energy management retrofits” such as incentives for reaching certain stretch goals that produce significant energy savings

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beyond an established baseline. Additionally the iBonus concept (see Section 6.e) will further encourage integrated solutions.

- 2-8: Improve utilization of plug load technologies – The existing incentive structure pays for energy reductions through plug load measures. Additional incentives that encourage greater penetration of plug load technologies may be required and will be developed to support technologies recommended by [PIERCEC](#), the Office of the Future Consortium.

6) Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process, described in detail in the Statewide Commercial Energy Efficiency Program, will ensure continuous improvement and consistent implementation of all of the sub-programs. The discussion below will focus on how the IOUs will coordinate the [Commercial](#) Deemed Incentives sub-program specifically.

The Statewide IOU Coordination process for the [Commercial](#) Deemed Incentives sub-program will be as follows:

- Hold Regular Program Manager Meetings – The Deemed sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will unify, to the extent possible, the implementation of program aspects such as Program name, Program delivery mechanisms, Incentive levels, marketing and outreach plans, and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges. Therefore, the regular meetings will focus on issues specific to the Deemed sub-program only.
- Designate an IOU Program “Lead” – One of the sub-program managers that participates in the regular meetings will be the designated Deemed Program IOU “Lead”. The IOU lead will represent the sub-program at the regular Statewide Steering Committee meetings.
- Participate in Regular Steering Committee Meetings – The IOU lead will be responsible for attending the regular Steering Committee Meetings and sharing [Commercial](#) Deemed Incentives sub-program innovations, experiences and challenges that have the potential to impact multiple sub-programs or the core Commercial Energy Efficiency Program as a whole.
- Adopt Program Enhancements - Once the Steering Committee agrees that a specific innovation or implementation policy has merit on a statewide level; the IOU lead will distribute the information to the Deemed sub-program managers by email or at the next regular meeting for adoption and integration. Therefore, the IOU lead will act as a conduit feeding Deemed sub-program-specific information up to the statewide Steering Committee and distributing measures for adoption back to the Deemed sub-program managers.

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- Evaluate Program Enhancements – To complete the adaptive management loop, the Deemed sub-program managers will track the success of the adopted statewide enhancement or implementation policy and report any challenges or concerns at the regular Commercial Deemed Incentives sub-program meeting. The IOU lead will report any challenges that transcend the Commercial Deemed Incentives sub-program to the Steering Committee, who will determine whether further course corrections are needed.

By following the process stated above, the Commercial Deemed Incentives sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the three year implementation cycle. Sub-program innovations and challenges will also feed productively into the higher-level Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

The coordination and unity of all program aspects, such as Program name, Program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions, will be handled through this statewide coordination framework. However, these aspects will start off at a high level of statewide consistency. In rare cases, there will be IOU-specific deviations. Such instances where one IOU will favor a different approach than the other IOUs will be called out in italicized text throughout the Deemed Incentives sub-program.

i. Program name: Deemed Incentives

ii. Program delivery mechanisms

Deemed Incentives will be primarily delivered via paper or online application. Measures and incentive levels will be the same across IOUs, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape.

iii. Incentive Levels

Incentive levels vary by measure type, but will be offered consistently across IOU service territory except where local market conditions necessitate different amounts. Higher incentive levels will be provided for Emerging Technologies to spur traction in the market as feasible. The level of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, therms, equipment cost, other market factors and cost effectiveness.

iv. iv. Marketing and outreach plans

The Deemed Incentives sub-program will be marketed through IOU account executives, as well as through third-party programs, trade allies, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and

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program participation. In addition, direct customer contact by account executives, Demand Response Program outreach, phone and e-mail support will be provided.

In 2013-2014, the IOUs will implement segmentation research and messaging.

Marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled.” That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment, the IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics and activities to promote the solutions in the Deemed Incentives sub-program. Education, awareness and outreach efforts will rely on a combination of mass media and targeted communication channels to ensure that messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy-related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Additionally, IOUs may investigate piloting alternative channel marketing and outreach options that utilize community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. Local government partnerships, regional and community entities tend to interface with small businesses with some regularity; therefore, partnering with these organizations could prove to be a viable delivery option. A marketing and outreach campaign with Business Improvement Districts through our Local Government Partnerships, will serve to educate and increase engagement in a segment that is hard to reach.

v. IOU program interactions

The Deemed Incentives sub-program managers will partner with the programs as appropriate offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector’s customers, to the extent possible. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release

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brochures, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Deemed sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vi. — Similar IOU and POU programs

The IOUs will be delivering many third-party programs that utilize the Deemed Incentives sub-program infrastructure. This will help ensure a consistent delivery of measure incentives and protect programs from undermining each other and detracting from achieving cost-effective energy savings.

b) Program delivery and coordination

i. Emerging Technologies program

To meet California’s future energy efficiency goals, both in terms of overall usage and peak demand usage, new technologies and new applications of technology are needed. The Commercial Deemed Incentives sub-program will seek support from ETP’s incubation and development of new technologies to meet the needs of the marketplace. ETP provides the pipeline of new technologies that the Commercial Deemed Incentives sub-program looks to incorporate to maintain a robust selection of energy savings equipment. The program will look to ETP to provide customers with technology information, validating effectiveness as an unbiased and neutral expert.

Deemed ~~Incentives~~ incentives will be primarily delivered via paper or online application. Measures will be the same across IOUs and incentive levels will also be aligned, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape.

ii. Codes and Standards program

The Commercial Deemed Incentives sub-program relies on Codes and Standards to help maintain an updated and relevant list of measures that support savings. As ~~Codes codes~~ and ~~Standards standards~~ impact measures, the Commercial Deemed sub-program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into codes and standards. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) are made available as these technologies transition from research and development to the mainstream.

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iii. WE&T

WE&T is a portfolio of training and information programs that showcase energy efficient equipment found on the list of measures offered in the [Commercial Deemed Incentives](#) sub-program. Dissemination of information takes place through energy centers, technology test centers, and information and training program offerings. During classes, time is dedicated to energy efficiency programs and how to participate. In ~~2010-2012~~[2013-2014](#), a program representative will be available to deliver the EE message and answer questions.

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iv. Program-specific marketing and outreach plans

The Deemed Incentives sub-program will be marketed through IOU Account Executives, as well as through third-party programs, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and e-mail support will be provided.

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The IOUs will continue to build on and refine marketing plans and strategies used in past portfolios in the ~~2009-2004~~[2013-2014](#) cycle. This will involve developing marketing plans to deliver targeted messages to specific customers that resonate with their values and needs with the goal of increasing the market uptake of deemed incentives. These plans will coordinate and create timelines for activities, present strategic campaigns, establish targets and metrics, and include a performance monitoring strategy.

The following will be used as marketing and outreach channels:

- Non-contracted equipment vendors are a key delivery channel of the [Commercial Deemed Incentives](#) sub-program. Emphasis will be placed on building awareness with more vendors in the territory and training vendors on how to participate effectively in the program.
- Community-based organizations (CBOs), faith-based organizations (FBOs), non-profit organizations, and non-government organizations (NGOs) with unique access and following are expected to be emphasized as delivery channels.
- Trade associations and industry networks
- Enabling partners (financial institutions, trade associations, service providers, law firms, environmental organizations)
- Unique channels that offer complementary value propositions from the customers' perspective (e.g., energy, water, materials management, recyclables, corporate citizenry).

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The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described above.

v. Non-energy activities of program

Integrated Energy Audits (described in the nonresidential Audit sub-program) is the primary vehicle to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies). The results of the ongoing Water Efficiency Pilot Program will identify potential opportunities to reduce water use and the potential for associated Energy Efficiency savings. Since some customers within the program sectors are major water users, this sector is well positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Programs.

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vi. Non-IOU program interactions

The Commercial Deemed Incentives sub-program managers will partner with the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector's customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

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With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Commercial Deemed Incentives sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vii. CEC work on PIER with EPIC

As of June 2012, PIER no longer exists. However, The-the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER project in coordination with the applied research of EPICCEC.s. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

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viii. CEC work on codes and standards

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services. See Section 6.b.ii.

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ix. Non-utility market initiatives

The sub-program will support, educate customers, and ~~or enforce~~ facilitate such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

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c) Best Practices

To maximize program effectiveness, best practices in Program Design and Implementation will be employed and shared amongst IOUs. Areas of best practices for the Commercial Deemed Incentive sub-program approach include:

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- Best practices in Program Design:
 - Regular communication amongst IOUs is critical to effective program design.
 - Identify qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, PIER).
 - Seek input from industry in the development of new programs. The IOU programs are trying to change how an industry operates from manufacturer design to the customers purchasing and maintenance practices.
 - Industry participation increases program volume and speeds market transformation.
- Best practices in Program Implementation:
 - Strive to simplify messaging and participation for the customer. (Look for the ENERGY STAR label, purchase from a qualifying products list)
 - Understand the key motivators that drive an industry and use that information to market your program. Make certain outreach efforts make your program visible to your customers and the market that is catering to your customers.
 - Always communicate program marketing and advertising plans in advance to appropriate industry channels. Advanced notice allows industry partners an opportunity to leverage off of utility marketing efforts and reinforce the messaging we are trying to get across.
 - Statewide coordination is important as it makes it easier for national chains and manufacturers to understand and support IOU rebate programs. Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced administrative expenses through cost sharing arrangements.

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d) Innovation

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Innovative aspects of the program for ~~2010-2012~~2013-2014 include persistent integration of new and emerging technologies into the program processes. This will manifest itself in an increased emphasis on plug load technologies (in support of the Strategic Plan) and by aligning rebates with the recommendations of the Office of the Future Consortium to help make their “25% Solution” a reality.

Additionally, incentive mechanisms that emphasize peak demand reduction, addresses current economic downturn and better motivate customers to participate in energy efficiency incentive programs will be pursued. During ~~2010-2012~~2013-2014 program cycle new incentive structures will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance, including measure bundling incentives. The IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper energy savings.

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Where possible, IOUs will use integrated approach to addressing DSM opportunities. Innovative aspects such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retro-commissioning and/or nonresidential Audits, processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

e) Integrated/coordinated Demand Side Management

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Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related types of programs. While a successful program experience leads to repeat participation, there has been difficulty in cross pollinating similarly related types of programs with these candidates due to program-specific silos. To overcome the historic siloing of DSM, the Deemed Incentives sub-program will leverage lessons learned from SDG&E’s DSM efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other’s financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program’s incentives are based upon. Since benefits from long term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the program will offer additional incentives for energy efficiency measures that enable demand response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer “event season” and wane throughout the remainder of the year. To overcome these differences, the program will offer Integrated and coordinated year-round marketing through ~~consolidates~~ consolidated applications, collateral, web sites, and events, where applicable. Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.

The integration of energy efficiency and demand response programs presents several issues and, as stated previously, the sub-program seeks to overcome these issues by focusing on several tactics:

- Promotion and incentivizing of demand response enabling energy efficiency measures to ensure that energy efficiency is completed first to maximize potentials;
- Integrated and coordinated year-round marketing (e.g., applications, collateral, web sites, and events);
- Linking of program eligibility requirements (e.g., customer size);
- Provide unified technical assistance through enhanced EE/DR Audits through the TA/TI Program to allow for cross-harvesting opportunities;
- Integrated presence on utility websites; and
- Regular coordination meetings between energy efficiency and demand response program management.

~~During the 2010-2012 program cycle, funding for energy efficiency and demand response cannot be commingled; therefore payments will be split between the two programs as appropriate.~~

~~A new incentive mechanism called an Integration Bonus (iBonus) will be put in place to promote greater integration of DSM resources. The iBonus is available for customers who purchase, install, and are eligible to receive a rebate for an addressable energy saving device and who sign up for, or are already signed up for, a voluntary or rate-based Demand Response Program.~~

~~Technologies eligible for an iBonus will initially include the following addressable deemed measures, with additional measures added throughout the program as appropriate and identified:~~

- ~~Addressable Lighting Measures~~
- ~~Addressable HVAC Measures~~
- ~~Addressable Computer Network Power Management Software~~

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- ~~○ Addressable Refrigeration Measures~~
- ~~○ Addressable Anti-Sweat Heaters~~

~~The technologies listed above will be clearly demarked on the deemed application as being eligible for the iBonus and specific terms and conditions concerning the respective measure will be included in the application.~~

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f) Integration Across Resource Types

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Integration across resource types (e.g., energy, water, and air quality) will be explored. Examples include working with Water Agencies to co-promote Food Service appliances that save water and energy and working with Air Quality Management Districts to co-promote Boilers and Water Heating measures that save energy and improve air quality.

g) Pilots

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h) EM&V

~~The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. The utilities plan to work together and with the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.~~

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

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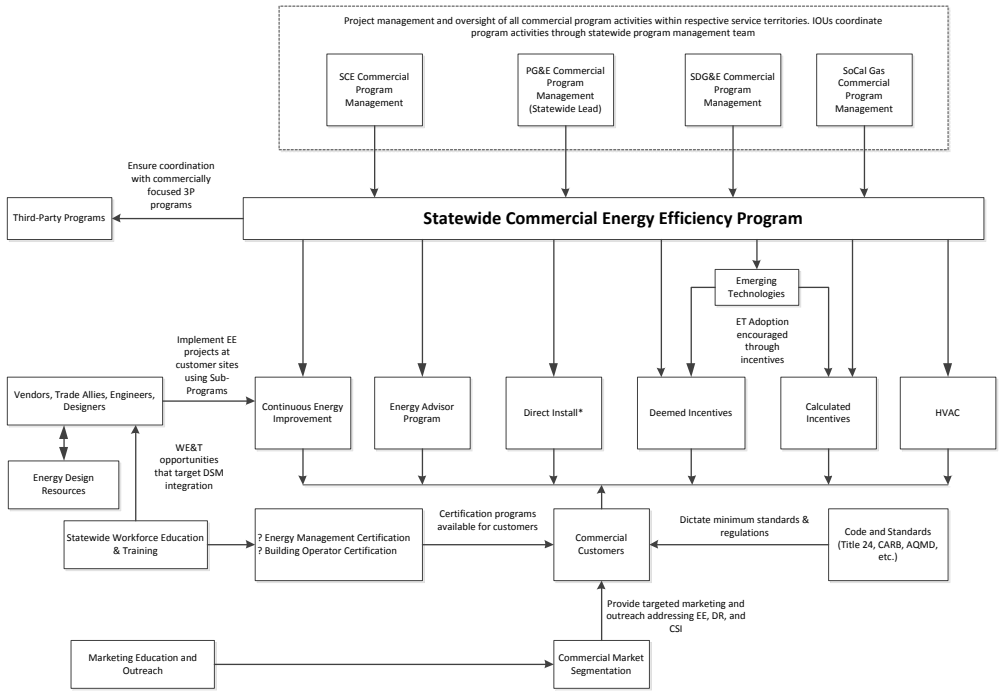
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7.  **Diagram of Program**

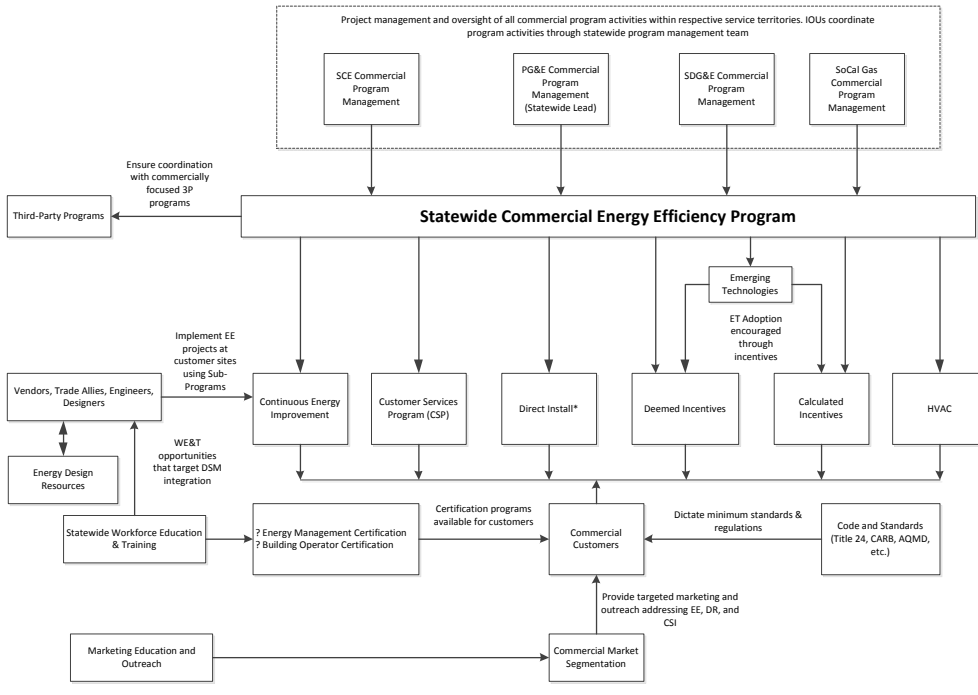
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*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs

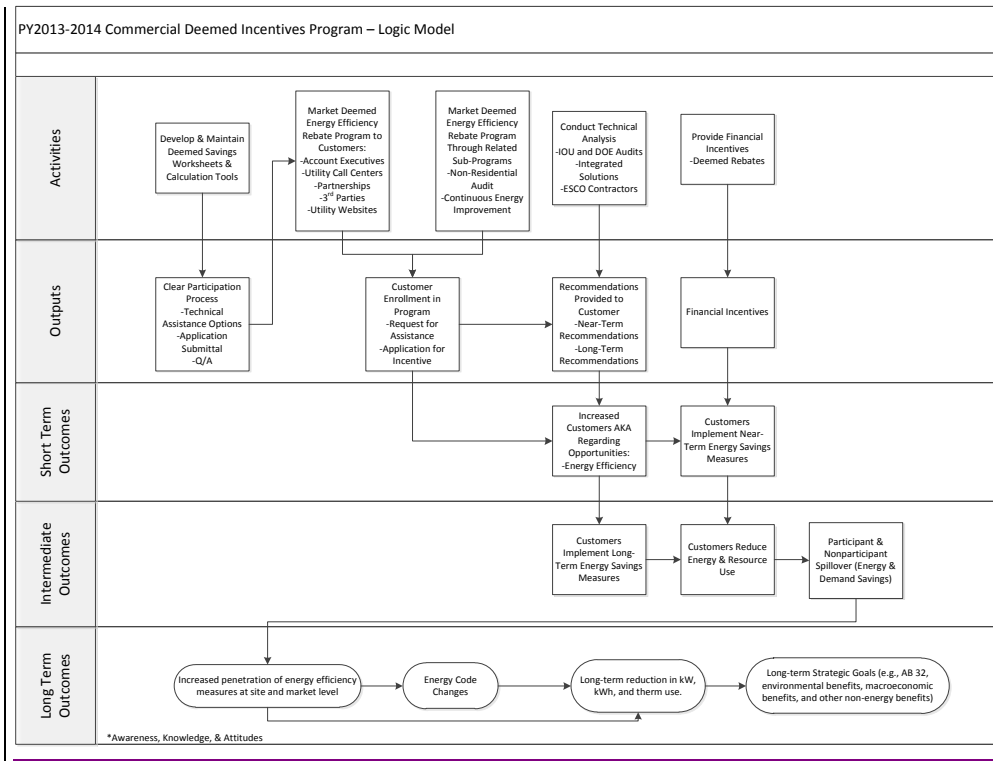


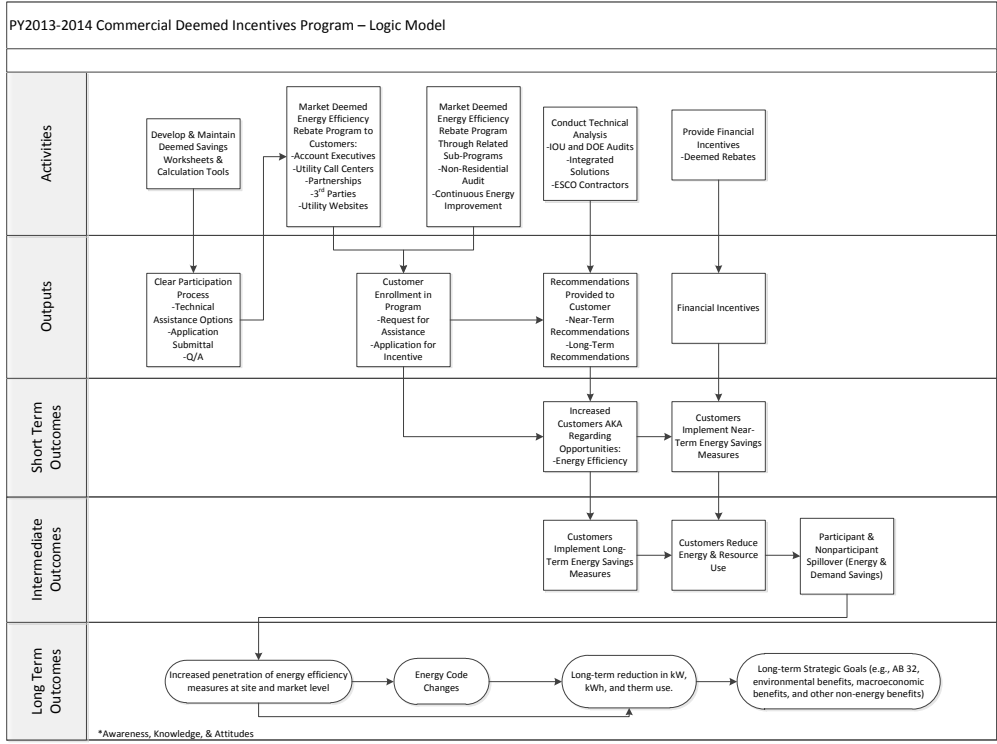
*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs

8.2 — Program Logic Model

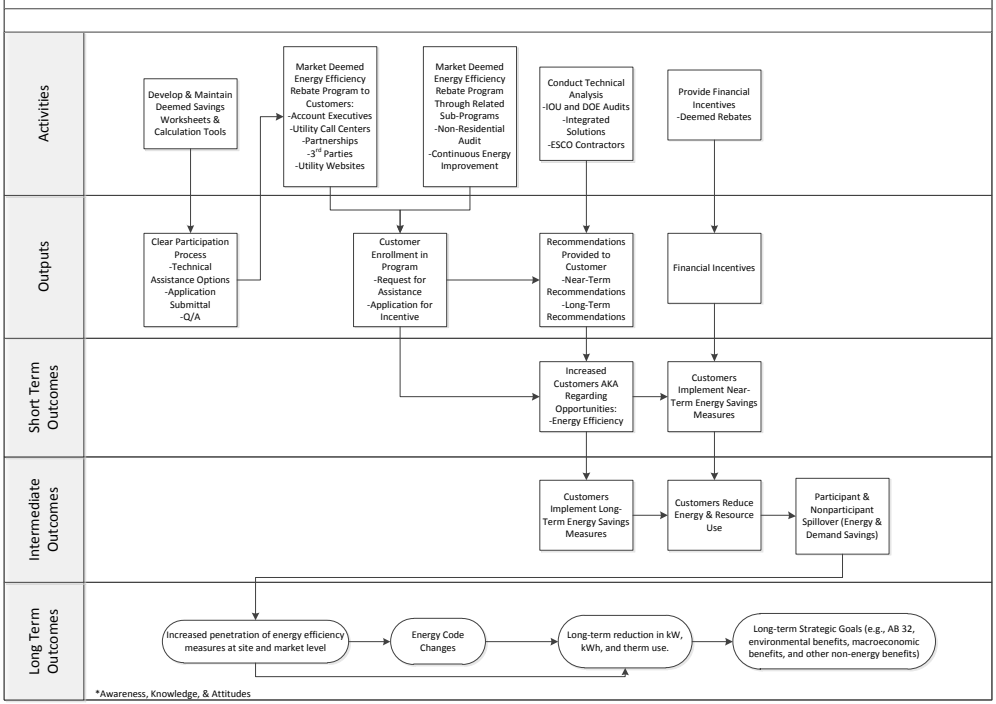
On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. As there were no revisions to the original logic model for the [Commercial](#) Deemed Incentives Program, this logic model is left unchanged.

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PY2013-2014 Commercial Deemed Incentives Program – Logic Model



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1e1.2e) — Program Name: —Continuous Energy Improvement, core sub-program
—Program ID: SCG - 3709
—Program Type: —Statewide Core Program

2. —Projected Program Budget Table

—Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 – reference the overarching program for savings gross impact details

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4.) Program Description

a) Describe Program

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The Commercial Continuous Energy Improvement (CEI) is a consultative service aimed at helping commercial customers engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.

In 2013-14, CEI will be expanded to include select group of mid-sized non-residential customers. Available options to help target these customers may include an individualized, a small group, or a mass-market, remote deployment approach.

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CEI will coordinate its services with the ~~Commercial Customer Services~~ Energy Advisor sub-program offerings. CEI offers customers what can be considered the pinnacle of audit offerings guiding senior management to instill energy considerations in all management/business operational decisions and in long term energy planning. Continuous Energy Improvement (CEI) describes a statewide package of products and services aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that

includes addressing both technical and management opportunities. A CEI approach applies the principals of well known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management and includes these key steps: Commit, Assess, Plan, Implement, Evaluate, and Modify.

At each stage of customer engagement, a variety of utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost effectiveness of each utility's portfolios.

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In implementation, utilities will screen customers for certain CEI services based on factors such as customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment or demonstrated motivation to take action. Screening criteria and specific product offerings will be utility appropriate.

Customer screening will allow the IOUs to target customers effectively. Implementing a CEI program requires significant time and resources for both the utility and the customer. Therefore, IOUs will consider the following and other factors when selecting customers:

- a. The customer's current and past commitment to energy management and green policies: Certain customers, such as WalMart, have already demonstrated a significant commitment to energy management as part of an overall green policy. IOUs will work closely with their strategic customer relationship managers to target such customers.

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The ability to deliver cost effective energy savings: CEI programs focus on helping customers transform their energy management processes, with the expectation that the transformation will lead to energy savings. IOUs will target customers with the potential to transform relatively quickly and cost effectively, so that delivery of energy savings begins within the 2010-2012 cycle. Such customers will be identified in close collaboration with the strategic customer relationship managers. Customer characteristics, such as energy use, complexity, number of facilities, and energy decision making structure will also be considered for their impact on cost effectiveness.

Commitment

CEI begins with a high-level management commitment to improving energy performance, which increasingly can be combined with other environmental and regulatory commitments that ~~large~~ energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention – like safety – and also paves the way for establishing the required company resources required to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, or technical systems and software required for energy management.

Gaining true customer commitment can take time, but is critical. In implementation, utilities will formalize the Commitment phase with ~~larger or~~ more intensive customers through a CEI participation agreement, which outlines the utility CEI services being offered as well as minimum customer expectations.

Assessment

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities, but also systemic energy management practices and cultural shifts that can improve overall facility management practices and sustain continuous improvements towards long-term company targets. A component to the assessment will also include tools to help identify Energy Efficiency (EE) and Distributed Generation (DG), and Demand Response (DR) opportunities.

Based on screening criteria, utilities will offer comprehensive energy assessment services using vetted sources like (but not limited to) those described below, to develop a customer specific strategic energy plan.

~~Many tools and resources – utility and non-utility, free and licensed – are available to support comprehensive customer energy assessment. They include:~~

- ENERGY STAR’s Guidelines for Energy Management, housed on the ENERGY STAR website, provide step-by-step guidelines to support CEI in general, and also guide customers to ENERGY STAR’s numerous assessment tools. This option is a low-cost resource for smaller and medium customers interested in CEI. (http://www.energystar.gov/index.cfm?c=guidelines.guidelines_index)
- Customer Energy management Management assessment Assessment Tools such as Envinta’s One-To-Five, Achiever, or Challenger software products offer professionally facilitated energy management assessment with company decision makers and explores management practices and company priorities to develop a CEI roadmap for energy goals and actions.
- Integrated Energy Audits provide an inventory of technical facility end-uses and energy efficiency, demand response and self-generation investment opportunities. For a full description, see the ~~Commercial Customer Services Energy Advisor sub-program plan.~~

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Benchmarking can measure the energy performance of a company, building, process, or piece of equipment against industry standards or comparable groupings. Benchmarking is a natural first step for the CEI process. Customers with multiple facilities find benchmarking useful to prioritize efficiency projects, track progress toward energy or GHG improvement goals or drive competition among similar benchmarked facilities. Units of measurement vary widely; for commercial buildings, the unit is energy used/square foot for a unit of time. Benchmarking can also be applied to other resources and environmental issues such as water use, CO₂, and emissions.

• software products like those developed by Envinta. *Envinta One To Five, Achiever, Challenger*, for example, let company decision makers explore management practices and company priorities to develop a CEI roadmap for energy goals and actions.

• Benchmarking tools, measure the energy performance of a company, building, process, or piece of equipment against industry standards or comparable groupings. Benchmarking is a particularly useful tool to support a CEI process. Customers with multiple facilities can prioritize efficiency projects, track progress toward energy improvement goals or drive competition among similar benchmarked facilities. Benchmarking can also be applied to other resources and environmental issues such as water use, CO₂, and emissions.

Existing benchmarking tools include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding. These include tools for commercial facilities, cement, auto assembly, and an LBNL winery benchmarking tool. Under development are ENERGY STAR benchmarking tools for food processing, glass manufacturing, and pharmaceutical manufacturing, as well as an LBNL tool for dairy processing. Benchmarking and establishing baselines are an important component of the Management Standard for Energy SME 2000-2008, the DOE sponsored ISO Plant Certification, and Superior Energy Performance criteria.

• Simple or integrated energy audits provide an inventory of technical facility end uses and energy efficiency, demand response and self-generation investment opportunities. For a full description, see the Statewide Integrated Audits sub-program description.

Based on screening criteria, utilities will offer comprehensive energy assessment services utilizing, but not limited to, vetted sources like those described above, to develop a customer specific strategic energy plan. In implementation, the statewide Agricultural program will continue to partner with energy industry peers, industry associations and DOE/CPUC sponsored labs and consultants to enhance the use of existing tools and develop new tools to improve key California agricultural sectors.

CEI Planning

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Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. ~~Implementation of the planning stage of CEI can be undertaken independently by the customer, or with utility support.~~ Planning for ~~larger complex~~ customers will typically involve Account Representatives and/or consultants. As is discussed in the Strategic Plan and in the Statewide Integration PIP, strategic planning can also include complementary non-energy considerations as well, such as GHG reduction, water efficiency, and waste-stream minimization, all which have embedded energy components.

Data and findings from a comprehensive customer assessment are critical in developing any comprehensive energy plan, including the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information is analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (“Company X will reduce ~~it’s~~ overall energy intensity by 3% over the next 3 years”), carbon reduction goals (“Company X will be carbon neutral by ~~2012~~2014”), or management oriented goals (“Company X will implement energy teams by ~~2010~~2013”). Goals can be stated in internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as the resources, staff and schedule for tracking. Action plans typically includes activities such as:

- ~~prioritizing~~ Prioritizing process systems or facilities based on benchmarking or company drivers,
- ~~identifying~~ Identifying internal resources required to implement plans, and
- ~~develop~~ Developing project justification and incentive application documentation lists and detailed schedules.

CEI Implementation

In the implementation stage, utilities partner with customers to identify technical support and utility and non-utility resources available to support implementation of projects, such as rebates, incentives, third party and government partnership programs, and state and national resources, including:

- Statewide Commercial Deemed ~~rebates~~ Incentives
- Statewide Commercial Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning and/or repair

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- ~~Third-Party and Government Partnership programs (described in the statewide and local third-party filings)~~
- ~~Utility IOU and non-utility IOU financing options~~
- ~~Non-utility financing options and owners~~ External and Internal engineer support

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CEI Evaluation and Modification

~~Like in~~ any continuous improvement program, evaluation is an ongoing process of assessing-comparing actual performance against company goals, targets and action plans. It may include:

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- ~~repeating-Repeating~~ the benchmarking and system or facility baseline process annually,
- ~~assessing-Assessing~~ advancements in organizational and management practices that facilitate energy management improvements, or
- ~~evaluating-Evaluating~~ cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward.

Regular evaluation will inform changes to goals and action plans moving forward.

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b) List of Measures

CEI does not provide incentives to customers, but ultimately facilitates the customer's implementation of energy efficiency projects through ~~statewide~~-incentive programs. However, depending on the outcome of the 2012 process evaluation, customer incentives may be offered.

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c) List Non-incentive Commercial Customer Services Energy Advisor Services

CEI is a non-resource program that provides comprehensive strategic energy planning and consulting services for commercial customers. These services include: energy management assessments, energy planning, baselining and benchmarking, project implementation support, customer recognition (e.g., "corporate sustainability awards"), and web-based energy resources.

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5.) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

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See Attachment A for Table 3 – Refer to the overarching program for metrics

Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude “draft” metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics
See Section 1a.5.a.

c) Program Design to Overcome Barriers

CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers and the strategies to overcome them include:

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- Lack of information – The CEI evaluation and modification process provides data that customers can use to reevaluate their commitment and/or modify their energy goals.
- Performance uncertainties – Through CEI’s comprehensive baselining and benchmarking assistance, customers will have access to real-time data that demonstrates how their facility is performing relative to their established goals.
- Organizational customs – The high-level customer commitment that is at the core of CEI increases the likelihood that corporate cultures that prevent successful implementation of comprehensive energy policies ~~will be changed.~~

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d) Quantitative Program Targets

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The targets provided herein are best estimates, but nonetheless are forecasts.

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Table 5

<u>Program Name</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>Number of Engagements</u>	TBD **	TBD **

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e) Advancing Strategic Plan goals and objectives

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The program will help to achieve the following near-term strategic goals as identified in the Commercial chapter of the Strategic Plan:

- 2-1: State/Local Governments and Major Corporations Commit to Achieve EE Targets

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CEI seeks to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop a actionable plan to achieve these goals; (4) guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

- 2-2: Develop Tools to Reduce Energy in Commercial Buildings

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As part of the implementation of CEI, the utilities will partner with energy industry peers, industry associations and Department Of Energy/CPUC sponsored labs and consultants, to enhance the use of existing tools, and develop new tools to assist commercial customers ~~reduce~~ initially ~~reduce~~ energy usage at their facilities, ~~and~~ then continue to operate their facilities in an efficient ~~and persistent~~ manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

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- o ENERGY STAR Portfolio Manager Commercial Benchmarking: Benchmarks customer facility against a national database of similar NAICS codes for an ENERGY STAR score (0-100), kBtu/sq ft-yr, lbs CO₂/yr.

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- o Management Standard for Energy SME2000-2008

o LBNL Superior Energy Performance

o DOE Superior Energy Performance

- o ISO-50001

- o 2-72-3: Develop Business Models to Deliver Energy Management Solutions—

CEI's fundamental purpose is to achieve corporate level commitments from commercial customers to change their existing business models to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the commercial market sector.

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6.) Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process will ensure continuous improvement and consistent implementation of all sub-programs. The discussion below will focus on how the IOUs will coordinate the CEI sub-program specifically. The Statewide IOU Coordination process for the CEI sub-program will be as follows:

- o **Hold Regular Sub-program Manager Meetings** – The CEI sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will unify, to the extent possible, the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges.
- o **Input to Program Sector Lead Meetings** – The CEI sub-program managers will communicate to their Program Sector Leads the CEI sub-program innovations, experiences, and challenges that have the potential to impact multiple sub-programs or the Program as a whole. When a specific innovation or implementation policy has merit on a Statewide-level, the Sector Lead will distribute the information to the CEI sub-program managers by e-mail for adoption and integration.
- o **Evaluate Program Enhancements** – To complete the adaptive management loop, the CEI sub-program managers will track the success of the adopted Statewide enhancement or implementation policy and report any challenges or concerns at the monthly CEI sub-program meeting.

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By following the process stated above, the CEI sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the 2013-2014 program cycle. Sub-program innovations and challenges will also feed productively

into the higher-level Program Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

The coordination and unity of all program aspects will be handled through this statewide coordination framework. However, these aspects will start off at a high-level of statewide consistency. In some cases, there will be local IOU-specific deviations. Instances where certain IOUs favor a different approach than the other IOUs will be called out in italicized text.

i. Program name: Commercial Continuous Energy Improvement Program

ii. Program delivery mechanisms

As with other information and education sub-programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other delivery channels may also be developed.

Where applicable, the Utility’s account representatives will support this activity within the statewide industrial sector, as well as third parties, government partnerships, and Utility local programs.

iii. Incentive levels - N/A. (CEI is a non-resource program).

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

CEI will be available to all commercial customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will include, but not be limited to, customer energy use, complexity, number of facilities, energy decision-making structure, and environmental commitment or demonstrated motivation. Collateral materials such as fact sheets, how-to documents, Power Point slides, case studies, etc., will be produced and distributed during sales calls, public events, association meetings, and/or trade shows. In addition, sponsoring and/or holding recognition events that present customers with awards for achieving specific levels of efficiency, sustainability and/or integration will be explored as a means to promote greater levels of participation.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

CEI will include the CEC’s Green Building Initiative program, DOE’s “ISO plant certification” programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs as applicable.

vi. Similar IOU and POU programs

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Over the next two years, the IOUs will seek to increase their interactions with the POUs as applicable to promote the CEI concept throughout the state. This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

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~~The Statewide IOU Coordination process will ensure continuous improvement and consistent implementation of all sub programs. The discussion below will focus on how the IOUs will coordinate the CEI sub program s pecifically. The Statewide IOU Coordination process for the CEI sub program will be as follows:~~

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- ~~○ Hold Regular sub Program Manager Meetings—The CEI sub program managers from each of the IOUs will meet on a regular basis. The sub program managers will unify, to the extent possible, the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The sub program managers will also discuss new innovations and develop solutions to overcoming implementation challenges.~~
- ~~○ Input to Program Sector Lead Meetings—The CEI sub program managers will communicate to their Program Sector Leads the CEI sub program innovations, experiences, and challenges that have the potential to impact multiple sub programs or the Program as a whole. A specific innovation or implementation policy has merit on a statewide level, the Sector Lead will distribute the information to the CEI sub program managers by email for adoption and integration.~~
- ~~○ Evaluate Program Enhancements—To complete the adaptive management loop, the CEI sub program managers will track the success of the adopted statewide enhancement or implementation policy and report any challenges or concerns at the monthly CEI sub program meeting.~~

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~~By following the process stated above, the CEI sub program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the three year implementation cycle. Sub program innovations and challenges will also feed productively into the higher level Program Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.~~

~~The coordination and unity of all program aspects, such as program name, program delivery mechanisms, marketing and outreach plans, and IOU program interactions, will be handled through this statewide coordination framework. However, these aspects will start off at a high level of statewide consistency. In some cases, there will be local IOU specific deviations. Such instances where certain IOUs favor a different approach than the other IOUs will be called out in italicized text.~~

b) **Program delivery and coordination**

CEI includes the following coordination efforts:

i. **Emerging Technologies (ET) program**

CEI implementation will include identification and project development at specific customer sites with potential for Emerging Technologies program participation and demonstrations. CEI implementation shall include identification and project development at specific customer sites with potential for Emerging Technologies program participation, demonstrations and incentives.

ii. **Codes and Standards program**

CEI implementation ~~shall~~will include information about pending new Codes and Standards program that may affect planning or prioritization of retrofit or new construction projects.

iii. **WE&T efforts**

CEI implementation will integrate with WE&T efforts by providing CEI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches. Program costs will be shared with WE&T. CEI implementation shall integrate with Workforce Education and Training efforts by providing CEI process, lessons learned and case study input to energy engineering curriculum designers for Community Colleges and Universities. This activity will be coordinated through the Statewide Workforce Education and Training program team and will ultimately be integrated into the web portal that is being developed by that team.

iv. **Program-specific marketing and outreach efforts**

As with other information and education sub-programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing, and outreach efforts. Other channels of delivery may be developed. Marketing and outreach plans include training of the IOU in-house staff and customer groups. Collateral materials such as fact sheets, how-to documents, and PowerPoint slides will be produced and distributed during sales calls, public events or trade shows.

Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program

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~~participation. CEI will be integral to the Integrated Resource Management initiative for food processors.~~

CEI will be marketed through utility account executives, as well as through educational outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, Demand Response Program outreach, phone and e-mail support will be provided.

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In ~~2010-2012~~2013-2014, marketing campaigns will provide a wide range of action-oriented solutions targeted to "personas" identified through segmentation research. In addition, marketing efforts will be "bundled." That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment the IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics and activities to promote the CEI sub-program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to help the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy-related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach ~~coordination~~ will be coordinated among the IOUs utilizing the statewide coordination process described above.

~~v.~~ Non-energy activities of program

CEI implementation ~~shall will~~ include non-energy activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy related LEED points and definitions, and use of computerized financial analysis tools and cost estimating and forecasting tools. In addition, the CEI sub-program will help customers learn about and access the many certification programs available, such as ENERGY STAR, LEED, and ISO.

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vi. Non-IOU Programs

CEI implementation shall include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies to support integrated efforts. The utility managers will partner with programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to commercial-sector customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. Closer alignment with these other programs will be achieved in order to deliver the customer a more comprehensive solution. With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Commercial Calculated sub-program incentives for energy efficient equipment that may also reduce air emissions.

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vii. CEC work on PIER with EPIC Collaboration

CEI implementation shall continually seek to promote the adoption of new technologies developed through the PIER-EPIC CEC research process and to expose customers to demonstration, research and/or pilot projects. The continuous improvement process envisioned by CEI will provide new equipment/processes, and methods that will enable customers to achieve energy efficiency "stretch" goals in a cost-effective manner.

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viii. CEC work on codes and standards

The program will not be implemented with a direct linkage to codes and standards efforts. However, see Section 6.b.ii., above. See Section 6.b.ii.

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ix. Non-utility market initiatives

CEI will support Energy Management certification efforts (ANSI, ISO), engaging at the material level. Non-utility market initiatives such as education about federal tax incentives for energy efficiency investments is an example of a non-utility information and guidance that CEI sub program will provide customers. CEI will support Energy Management certification efforts (ANSI, ISO), engaging at the material level. Non-utility market initiatives such as education about federal tax incentives for energy efficiency investments is an example of a non-utility information and guidance that CEI sub program will provide customers.

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c) Best Practices

CEI's approach applies the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the commercial market sector. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation,

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and (6) Modification. This approach can now be successfully implemented given the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

CEI moves customer engagement from “project to project” to market transformation. The CEI approach applies the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management: Commit, Assess, Plan, Implement, Evaluate, and Modify. This approach can now be successfully implemented given the three-year program cycle allowing longer-term and deeper project development engagements with customers.

One means of delivering significant energy efficiency is to place or pay for a full-time energy manager at a customer site. This manager provides advice on, and management of, energy management improvements. The CEI program will consider implementing such a strategy in situations where there is strong potential for cost-effective delivery of energy savings. In so doing, the IOUs will share best practices of ongoing similar programs, such as PG&E’s More Than a Million program, which places energy managers at customer sites and requires the managers to “pay for themselves” in energy savings within six months. M&V from other utilities engaged in such strategies, such as at BC Hydro, are being evaluated.

As general best practice, programs will incorporate lessons learned from past EM&V activities, as available, to improve results, as well as other utility programs.

d) Innovation

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CEI is a new way of packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

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Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management. CEI is a new way of packaging energy efficiency, demand response and self-generation products and services aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

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e) Integrated/coordinated Demand Side Management

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CEI includes project analysis and implementation support of recommendations of Statewide Integrated Energy Audits which provide customers with an inventory of facility end-use breakdown and energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat

participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related ~~types of programs~~, but because of siloing – thinking of programs as separate, unrelated efforts – this has proved difficult. ~~While a successful program experience leads to repeat participation, there has been difficulty in cross pollinating similarly related types of programs with these candidates due to program specific silos.~~ To overcome the historic ~~this, siloing of DSM~~, the CEI sub-program will leverage ~~lesson's~~ lessons learned from ~~the DSM~~ efforts by offering comprehensive, coordinated marketing and program delivery.

~~A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other's financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program's incentives are based upon. Since benefits from long term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the CEI sub-program will offer additional incentives support and services for energy efficiency measures that enable demand response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.~~

~~A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable, which will give customers the opportunity to enroll in demand response programs as well as energy efficiency programs.~~

~~Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.~~

~~To support the integration of energy efficiency and demand response programs, the sub-program will focus on several tactics:~~

- ~~○ Promotion and incentivizing of demand response enabling energy efficiency measures to ensure that energy efficiency is completed first to maximize potentials~~
- ~~○ Integrated and coordinated year round marketing (e.g., Applications, collateral, web sites, and events)~~
- ~~○ Linking of program eligibility requirements (e.g., Customer size)~~
- ~~○ Provide unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities~~
- ~~○ Integrated presence on utility websites~~

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- ~~○ Regular coordination meetings between energy efficiency and demand response program management~~

~~CEI is recognized as an integrated element by supporting the statewide IDSM program's goals and objectives, and the IOUs will increase IDSM messaging and coordination within CEI. During the 2010-2012 program cycle, funding for energy efficiency and demand response cannot be commingled; therefore payments will be split between the two programs as appropriate.~~

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f) Integration Across Resource Types

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CEI implementation shall include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies to support integrated efforts. IOU CEI sub-program managers will partner as appropriate with CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral and financial incentive analysis with customers. Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will ~~inform customer~~ provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote CEI, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, utility program managers will partner with the local water districts to produce co-branded marketing collateral, attend trade shows, and co-~~release notices~~ release brochures, for programs with interactive water and energy effects.

g) Pilots

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N/A

~~Based on Energy Division feedback, a potential initiative that will be explored in the 2010-2012 program cycle is that of a "Resource Energy Manager" (REM). REMs are essentially energy managers who are placed at the customer's facility to be a project champion and shepherd energy efficiency projects through to completion. Their salary is typically paid for through the energy savings they generate. REMs have been successfully used by IOUs in the government sector (typically military bases) in past program cycles and a similar program has been available for commercial customers in the Pacific Northwest. The concept of using REMs in the commercial segment will be explored to determine the viability and cost effectiveness of such an approach. An appropriate EM&V plan will also be required prior to launching an REM activity such that the affects of the project on achieving higher levels of energy efficiency can easily be determined.~~

h) EM&V

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The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This may include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

Once results of the 2010-2012 evaluations are ready, recommendations will be reviewed for modifying the CEI PIP accordingly. The IOUs plan to work together and with the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.

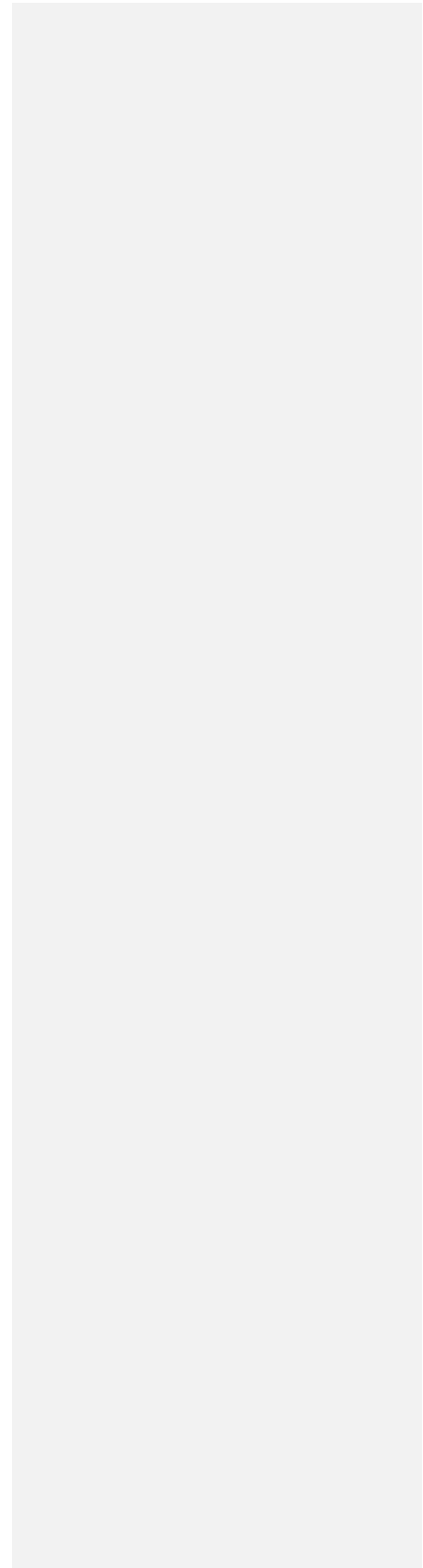
Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions.

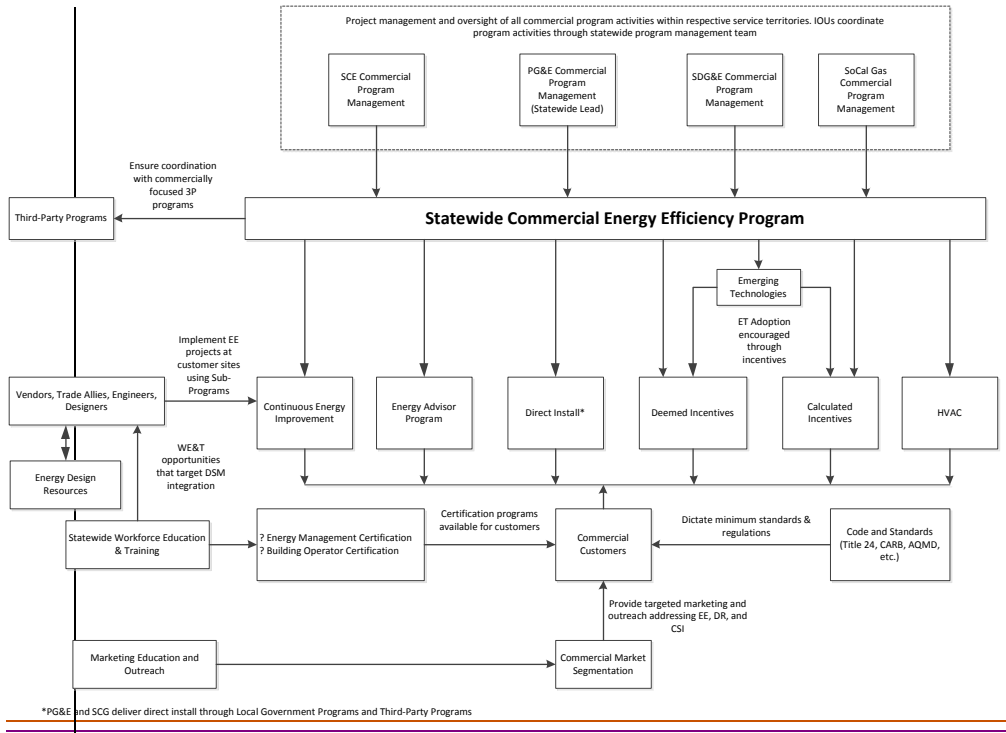
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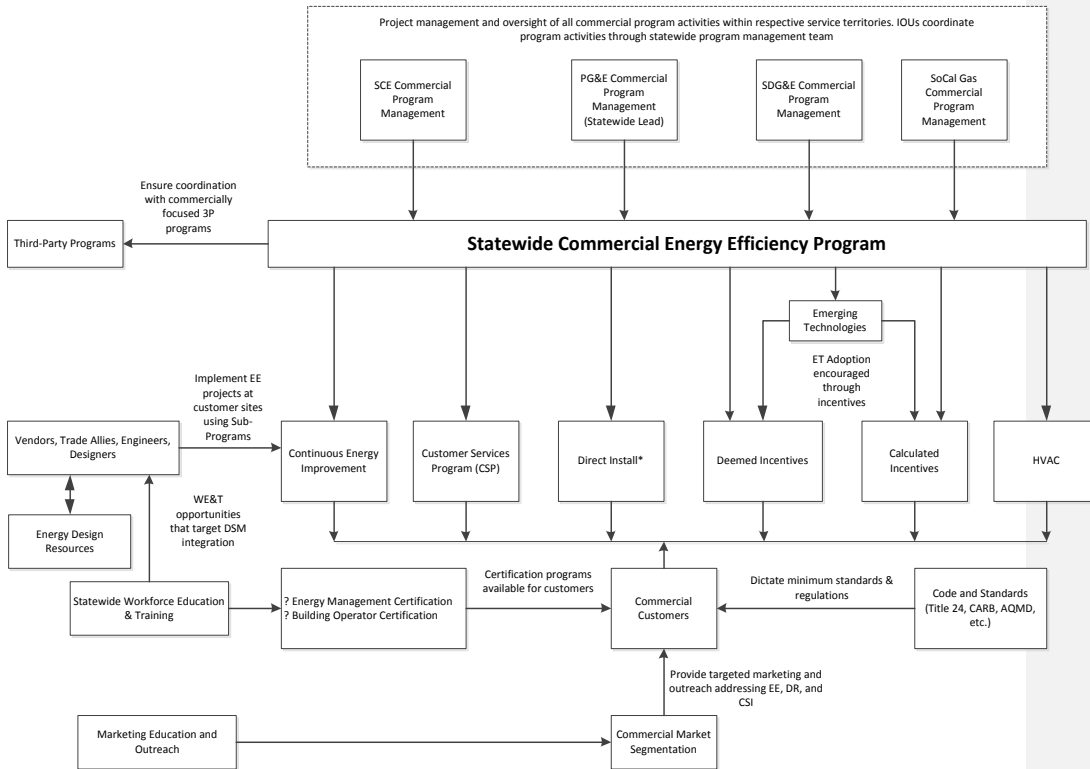
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7.) — Diagram of Program

Please see the core program diagram.







*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs

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8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison

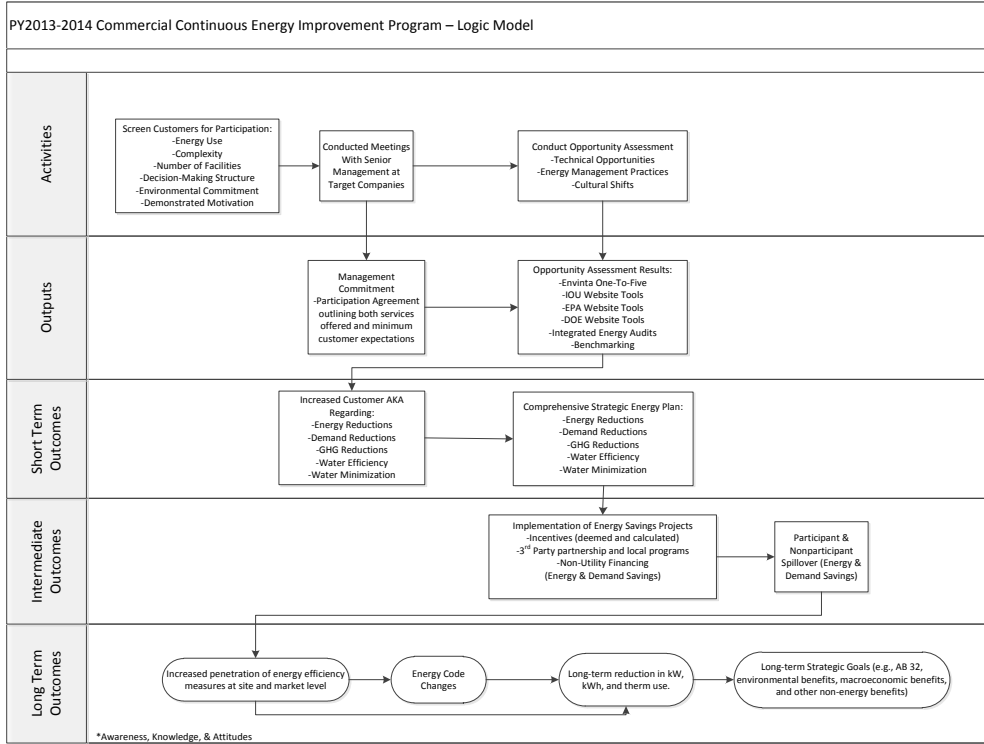
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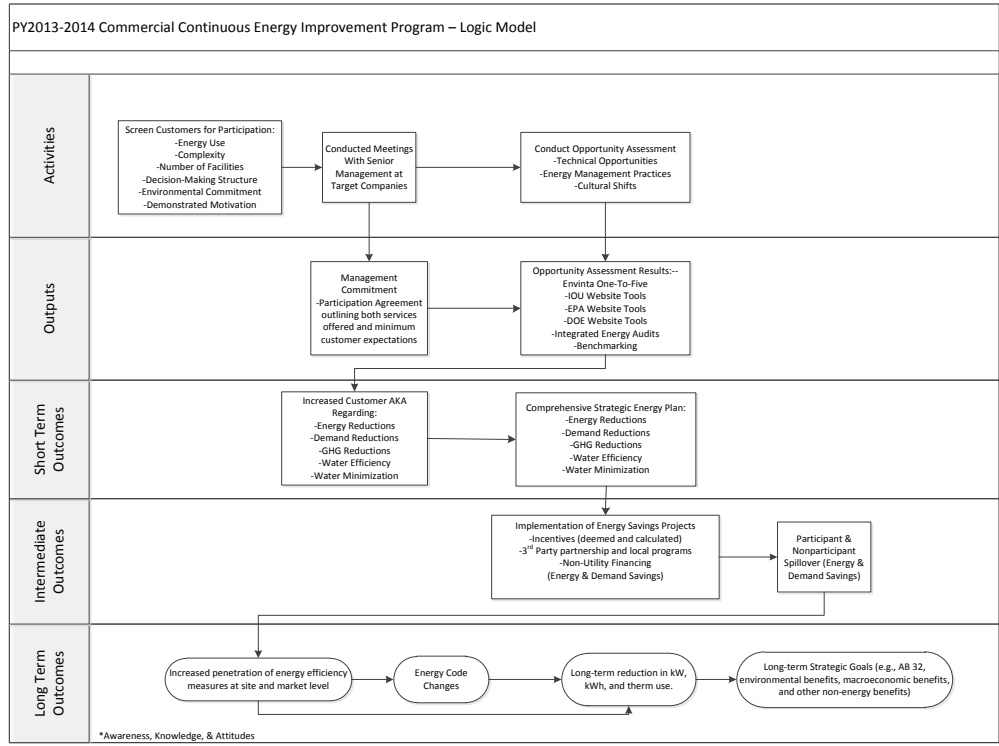
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Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the ~~Direct Install~~Continuous Energy Improvement Sub-program.

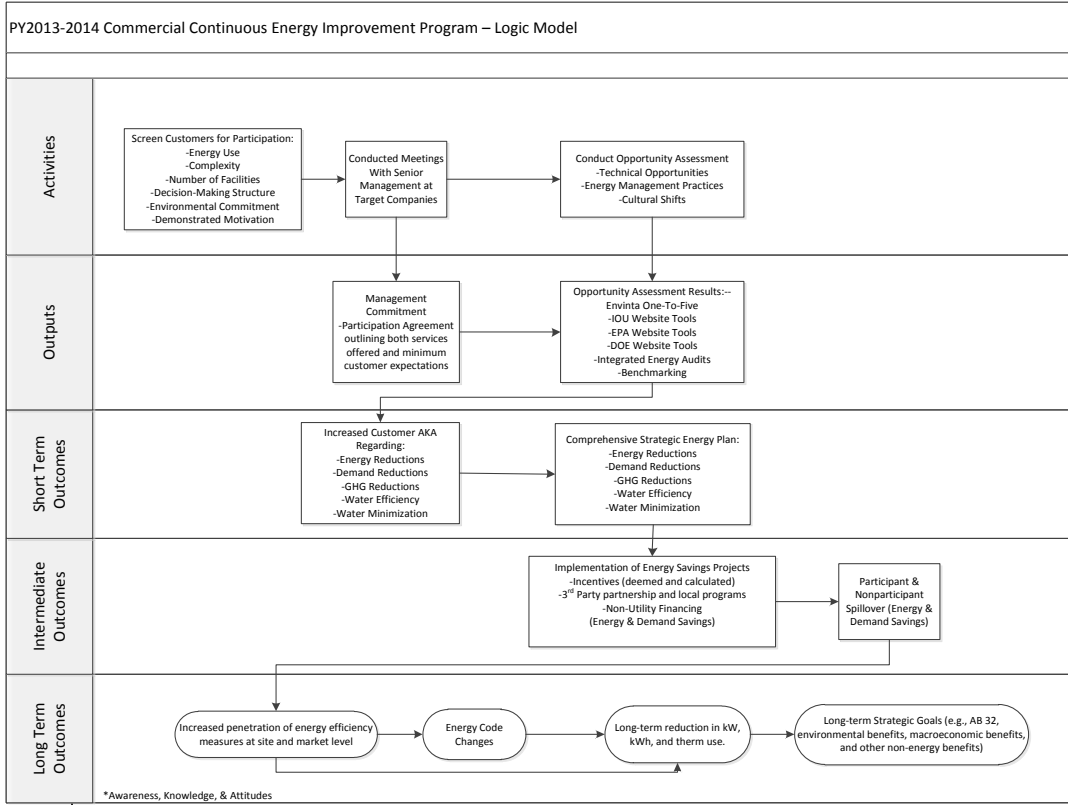
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41. ~~2f~~ Program Name: Commercial Direct Install Nonresidential HVAC, core sub-program

Program ID: SCG3712

Program Type: Statewide Core Program

1. ~~2~~ Projected Program Budget Table

Table 1 – reference the overarching program for budget details

2. ~~3~~ Projected Program Gross Impacts Table – by calendar year

Table 2 – reference the overarching program for savings gross impact details

44. Program Description

a) Describe program

The Nonresidential HVAC Sub-program is a statewide program that will continue the transformation process of California’s HVAC market to ensure that:

- ~~a.~~
- ~~b.~~ HVAC technology, equipment, installation, and maintenance are of the highest quality;
- ~~c.~~ Quality installation and maintenance practices are easily recognized and requested by customers;
- ~~d.~~ The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- HVAC market business models for installing and maintaining heating and cooling systems change from commodity-based to value-added service business.

The IOUs are building towards this vision for HVAC by implementing a comprehensive set of strategies that builds on existing program, education, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality driven market. Through this state-wide HVAC Sub-program and the Western HVAC Performance Alliance group of industry stakeholders, we will continue to gain a better understanding of the market response to our programs as well as the behavioral implications of the various market participants, and then actively revise/update strategies and programs accordingly, as guided by the California Long Term Energy Efficiency Strategic Plan (Strategic Plan).

Market transformation and direct energy savings and demand reductions will be achieved through a series of Sub-program elements that are summarized below:

Upstream HVAC Equipment Distributor Incentive

This sub-program element offers incentives to upstream market actors who sell qualifying high efficiency HVAC equipment. The logic that underscores this sub-program’s design is

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that a small number of upstream market actors are in a position to impact hundreds of thousands of customers and influence their choice of equipment by increasing the stocking and promotion of high efficiency HVAC equipment. The upstream model cost-effectively leverages this market structure and existing relationships. The sub-program element also provides an online rebate application system to facilitate program participant sales and invoice tracking, which further reduces administrative costs as compared with paper application processing.

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The upstream sub-program element is designed to adapt to market changes, and therefore the IOUs will continue working with relevant industry players to continually enhance the program to include new beyond-code upstream incentives.

Nonresidential Quality Installation

This sub-program element is applicable to installations of packaged HVAC systems, with a rated capacity up to 760,000 BTU/H. This sub-program element is based on the assumption that energy and demand savings are achievable through the application of QI in accordance with appropriate industry standards (e.g., ACCA, SMACNA and ASHRAE) applied to new commercial HVAC equipment.

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This sub-program element intends to:

- Collaborate with EM&V efforts to quantify potential savings;
- Develop and implement a sub-program element focused on comprehensive, continuously improving installation activities that capture those savings and provide a high return on investment (ROI) to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

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Nonresidential Quality Maintenance

—This sub-program element may represent one of the more creative aspects of the HVAC “Big Bold Energy Efficiency Strategy.” It is based on the assumption that there are energy and demand savings achievable through the regular application of quality maintenance (QM) procedures applied to existing nonresidential HVAC equipment. This sub-program element intends to implement a commercial maintenance program focused on comprehensive, continuously improving O&M activities that capture those savings and provide a high return on investment (ROI) to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

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Equipment efficiencies are improved by applying diagnostic methods and the detailed HVAC inspection and maintenance tasks of American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air Conditioning (ASHRAE)/Air Conditioning Contractors of America (ACCA) Standard 180.

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The QM sub-program element is driven by Service Agreements between customers and contractors. The program incorporates training, marketing and incentives to help contractors understand and communicate the value of HVAC quality maintenance and energy efficiency. The program is also supported by commercial customer referrals from utility Sales and Service Representatives.

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The 2013-14 HVAC QM efforts will focus on continuous improvement, design enhancements, implementation barriers and collecting program data to help improve savings estimates.

i.b) List of Measures

To achieve energy savings and the market transformation desired by the Strategic Plan, a variety of appropriate incentives is required to influence specific market actions. Incentives will be targeted to all levels of the HVAC value chain and will be available for equipment (Upstream) and services (Quality Installation and Quality Maintenance).

Additionally, in coordination with the Emerging Technologies Program, the Nonresidential HVAC QM program will continue to consider higher initial incentives for any HVAC emerging technologies that may be newly introduced to the marketplace via this sub-program. Once the new products have taken hold in the market place, any such incentives would be adjusted to reflect market conditions.

Upstream HVAC Equipment Incentive

Eligible measures may include packaged and split system air conditioners and heat pumps and other commercial HVAC equipment. Packaged units less than 65,000 Btu/hour are rated according to seasonal energy-efficiency rating (SEER) and steady state energy efficiency rating (EER). Units greater than 65,000 Btu/hour are rated according to EER and integrated part-load value (IEER). See the tables available on the program website www.cainstantrebates.com for current minimum qualifying efficiency ratings for each size category and corresponding incentive values.

<u>Measure Category</u>	<u>Incentive Level (Not to Exceed)</u>
<u>Air-Cooled Packaged and Split Systems < 5.4 Tons of Cooling Capacity</u>	<u>\$4075 - \$450/ton</u>
<u>Air-Cooled Packaged and Split Systems >= 5.4 Tons of Cooling Capacity</u>	<u>\$20 - \$150/ton</u>
<u>Water- or Evaporative-Cooled Systems >= 5.4 Tons of Cooling Capacity</u>	<u>\$407100 - \$300/ton</u>
<u>Air-Cooled Chiller Equipment</u>	<u>\$25 - \$90/ton</u>
<u>Water-Cooled Chiller Equipment</u>	<u>\$407100 - \$300/ton</u>
<u>Variable Refrigerant (VRF/VRV) Equipment</u>	<u>\$630100 - \$1,530/ton</u>

Additional gas savings measures may be included in the program upon further evaluation of their viability and cost-effectiveness. New offering development evaluations will occur through ongoing IOU product development efforts and such continuous national efforts as the Consortium for Energy Efficiency's Commercial HVAC efforts.

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Nonresidential Quality Installation

At this point, providing a list of measures and incentive levels is premature, as a valid Quality Installation based Sub-program must be more fully planned and vetted through the Western HVAC Performance Alliance (WHPA), and since EM&V research under discussion through the HVAC EM&V Project Coordination Group (PCG) is needed to clarify a market-realistic baseline for the level of quality of HVAC installation services. This Sub-program will continue to be designed during 2012-in 2013 for the 2013-2014 program cycle and therefore will not be providing incentives, at least not initially.

Nonresidential Quality Maintenance

<u>Measure</u>	<u>Purpose</u>	<u>Incentive Level</u>
<u>Customer Service Agreement Incentive</u>	Decrease customer's additional cost to upgrade to a QM Service Agreement. Keep the Service Agreement in place and units maintained by Contractor for 3 years	Up to \$3,836 per HVAC unit covered by agreement
<u>Contractor Service Agreement Incentive</u>	Compensate Contractors' for overhead costs related to Service Agreement sale and unit inventory.	\$75
<u>Contractor QM Tasks Incentive</u>	Reduce some of the additional costs of minor repairs that are required but don't receive incentives.	\$50
<u>Contractor EE Tasks Incentive</u>	Compensate Contractors' for completion of a specific set of tasks (see 4.1) required to bring the unit to minimum performance level (within 6 months of Service Agreement approval). <u>EE Tasks Eligible for Incentives</u> <u>Coil cleaning</u> <u>Fan Maintenance</u> <u>Refrigerant system test</u> <u>Refrigerant system service</u> <u>Economizer functional test</u> <u>Integrate economizer wiring</u> <u>Replace damper motor</u> <u>Replace controller/sensor</u> <u>Renovate linkage & other components</u> <u>Decommission economizer</u> <u>Replace thermostat</u> <u>Adjust thermostat schedule</u>	Up to \$2,425 per HVAC unit

c) List of Non-incentive Commercial Customer Services Energy Advisor Services

The Nonresidential HVAC sub-program will include a variety of non-incentive program services intended to support customers and contractors in achieving greater energy efficiency from HVAC upgrades and quality installations and quality maintenance. The list of such service includes:

- Education of the market on the value of selecting high-efficiency systems.

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- ii. Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program.
- iii. Training for contractors on HVAC industry standards, sales and marketing of the value of those standards, and their implementation in the field.
- iv. Education for customers on how HVAC industry standards can help them compare bids of contractor services and select those with high-road skills.
- v. Customer education about the benefits of establishing a long-term trust relationship with a qualified contractor, which can lead to future energy and cost savings, such as from better planning for future HVAC system replacements and the quality installation of those systems when replaced.
- vi. Participating contractors can receive new business sales leads from utility company customer representatives.
- Improved comfort and indoor air quality for customers.

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5.) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

The Nonresidential HVAC subprogram is a market transformation oriented program.

See Section 7. below for, and so the following, market transformation information about the subprogram for 2013-2014 that replaces and enhances sections 5.a., 5.b. and 5.c. of the HVAC Program plan from 2010-2012, which had covered quantitative baseline and market transformation information, as well as program design to overcome barriers.

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b) Market Transformation Information

Summary of the market transformation objectives of the program:

The Nonresidential HVAC Sub program will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- HVAC market business models for installing and maintaining heating and cooling systems change from commodity based to value added service business.

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See Section 7. below.

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Description of the market, including identification of the relevant market actors and the relationships among them:

The three central functions of heating, ventilating, and air conditioning (HVAC) are interrelated, especially with the need to provide thermal comfort and acceptable indoor air quality within reasonable installation, operation, and maintenance costs. In modern buildings the design, installation, and control systems of these functions are integrated into one or more HVAC systems.

The HVAC industry is a worldwide enterprise, with roles including operation and maintenance, system design and construction, equipment manufacturing and sales, and in education and research. The HVAC industry was historically regulated by the manufacturers of HVAC equipment, but regulating and standards organizations such as HARDI, ASHRAE, SMACNA, ACCA, Uniform Mechanical Code, and International Mechanical Code have been established to support the industry and encourage high standards and achievement.

For very small buildings, contractors normally "size" and select HVAC systems and equipment on behalf of end-use customers. For larger buildings, building services designers and engineers, such as mechanical, architectural, or building services engineers analyze, design, and specify the HVAC systems, and specialty mechanical contractors build and commission them. Distributors stock equipment from manufacturers in local regions and sell HVAC systems to contractors or building services companies. Building permits and code compliance inspections of the installations are normally required for all sizes of buildings (Reference: Wikipedia, HVAC Industry).

Market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies:

Successful market transformation programs first and foremost need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"⁴⁶ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts⁴⁷, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful market transformation programs have involved multiple organizations, providing overlapping

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⁴⁶ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

⁴⁷ CPUC (2008) Strategic Plan, p. 5.

~~market interventions⁴⁸. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities will continue to work with the CPUC and all stakeholders to help achieve market transformation while meeting the immediate energy, demand, and environmental needs.~~

~~Provided that HVAC is allotted sufficient EM&V funds, the statewide team will build on the growing body of HVAC research in California to ensure the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies have been studied to inform future program decision-making.~~

~~Key Barriers:~~

- ~~— Lack of awareness: Customers do not appreciate the energy efficiency benefits of QI/QM, and suffer from a lack of information, time, and resources to assess their own energy efficiency opportunities;~~
- ~~— Performance uncertainties: Previous research has been conducted on the energy savings achievable through HVAC system maintenance measures such as RCA and Duct Sealing, but despite all this research many performance uncertainties still exist, and furthermore, this research has not been able to effectively demonstrate the full energy savings benefits of QI/QM;~~
- ~~— Bounded rationality: It is logical to assume that the HVAC industry would want to take the necessary training required to deliver high quality service; however, market dynamics have not supported such logic as the industry has largely become commoditized and low price/low quality typically wins out. Equipment stocking patterns have followed this same dynamic, such that customers who may seek high efficiency systems have had to wait for systems to be shipped from outside of California.~~
- ~~— Hidden costs: End-use customers do not clearly recognize the loss of energy efficiency performance benefits of a HVAC system if it is not properly installed and maintained, and do not recognize without assistance the value over time of purchasing a high efficiency system versus a standard efficiency one.~~
- ~~— Organizational customs: The HVAC industry has largely become commoditized into an industry driven by low costs and quality where quality is assumed but not understood or valued by the customer. This is a result, in part, of contractors having minimal success in communicating the value of QI/QM to consumers and consumers not understanding the linkages between comfort and energy use.~~

~~— Description of the proposed intervention(s) and its/their intended results, including which barriers the intervention is intended to address:~~

~~Historically, the nonresidential retrofit programs directed toward customers and contractors have had very low uptake rates on high efficiency HVAC systems, plus~~

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⁴⁸ [Nadel, Thorne, Saches, Prindle & Elliot \(2003\).](#)

there is very little understanding in the market of the value of quality maintenance and installation services. Consequently, the critical foundation required for achieving HVAC market transformation consists of two main strategies:

- Continue to leverage the high level of participation in the Upstream sub-program element to ensure availability in the market and drive sales of high efficiency equipment, and
- Build customer and contractor participation in the HVAC Quality Maintenance program element, since it is designed to provide an evergreen foundation across a broad customer base of existing HVAC users for achieving deep energy savings across HVAC and other programs.
 - The QM program element incorporates training, marketing and incentives to help contractors understand and communicate the value of HVAC quality maintenance and energy efficiency.
 - This program element is driven by Service Agreements between customers and contractors, establishing an on-going relationship of trust that also then enables better decisions to be made about replacement of equipment with high efficiency systems and the proper quality installation of those systems.
 - The resulting increase in market share of high efficiency equipment and quality installation and maintenance services then allows increased levels of customer, installer, and distributor/manufacturer knowledge and interest in these systems, which should then make it easier to achieve further increases in the market share of these energy saving practices.

c) Program Intervention Design to Overcome Barriers

See Section 7. below.

- Lack of awareness: By quantifying the energy efficiency benefits of QI/QM, the benefits of QI/QM (as well as those “premium” HVAC services that prove to exceed the ANSI QI/QM standards) will be better understood by program participants. It is our goal to discover the evidence, and expected return on investment (ROI), that customers will require to authorize payment for these measures when subsidies are removed. Via the Upstream sub-program element, the delivery process of information about high efficiency units is streamlined. Delivery from distributors and manufacturers through contractors will provide consistent information on the benefits of energy efficiency and reduces the need for end user analysis, thus allowing more customers to see the benefits of implementing energy efficiency projects/measures.

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— Performance uncertainties: The innovative diagnostic methods and technologies used by the QM pThe innovative diagnostic methods and technologies used by the QM program element set it apart from tune-ups and other HVAC maintenance efforts. Program measures include a thorough site assessment and repairs well above and beyond routine HVAC unit maintenance. The methods provided allow contractors enrolled in the program to precisely evaluate commercial customers' HVAC units and subsequently improve unit efficiency and realize energy savings.

— Bounded rationality: The sub-program incentives and promotion of qualified participating contractors encourage the HVAC industry to want to take the necessary training required to deliver high quality service. Upstream incentives ensure product availability to influence the decision-maker at the time of purchase or service.

— Hidden costs: By encouraging contractors to promote the concepts and value of quality maintenance at the time of system installation, customers will be more likely to regularly maintain the system and be assured that the energy efficiency performance benefits of their new system will continue throughout the life of their system. The Upstream incentive channel controls incentive availability for high efficiency systems to the most relevant segments and can support smaller per unit incentives than if they were customer rebates, thereby maintaining cost effectiveness.

— Organizational customs: The program effort is designed to help demonstrate the value proposition of a high quality contracting business and educating consumers on the energy benefits of QI/QM. Additionally, incentives to upstream market actors encourage the development and promotion of new energy efficiency technologies and tiered incentive structure to build towards meeting future codes and standards changes.

Additionally, several other issues could potentially influence sub-program design for Quality Installation, including:

— Other organizations have established processes and procedures for QI. These processes should be evaluated to determine how well they perform in comparison to minimum QI standards.

— Lack of industry consensus on QI standards and technical protocols

— Overcoming market barriers to exceeding Title 24 Standards

— Cost-effective constraints arising from limited savings for QI measures exceeding Title 24.

— Forging sustainable HVAC industry and market actor support.

— Addressing challenges in standard applicability across a range of commercial building types and HVAC systems.

— True energy savings measurement procedures.

— The WHPA “Road Map” noted that while of both the Title 24 and ACCA standards mandate distribution system evaluation and specify limits for allowable leakage, the Nonresidential QI committee concluded that:

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~~“To date, no satisfactory method for performing these examinations has been found for a wide range of non-residential installations.” (WHPA Non-Residential Quality Installation Road Map, 2010, p. 2)~~

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~~Program or market logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results:~~

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~~<Review existing logic model and enhance – IOU EM&V Team working on model>~~

~~Evaluation plans and corresponding Market Transformation Indicators and Program Performance Metrics based on the program logic model:~~

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~~On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.~~

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~~Below are the approved PPMs and metric types for the three elements of the Nonresidential HVAC Sub-program (Resolution E-4385, Appendix A, pp 35-36):~~

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Table 3— Program Performance Metrics

<u>Program</u>	<u>Metric</u>	<u>Metric Type</u>
<u>Upstream HVAC</u>	<u>1. (a) kW/ton incentivized in the program. (Note: Decrease in metric indicates positive progress), combined with (b) the number of units that are incentivized in the program vs. (c) number of units over 5.4 tons shipped to California as tracked through AHRI shipment data. (Assuming the availability of AHRI data.)¹</u>	<u>2a</u>
	<u>¹ As is indicated within this PPM, the availability of item (c) in this PPM is not yet confirmed, since it is closely held, proprietary third party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for 2010 information.</u>	
	<u>2. The distributor stocking percentage of units eligible for program. (Note: Assumes availability of individual distributor data and/or aggregated data from HARDI.)¹</u>	<u>2b</u>
	<u>¹ The availability of this data is not yet confirmed, since it is closely held, proprietary third party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for</u>	

	<u>2010 information.</u>	
Commercial Quality Installation	1. Percentage of HVAC contracting companies that are participating in statewide commercial OI program as a share of the targeted market ⁴⁹ ⁵⁰ * "Target market" defined as C20 licensed HVAC contracting companies in CA.	2a

Market Transformation metrics should neither be used for short term analyses nor for specific program analyses; rather, should focus on broad market segments. Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as "Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly funded intervention is no longer appropriate in that specific market."⁴⁹ The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁵⁰.

Markets are social institutions⁵¹, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁵² as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁵³. According to York⁵⁴, "Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy."

Resolution E-4385 identified a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms, and these MTIs were presented at a public workshop to allow for public comments and discussion before being finalized. Consistent with the outcome of that public workshop, MTIs for this subprogram are below:

— Table 4 — Market Transformation Indicators

⁴⁹ California Public Utilities Commission Decision, D.98-04-063, Appendix A.

⁵⁰ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁵¹ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) "From technology transfer to market transformation". Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁵² Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*, p. 6-4. Available at www.calmac.org.

⁵³ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁵⁴ York, D. (1999). "A Discussion and Critique of Market Transformation". Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

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<u>HVAC-1</u>	<u>Market share of energy efficient climate appropriate HVAC equipment.</u>
<u>HVAC-3</u>	<u>Percentage of all California Commercial HVAC installation contractors using Quality Installation guidelines (weighted by size).</u>
<u>HVAC-4-Commercial</u>	<u>Percentage of Commercial HVAC units (systems) serviced in IOU service territory under a QM Service Agreement.</u>

EM&V for the Nonresidential HVAC Subprogram will be managed via the EM&V program. To support the continuous improvement envisioned by the adaptive management process and to fully address the intricacies of the program design, appropriate EM&V activities will be conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

d) Quantitative Program Targets

The program will achieve the following program targets:

Table 5

	<u>Program Target for 2013</u>	<u>Program Target for 2014</u>
<u>Upstream HVAC Distributor Equipment Incentive</u>		
<u>Tons of Equipment Cooling Capacity Incentivized</u>	<u>TBD</u>	<u>TBD</u>
<u>Nonresidential Quality Installation (QI)</u>		
<u>Contractor Information Sessions</u>	<u>TBD</u>	<u>TBD</u>
<u>Participating Contractors</u>	<u>TBD</u>	<u>TBD</u>
<u>Nonresidential Quality Maintenance</u>		
<u>Commercial HVAC Systems Serviced</u>	<u>TBD</u>	<u>TBD</u>
<u>QM-Standard Service Agreements Signed</u>	<u>TBD</u>	<u>TBD</u>
<u>Participating Contractors that Sign at Least One QM-Standard Service Agreement</u>	<u>TBD</u>	<u>TBD</u>

e) Advancing Strategic Plan Goals and Objectives

Upstream HVAC Equipment Incentive

- Support for Strategic Plan, HVAC Goal 1 to improve code compliance (and related SB454, which is now codified at Public Utilities Code Section 399.4)

Most HVAC distributors and manufacturers have not actively engaged in the areas of quality installations and increasing related permit compliance, mainly because they are not directly involved in the relevant code compliance market processes. However, they are supplying and helping with training contractors who are in the best position to ensure that quality installations occur, and who are often in a central

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role regarding permit compliance. The program will continue to engage these market actors for ideas and possible program modifications to enhance support of quality installations and permit compliance.

- Support for Strategic Plan, HVAC Goal 4 to improve market penetration of new climate-appropriate HVAC technologies

The Upstream HVAC sub-program element can serve as an incubator program for increasing the market penetration of promising HVAC technologies, in coordination with HVAC elements of the Emerging Technologies program.

The sub-program element will support improvement to HVAC equipment by providing incentives for various high-efficiency HVAC equipment categories. The eligible equipment categories are based primarily on the Consortium for Energy Efficiency HVAC specifications, which have multiple tiers designed to increase the market share of high-efficiency equipment. Furthermore, by leveraging the geographic area of the Upstream HVAC sub-program throughout California and other parts of the West, the result will be increased participation, which will lead to increased market share of high-efficiency equipment sufficient to argue for standards changes.

Both SMUD and NV Energy currently offer a similar Upstream HVAC program. The California Upstream HVAC Program will look to leverage these existing relationships in addition to engaging the DOE, Southwest Energy Efficiency Project (SWEEP), Western Cooling Efficiency Center (WCEC), Western HVAC Performance Alliance (WHPA) and manufacturers to create a regional strategy to develop and increase the commercialization of new climate-appropriate HVAC technologies.

Nonresidential Quality Installation

The program will help to achieve the following near-term strategic goals as identified in Chapter 6 of the Strategic Plan:

- 2-3: Provide expanded QI/QM training – In order to participate in the program, contractors will be required to attend specific training sessions that introduce them to the appropriate industry standards.
- 2-4: Implement contractor accreditation program – Additional support will be made available through the sub-program to reinforce the WE&T Program's efforts toward increasing the level of technician certification.

Nonresidential Quality Maintenance

The program will help to achieve the following near-term strategic goals, as identified in Chapter 6 of the Strategic Plan:

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- 2-1: Create a Statewide QI/QM Brand – QM will support the Energy Upgrade California branding as applicable.
- 2-2: Launch Statewide Brand – QM will support the Energy Upgrade California branding as applicable.
- 2-3: Provide expanded QI/QM training –HVAC service technicians will continue to be fully trained on the delivery of the measures promoted by the Program. Furthermore, feedback mechanisms will be utilized to continually evaluate technician performance to ensure that they are applying the information they are being taught in the QI/QM training. Nearly all economists and government leaders agree that negative impacts of the current worldwide financial crisis are likely to linger for years. Thus, the IOUs will work closely with the industry to reduce (and wherever possible eliminate) the direct costs of this transformative training to technicians and contractors who are willing and able to apply their skills and new tools to the task at hand.
- 2-4: Implement contractor accreditation program – Efforts will be made to promote NATE certification.
- 2-5: Develop standards for on-board diagnostic functionality – Evaluating the use of hand-held and other types of diagnostic systems in the field will help determine viable protocols for commercial applications.
- 2-6: Prioritize in-field diagnostic approaches – Conducting the appropriate level of research into existing diagnostic and verification approaches will provide the IOUs and the HVAC industry with the information necessary to target future efforts based on quantifiable energy efficiency benefits.

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6.) Program Implementation

a) Statewide IOU Coordination

The IOUs will jointly participate in California’s nonresidential HVAC efforts to achieve real market transformation. In order to accomplish this task, the IOUs will use the principles of adaptive management and follow a structured process to continuously update and enhance the program throughout the two-year implementation cycle. The process will be as follows:

- Designate an IOU Program Lead – The process for adaptive management will begin with each IOU designating an HVAC Program Lead. The lead will be the conduit through which information between IOUs will flow and will investigate new innovations, special accomplishments and challenges faced by sub-program managers and the managers of cross cutting statewide programs within their own IOU. Where such innovations or challenges intersect HVAC and show potential for improving the HVAC program, the Program Lead will present such information to a quarterly HVAC Program Management Team meeting.
- Hold HVAC Program Management Team Meetings – Meetings will be held at least quarterly, individual innovations and accomplishments experienced in one IOU will be transmitted to all IOUs. The HVAC Program Management Team will evaluate the innovations and accomplishments of the individual IOUs, hear ideas for course corrections and overcoming challenges, measure the HVAC program’s progress against statewide metrics and goals and prepare summations for presentation to the Western HVAC Performance Alliance.
- Adopt Program Enhancements – Once the HVAC Program Management Team agrees that a particular idea or innovation has merit on a statewide-level, each IOU program lead will distribute the information to their sub-program element managers for adoption and integration as appropriate. In some cases, it may be necessary to invite the sub-program element managers to the HVAC Program Management Team to get their feedback and ensure they receive the same message.
- Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the HVAC Program Management Team will track the program’s accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results⁵⁵. The HVAC Program Management Team will determine whether future course corrections are needed, and if so, “activate” a fresh start of the adaptive management cycle to generate the improvements necessary to stay on track.

Additional areas of program coordination include:

— **Program name:** Nonresidential HVAC Sub-program

i.
Nonresidential HVAC Sub-program

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ii. Program delivery mechanisms

The Nonresidential HVAC Sub-program is the umbrella activity that encompasses the three sub-program elements summarized above in Section 4.a. The IOUs will deliver the Sub-program through a combination of third-party vendors and internal administrative staff. The Sub-program will be delivered in collaboration with existing industry infrastructures in order to increase its overall effectiveness. Program guidance will be provided to the CPUC/IOUs through the Western HVAC Performance Alliance as described below. The program will be targeted to consumers, contractors and distributors to create a push/pull dynamic that influences sustained market changes.

iii. Incentive levels

See Section 4.b above for more information on sub-program measures.

iv. Marketing and outreach plans

Specific outreach efforts will be made to the industry to keep them engaged with IOU programs and in the Strategic Plan process. On a macro level, this outreach will occur through the Western HVAC Performance Alliance. On a micro level, each sub-program element has specific tactics in place to engage the industry in its own particular demand reduction, energy savings and market transformation objectives

The Upstream sub-program element will explore outreach activities to upstream market actors in other geographic areas that ship into and across service territories and will continue communication with the industry to see where additional collaboration can occur to maximize marketing and outreach resources.

The IOUs will continue to develop common outreach materials, with feedback from market actors to enhance their effectiveness. These marketing materials will only be available to participating contractors, and will leverage IOU and other statewide branding efforts.

v. IOU program interactions

The IOUs are engaged in ongoing collaboration with the CEC and other agencies via the Codes and Standards process and will be able to coordinate and communicate voluntary programs and incentives with mandatory codes that become enacted for the future. Increasing the communication regarding the Strategic Plan will allow all entities to move and plan towards the same objectives.

In order to support the need for increased code compliance, the sub-program will continue to cooperate with CEC training and other compliance support activities targeted at local building departments. Such activities will also be used to promote

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the economic and performance benefits of QI/QM. The sub-program will also continue to coordinate its activities with IOU local government partnerships, third-party programs and Codes and Standards activities to ensure that code compliance becomes fully integrated into these programs.

vi. Similar IOU and POU programs

As mentioned in Section 5.e. above, the three IOUs and SMUD implement the same or very similar Upstream HVAC Equipment Incentive Program.

As a result of increased federal equipment efficiency standards, many utilities across the country have begun to offer service-based programs that independently offer measures such as RCA and Duct Sealing. It is expected that the HVAC QM Program could stimulate a paradigm shift by delivering a comprehensive suite of maintenance services that comply with ASHRAE/ACCA/ANSI Standard 180, designed to address the full range of efficiency measures available for commercial HVAC systems.

POUs manage many different types of HVAC programs. However, none of them seek to accomplish the aggressive market transformation goals being proposed by the IOUs. Via the Western HVAC Performance Alliance, the IOUs will continue seek to increase their interactions with the POUs to better align IOU and POU HVAC programs. This may involve increasing awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

b) Program Delivery and Coordination

The program will be coordinated with the following activities:

i. Emerging Technologies program

The program is expected to interact extensively with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment and the advancement of energy efficient climate-appropriate HVAC technologies.

ii. Codes and Standards program

The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This ensures that the code-based solutions are consistent with that program's other activities. The Codes and Standards PIP describes the specific actions that the Program will employ to address HVAC.

As technologies advance and market penetration increases to an acceptable level, the minimum threshold for eligibility in California can increase to lock in the higher efficiency levels and continue an upward level of efficiency for HVAC equipment.

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Coordination of HVAC, Codes and Standards and Emerging Technologies activities will be realized through regular interactions of statewide program teams to discuss program integration and implementation issues.

iii. WE&T efforts

The workforce education and training needs for the HVAC industry will be managed through the Statewide IOU Workforce Training and Education (WE&T) Program umbrella. However, the WE&T activity will be coordinated with the statewide HVAC Sub-program activity to ensure that the individual efforts are complementary.

Participating contractors in the HVAC sub-program will be required to attend program-specific QM training in order to participate in the programs.

The IOUs will leverage relationships with upstream market actors established through this sub-program to extend the delivery of training modules developed through the HVAC elements of the statewide WE&T Program.

iv. Program-specific marketing and outreach efforts

The primary outreach vehicle between the Upstream sub-program element and program participants is via the website: www.cainstantrebates.com and other electronic communication (e.g., e-mail and newsletters). The cost of operating this website is shared between the participating IOUs and POUs. Additional marketing and outreach activities exist through personal contact between the program staff and program participants. Targeted QI/QM marketing materials can be distributed to contractors via these established upstream channels.

Marketing support will be available for participating HVAC service contractors in order to promote the Statewide QI/QM efforts. Such support may include exclusive promotion on IOU websites, brochures and other leave-behind materials that contractors can use to promote QI/QM and their involvement with the sub-program.

The Nonresidential HVAC sub-program will coordinate marketing activities with other offerings within the Commercial program to create a seamless customer experience.

v. Non-energy activities of program

The direct energy benefits of the program result from promotion of high efficiency HVAC systems and the quality installation and maintenance of new and existing systems. Other activities will be required to support these energy savings goals. These activities include significant efforts in program design enhancements and coordination, technology evaluation and integration, contractor training and consumer marketing.

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The program will continue to be active in a number of non-resource and market transformation activities that are required to ensure that the HVAC industry is fully involved in the development and implementation of the many tactics required to address the short and long term goals of the Strategic Plan. One such activity is the Westem HVAC Performance Alliance (WHPA). The WHPA is necessary to keep the industry engaged in the Strategic Plan process and to provide guidance and support for the implementation of the various tactics required to transform the industry. Mindful that HVAC industry organizations are not traditionally structured, staffed or allocate resources to contribute the level of involvement envisioned by the Strategic Plan, the HVAC Convener’s Report concluded that: “The agencies and utilities should work together to ensure the working group is adequately funded to meet its responsibilities”

The WHPA involves high-level HVAC industry stakeholders—such as manufacturers, distributors, contractors, associations, organized labor and influential end user/customers—to coordinate industry sponsorship of and participation in HVAC strategies. Membership also includes and is targeted at other key players, such as the CPUC, California Energy Commission, utilities, building owners/managers, university researchers, consumers, and the Federal Government.

As a communication and coordination entity for HVAC energy-saving collaboration among IOUs, ED, other state and local government entities, and a broad set of HVAC industry and market stakeholders, the WHPA is chartered 1) to champion (coordinate, guide, prioritize, track and facilitate the implementation and evolution of) the HVAC Action Plan in support of the Strategic Plan and 2) to provide thoughtful input into IOU HVAC Energy Efficiency (EE) Program efforts.

vi. Non-IOU Programs

The Upstream sub-program element, in collaboration with the ET Program, will leverage its involvement with the U.C. Davis Westem Cooling Efficiency Center and other industry and academic efforts to continually evaluate and include new equipment technologies as they become more commercially viable.

The IOUs will take an active role in Consortium for Energy Efficiency (CEE) activities to ensure that California’s quality needs are appropriately reflected in the ongoing CEE specification-setting efforts.

The program will interact with the HVAC industry to develop and introduce increasingly stronger QM standards that ensure systems are operating in their most efficient state.

The Program will remain engaged with CEC, CARB, DOE and other government agencies responsible for regulating various aspects of HVAC equipment, services and training.

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vii. CEC work on PIEREPIC

The Program will interact extensively with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment and climate-appropriate HVAC technology advancement and market adoption.

viii. CEC work on codes and standards

See Section 6.b.ii. above.

ix. Non-utility market initiatives

The tenets of QI and QM are being actively pursued by leaders in the HVAC industry itself. Air Conditioning Contractors of America (ACCA) has taken the lead in this national effort by developing various ANSI-recognized QI and QM standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR, Utilities). Other organizations have also developed processes designed to improve the operating efficiency of HVAC systems (e.g., SMACNA, NCI). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards that drive increased energy savings for customers.

c) Best Practices

The Statewide HVAC Program demonstrates several examples of programmatic best practices. First, the Program involves the HVAC industry in all aspects of the program including public policy, program design and implementation – both formally through the Western HVAC Performance Alliance and informally through various ad-hoc working groups. Industry involvement is a crucial step in achieving the desired market transformation goals. Second, the Program uses an adaptive management process, as described in Section 6.a, to ensure that the Program is responsive to the changing market environment. Included under this process are inter-utility coordination meetings between HVAC, Emerging Technologies and Codes and Standards program managers to ensure these three programs are well coordinated and implemented consistent with the goals of the Strategic Plan. The Program includes the appropriate level of focus on technology issues through the close involvement with the Emerging Technologies program to advance the various technological and policy issues required to meet the deep energy savings and demand reduction goals desired by the Strategic Plan.

The use of industry-accepted design, construction and maintenance standards represents a quality-oriented best practice in air conditioning system installations and maintenance. Industry standards have been developed and vetted by national committees of industry experts and represent the best available information to use for program design. Additionally, networking through organizations such as CEE and the WHPA will provide

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opportunities for frequent feedback on QI and QM efforts being implemented within California and across the country.

In the Fall of 2007, ACEEE awarded the “Exemplary” Award to this Upstream sub-program element design. This essentially designated this Upstream program model as the highest performing program to promote HVAC equipment as compared to all programs across the United States.

d) Innovation

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The Statewide Nonresidential HVAC Sub-program takes an innovative approach to program design through its implementation of a multi-faceted effort to engage all levels of the HVAC value chain. Each sub-program element under the umbrella and in those within the Residential HVAC Sub-program is designed to influence specific market changes. Within the sub-program elements, innovative techniques such as co-branded marketing and workforce training through existing industry channels will be employed to increase the program’s effectiveness. In addition, technical innovation is achieved specifically through the HVAC sub-program’s coordination with a dedicated advocacy effort to advance the state-of-the-art in vapor compression cooling and fault detection and diagnostics within the Emerging Technologies program.

A critical component of the Upstream sub-program element is its use of a web-based application and participation tool that provides transparency to both the program participants as well as the host IOU to be able to see what is occurring for applications that involve them. That this system allows participants to know the status in aggregate or down to a customer application level makes participation easy and efficient. For program participants, a paperless system is critical for ease of participation and for utilities there is reduction in cost per kWh saved from administrative costs over a paper review process.

Designing and delivering the QI sub-program program element through active partnership with the industry will increase the likelihood of its success, as will the use of industry-accepted standards for QI as the foundation for activities.

The innovation of the QM sub-program element exists through the adoption of a comprehensive maintenance approach based on industry-accepted standards. A more comprehensive maintenance effort that delivers well-documented energy savings sets the standard for HVAC efficiency programs. Furthermore, delivering this program through active partnership with the industry will increase the likelihood of its success. Finally, innovation results through a continuous improvement process that will be employed to evaluate the viability of offering additional incentives for installations that exceed established program standards.

e) Integrated/coordinated Demand Side Management

As with most HVAC oriented programs, the primary source of integration exists between energy efficiency and demand response activities. At a minimum, all marketing materials developed to support QI and QM sub-program elements will cross promote DR to educate customers on the availability of IOU DR programs. Required contractor training will be designed to include a discussion on DR programs and participating contractors will be required to deliver DR information as part of their customer sales efforts. The IOUs will also explore combined EE and DR opportunities within various HVAC distribution channels.

f) Integration Across Resource Types

The program can be designed to support CARB's efforts to regulate GHGs by providing consumer information on the phase-out of existing refrigerants and the move to zero ozone depletion potential (ODP) refrigerants with the customers maintenance invoice. Such information will seek to influence the customer's adoption of newer equipment by explaining the likelihood of increased maintenance costs as existing refrigerants become less available.

g) Pilots

No pilot programs are planned as part of this sub-program effort, though activities associated with improving QI and/or QM may be piloted before full implementation to ensure more coherent market adoption on roll-out.

h) EM&V

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. To support the continuous improvement envisioned by the adaptive management process and to fully address the intricacies of the program design, appropriate EM&V activities will be

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conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

Routine evaluation: the Upstream sub-program element will utilize the online incentive application system to track the sale of high-efficiency equipment from year to year. Reports can then be created to show the percent of equipment incentivized in tons based on SEER or EER. These reports will be prepared every year and compared to the previous accomplishments, and will determine whether the program is achieving goals.

7. 7) Market Transformation Information

The Nonresidential HVAC subprogram is a market transformation oriented program. The following information replaces and enhances Sections 5.a, 5.b, and 5.c. above of the HVAC Program plan from 2010-2012, which had covered quantitative baseline and market transformation information, as well as program design to overcome barriers.

a) Summary of the market transformation objectives of the program:

The Nonresidential HVAC Sub-program will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- HVAC market business models for installing and maintaining heating and cooling systems change from commodity-based to value-added service business.

b) Description of the market, including identification of the relevant market actors and the relationships among them:

- The three central functions of heating, ventilating, and air-conditioning (HVAC) are interrelated, especially with the need to provide thermal comfort and acceptable indoor air quality within reasonable installation, operation, and maintenance costs. In modern buildings the design, installation, and control systems of these functions are integrated into one or more HVAC systems.
- The HVAC industry is a worldwide enterprise, with roles including operation and maintenance, system design and construction, equipment manufacturing and sales, and in education and research. The HVAC industry was historically regulated by the manufacturers of HVAC equipment, but regulating and standards organizations such as HARDI, ASHRAE, SMACNA, ACCA, Uniform Mechanical Code, and International

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Mechanical Code have been established to support the industry and encourage high standards and achievement.

- For very small buildings, contractors normally "size" and select HVAC systems and equipment on behalf of end-use customers. For larger buildings, building services designers and engineers, such as mechanical, architectural, or building services engineers analyze, design, and specify the HVAC systems, and specialty mechanical contractors build and commission them. Distributors stock equipment from manufacturers in local regions and sell HVAC systems to contractors or building services companies. Building permits and code-compliance inspections of the installations are normally required for all sizes of buildings.

c) Market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies:

Successful market transformation programs first and foremost need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"⁵⁶ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts⁵⁷, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful market transformation programs have involved multiple organizations, providing overlapping market interventions⁵⁸. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities will continue to work with the CPUC and all stakeholders to help achieve market transformation while meeting the immediate energy, demand, and environmental needs.

Provided that HVAC is allotted sufficient EM&V funds, the statewide team will build on the growing body of HVAC research in California to ensure the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies have been studied to inform future program decision-making.

Key Barriers:

Lack of value proposition awareness

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⁵⁶ Peters, J.S., Mast, B., Igelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

⁵⁷ CPUC (2008) Strategic Plan, p. 5.

⁵⁸ Nadel, Thorne, Saches, Prindle & Eliot (2003).

● Performance uncertainties: Previous research has been conducted on the energy savings achievable through HVAC system maintenance measures such as RCA and Duct Sealing, but despite all this research many performance uncertainties still exist, and furthermore, this research has not been able to effectively demonstrate the full energy savings benefits of QI/QM;

● End-use customers do not clearly recognize the loss of energy efficiency performance benefits of a HVAC system if it is not properly installed and maintained, and do not recognize without assistance the value over time of purchasing a high-efficiency system versus a standard-efficiency one.

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Availability of higher-efficiency equipment

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● Stocking patterns of equipment follow demand, and since customers do not yet well appreciate the value of energy efficiency, HVAC equipment stocking in local distribution centers tends toward lower price, standard-efficiency systems. Without program intervention until market transformation occurs, customers who want to purchase higher-efficiency systems suffer delays from waiting for systems to be shipped from other locations, or just select standard-efficiency systems to avoid delay.

Search costs for qualified QM and/or QI contractors

● Customers do not appreciate the energy efficiency benefits of QI and QM, and suffer from a lack of information, time, and resources to assess their own energy efficiency opportunities.

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Commoditized business model practices

● Bounded rationality: It is logical to assume that the HVAC industry would want to take the necessary training required to deliver high quality service; however, market dynamics have not supported such logic as the industry has largely become commoditized and low price/low quality typically wins out. Equipment stocking patterns have followed this same dynamic, such that customers who may seek high-efficiency systems have had to wait for systems to be shipped from outside of California;

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⊖ Organizational customs:

● The HVAC industry has largely become commoditized into an industry driven by low costs and quality where quality is assumed but not understood or valued by the customer. This is a result, in part, of contractors having minimal success in communicating the value of QI/QM to consumers and consumers not understanding the linkages between comfort and energy use.

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d) Description of the proposed intervention(s) and its/their intended results, including which barriers the intervention is intended to address:

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Historically, the nonresidential retrofit programs directed toward customers and contractors have had very low uptake rates on high-efficiency HVAC systems, plus there is very little understanding in the market of the value of quality maintenance and

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installation services. Consequently, the critical foundation required for achieving HVAC market transformation consists of two main strategies:

- Continue to leverage the high level of participation in the Upstream sub-program element to ensure availability in the market and drive sales of high-efficiency equipment, and
- Build customer and contractor participation in the HVAC Quality Maintenance program element, since it is designed to provide an evergreen foundation across a broad customer base of existing HVAC users for achieving deep energy savings across HVAC and other programs.
- The QM program element incorporates training, marketing and incentives to help contractors understand and communicate the value of HVAC quality maintenance and energy efficiency.
- This program element is driven by Service Agreements between customers and contractors, establishing an on-going relationship of trust that also then enables better decisions to be made about replacement of equipment with high-efficiency systems and the proper quality installation of those systems.
- The resulting increase in market share of high-efficiency equipment and quality installation and maintenance services then allows increased levels of customer, installer, and distributor/manufacturer knowledge and interest in these systems, which should then make it easier to achieve further increases in the market share of these energy saving practices.

Program Intervention to Overcome Barriers

Lack of value proposition awareness

- By quantifying the energy efficiency benefits of QI/QM, the benefits of QI/QM (as well as those “premium” HVAC services that prove to exceed the ANSI QI/QM standards) will be better understood by program participants. It is our goal to discover the evidence, and expected return on investment (ROI), that customers will require to authorize payment for these measures when subsidies are removed. Via the Upstream sub-program element, the delivery process of information about high-efficiency units is streamlined. Delivery from distributors and manufacturers through contractors will provide consistent information on the benefits of energy efficiency and reduces the need for end user analysis, thus allowing more customers to see the benefits of implementing energy efficiency projects/measures;

Performance uncertainties:

- The innovative diagnostic methods and technologies used by the QM program element set it apart from tune-ups and other HVAC maintenance efforts. Program

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measures include a thorough site assessment and repairs well above and beyond routine HVAC unit maintenance. The methods provided allow contractors enrolled in the program to precisely evaluate commercial customers' HVAC units and subsequently improve unit efficiency and realize energy savings.

Availability of higher-efficiency equipment

- The Upstream incentives ensure product availability to influence the decision maker at the time of purchase or service.

Search costs for qualified QM and/or QI contractors

- By encouraging contractors to promote the concepts and value of quality maintenance at the time of system installation, customers will be more likely to regularly maintain the system and be assured that the energy efficiency performance benefits of their new system will continue throughout the life of their system.

Commoditized business model practices

- Bounded rationality: The sub-program incentives and promotion of qualified participating contractors encourage the HVAC industry to want to take the necessary training required to deliver high quality service;

☉ Organizational customs:

- The program effort is designed to help demonstrate the value proposition of a high quality contracting business and educating consumers on the energy benefits of QI/QM. Additionally, incentives to upstream market actors encourage the development and promotion of new energy-efficiency technologies and tiered incentive structure to build towards meeting future codes and standards changes.

☉ Additionally, several other issues could potentially influence sub-program design for Quality Installation, including:

- ☉● Other organizations have established processes and procedures for QI. These processes should be evaluated to determine how well they perform in comparison to minimum QI standards.
- ☉● Lack of industry consensus on QI standards and technical protocols
- ☉● Overcoming market barriers to exceeding Title 24 Standards
- ☉● Cost-effective constraints arising from limited savings for QI measures exceeding Title 24.
- ☉● Forging sustainable HVAC industry and market actor support.
- ☉● Addressing challenges in standard applicability across a range of commercial building types and HVAC systems.
- ☉● True energy savings measurement procedures.
- ☉● The WHPA “Road Map” noted that while of both the Title 24 and ACCA standards mandate distribution system evaluation and specify limits for allowable leakage, the Nonresidential QI committee concluded that:

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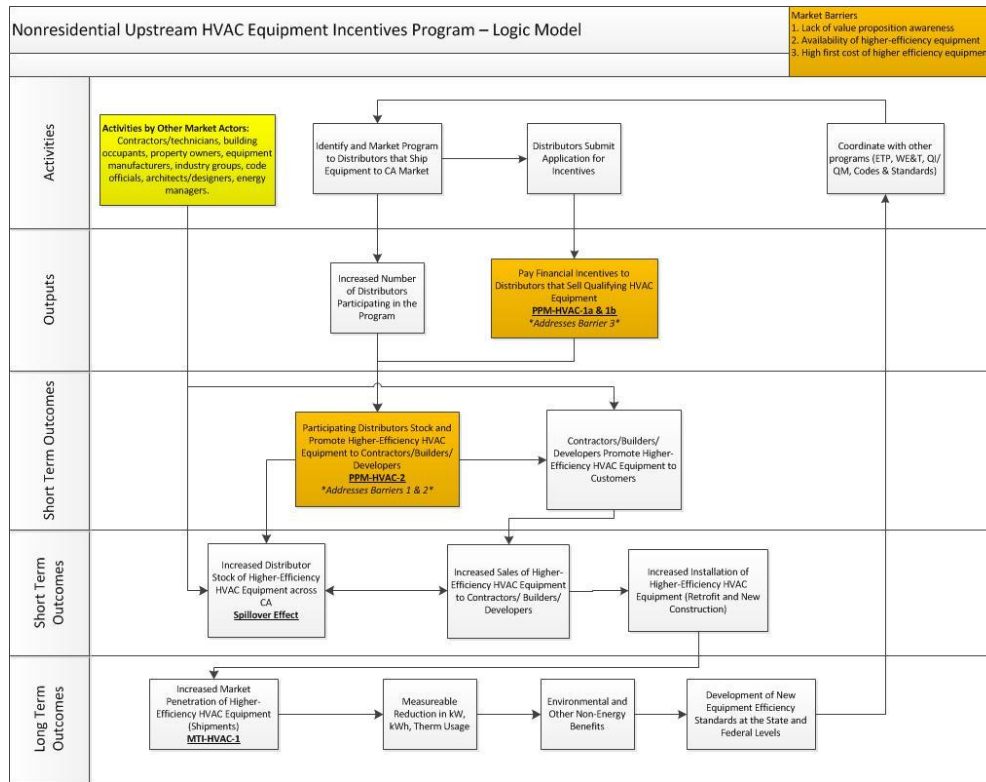
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- “To date, no satisfactory method for performing these examinations has been found for a wide range of non-residential installations.” (WHPA Non-Residential Quality Installation Road Map, 2010, p. 2)

e) Program or market logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results:



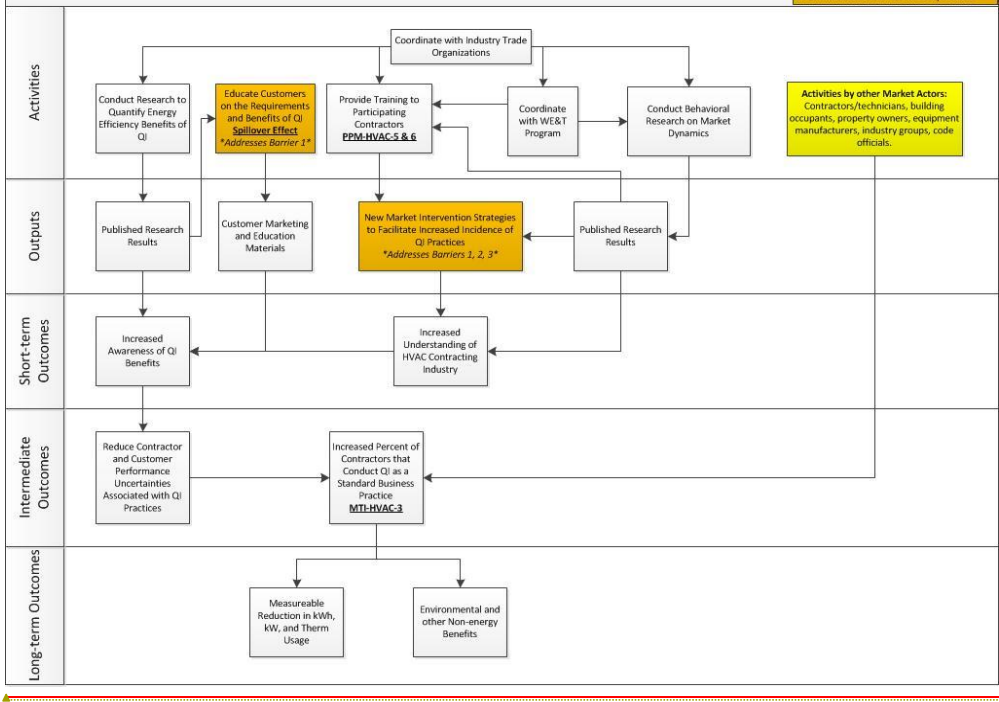
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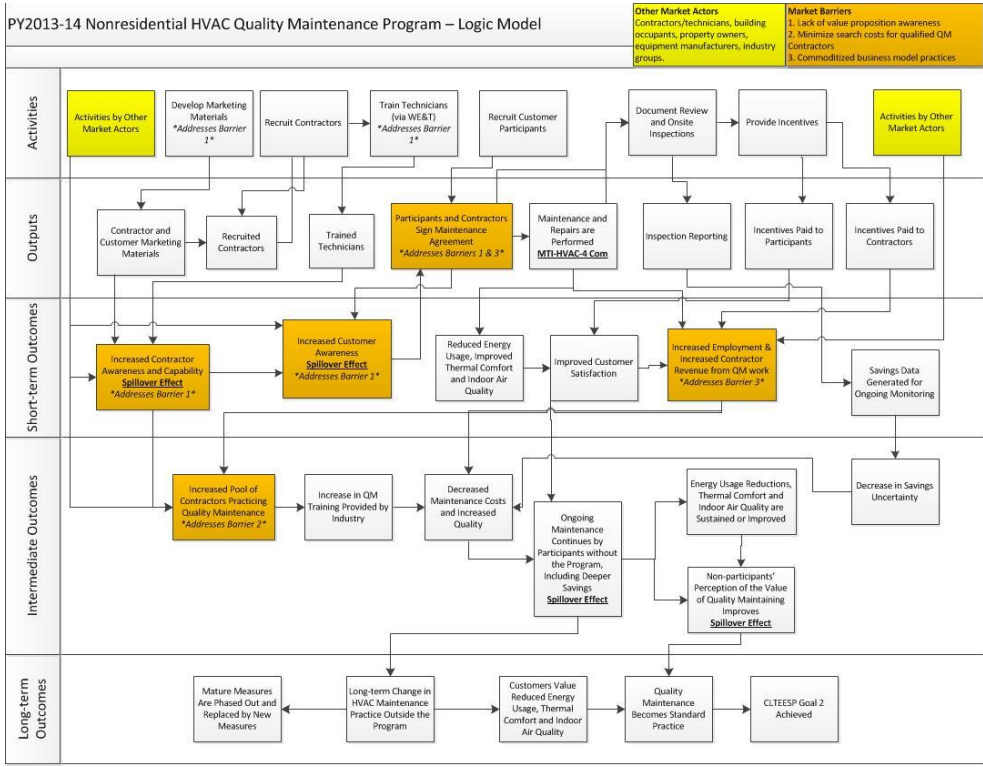
PY2013-14 Nonresidential HVAC Quality Installation Development Process

Market Barriers
 1. Lack of value proposition awareness
 2. Minimize search costs for qualified QI Contractors
 3. Commoditized business model practices



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f) Evaluation plans and corresponding Market Transformation Indicators and Program Performance Metrics based on the program logic model:

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the three elements of the Nonresidential HVAC Sub-program (Resolution E-4385, Appendix A, pp 35-36):

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Table 3 – Program Performance Metrics

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Program	Metric	Metric Type
Upstream HVAC	1. (a) kW/ton incentivized in the program. (Note: Decrease in metric indicates positive progress), combined with (b) the number of units that are incentivized in the program vs. (c) number of units over 5.4 tons shipped to California as tracked through AHRI shipment data. (Assuming the availability of AHRI data.) ¹ ¹ As indicated within this PPM, the availability of item (c) in this PPM is not yet confirmed, since it is closely-held, proprietary third-party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for 2010 information.	2a
	2. The distributor stocking percentage of units eligible for program. (Note: Assumes availability of individual distributor data and/or aggregated data from HARDI.) ¹ ¹ The availability of this data is not yet confirmed, since it is closely-held, proprietary third-party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for 2010 information.	2b
Commercial Quality Installation	1. Percentage of HVAC contracting companies that are participating in statewide commercial QI program as a share of the targeted market* * "Target market" defined as C20 licensed HVAC contracting companies in CA.	2a

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Market Transformation metrics should neither be used for short-term analyses nor for specific program analyses; rather, should focus on broad market segments. Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”⁵⁹ The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁶⁰.

Markets are social institutions⁶¹, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to

⁵⁹ California Public Utilities Commission Decision, D.98-04-063, Appendix A.

⁶⁰ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁶¹ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

intermediary steps such as changing behavior, attitudes, and market supply chains⁶² as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁶³. According to York⁶⁴, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

Resolution E-4385 identified a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms, and these MTIs were presented at a public workshop to allow for public comments and discussion before being finalized. Consistent with the outcome of that public workshop, MTIs for this subprogram are below.

Table 4 – Market Transformation Indicators

<u>HVAC-1</u>	<u>Market share of energy efficient climate appropriate HVAC equipment.</u>
<u>HVAC-3</u>	<u>Percentage of all California Commercial HVAC installation contractors using Quality Installation guidelines (weighted by size).</u>
<u>HVAC-4-Commercial</u>	<u>Percentage of Commercial HVAC units (systems) serviced in IOU service territory under a QM Service Agreement.</u>

The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. To support the continuous improvement envisioned by the adaptive management process and to fully address the intricacies of the program design, appropriate EM&V activities will be conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

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⁶² Sebald, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁶³ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁶⁴ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

~~4f1.2g)~~ **Program Name: Commercial Direct Install, core sub-program**
Program ID:
Program Type: Statewide Core Program

2) **Projected Program Budget Table**

~~Noted: The Projected Program Budget Table is not included since~~ PG&E's and SCG's &E Direct Install efforts are or may be delivered by third party bidders whose efforts are included in ~~th~~ their 3rd Party Program implementation plans.

3) **Projected Program Gross Impacts Table**

~~Projected Program Gross Impacts Table not included since~~ Note: PG&E's Direct Install efforts are delivered by third party bidders whose efforts are included in the 3rd Party Program implementation plans.

4) **Program Description**

a) Describe Program

The Direct Install sub-program delivers free and low cost energy efficiency hardware retrofits through installation contractors to reduce peak demand and energy savings ~~to~~ for small commercial customers ~~with monthly demand typically less than 100 kW~~. The program targets ~~very small and~~ small businesses in a staged delivery approach that provides program services in specific geographic areas at different times allowing for a more concentrated, directed, and yet comprehensive program.

Note: PG&E's and SCG's Direct Installed (DI) sub-program is delivered through LGP and Third Party Channels. Specific descriptions and details of its DI program and offerings can be found in its respective LGP and Third Party PIPs.

b) List of Measures

Direct Install will implement selected measures at reduced or no or low cost to the customer. Low cost measure opportunities will be targeted to small commercial customers. Eligible measure types include but are not limited to:

- ~~Lighting~~
- Gas Measures
- HVAC
- Air conditioning equipment
- Refrigeration ~~Gaskets, auto closers, and strip closers~~
- LED Exit Signs

c) List Non-incentive Commercial Customer Services ~~Energy Advisor~~

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The sub-program provides a complete turnkey solution for the customer, including equipment purchasing, installation, clean-up and disposal. In addition, information about the installed measures is provided to the customer that explains the energy efficiency benefits they received and proper operation and maintenance practices to ensure sustained performance.

|

5) **Program Rationale and Expected Outcome**

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

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Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude "draft" metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

b) Market Transformation Indicators (MTIs)

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c) Program Design to Overcome Barriers

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Small businesses are a significant source of untapped energy-efficiency potential. The primary barriers to participation include limited capital resources, lack of expertise and understanding of the benefits of energy efficiency, a suspicion of the "free offer" and its legitimacy, and language and cultural barriers. ~~generally higher interest rates for smaller customers.~~

In addition, the majority of these customers occupy short-term leased facilities. Consequently, there is also a split incentive barrier to adoption of energy efficiency improvements. Split incentives occur when the customer and owner do not own the same equipment they pay bills for (e.g., the landlord owns the HVAC equipment and the customer pays utility bills for it, or vice versa). The program makes every effort to address this situation with both the owner/property management company and the tenant to communicate the benefits and gain approval for program services. The no cost offering makes this acceptance of the retrofit easier for the tenant.

While these small customers may be eligible for other elements such as the itemized retrofit incentive, the primary barriers beyond some cost reduction to participation by very small and small commercial customers are not addressed by that program. The No-Cost/Low Cost Installation element addresses these barriers by providing all equipment and installation services at no or very little charge to the customer.

The program utilizes a collaborative team of internal and external stakeholders to conduct strategic program outreach and marketing. Working with our External Affairs Outreach group the Direct Install program has worked actively with a number of Business Improvement Districts and local governments during the current cycle to increase local community involvement and raise the program's profile among BID businesses. This effort will continue during the 2013-2014 cycle with a concerted effort to partner with Local Government Programs and multiple BIDs to increase the number of BID customers involved in the Direct Install program.

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Additionally, the Program-program has team members fluent in the languages spoken and familiar with the cultures in its territory to pro-actively working to bridge cultural and language barriers to understanding the benefits of energy efficiency, overcoming the suspicion of the “free offer” and its legitimacy.

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d) Quantitative Program Targets

The Commercial Direct Installation Program has program targets defined within each direct install vendor contract.

e) Advancing Strategic Plan goals and objectives

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In accordance with the Strategic Plan, this sub-program advances comprehensive energy efficiency, including:

- Integrating marketing and outreach to the commercial customer sector
- Integrating the approach to better maximize savings and minimize lost opportunities
- Identifying the most promising technologies that can play a role of providing multiple solutions, for energy efficiency.

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- Cross-promoting other energy efficiency (e.g., Workforce, Education & Training) and demand response programs.

6) **Program Implementation**

a) **Statewide IOU Coordination**

All California IOUs offer The Direct Install efforts. Specific areas of coordination include:

a) **Program name:**

- i. Commercial Direct Install

b) **ii. Program delivery mechanisms**

Third-party contractors will be used to perform program services such as customer outreach, survey existing equipment, explain and promote retrofits, and perform retrofit installations for customers and coordinates services performed by the community-based organizations (CBOs).

c) **iii. Incentive levels**

The sub-program does not pay a rebate or incentive to the direct install customer. Payments are made to the direct install vendor who employs said incentives to reduce the cost of delivering energy efficiency services. The products and installation of products are at reduced cost or free to the customer.

d) **iv. Marketing and outreach plans**

The sub-program is designed to increase the adoption of energy-efficient measures by small and hard-to-reach commercial customers through offering energy efficiency assessments, energy efficient equipment and installation to small business customers at no or low cost. The target commercial customers are those under 100 kW of monthly demand. Marketing efforts undertaken will be targeted based on customer size and demographics. Program interactions include working closely with Faith Based and Community Based Organizations as job development partners, creating and providing jobs in addition to the contract deliverables. This provides a partnership in the community that otherwise would not have engaged.

Additionally, the Program utilizes a collaborative team of internal and external stakeholders to conduct strategic program outreach and marketing. Working with our External Affairs Outreach group the Direct Install program has worked actively with a number of Business Improvement Districts and local governments during the current cycle to increase local community involvement and raise the program's profile among BID businesses. This effort will continue during the 2013-2014 cycle with a concerted effort to partner with Local Government Programs and multiple BIDs to increase the number of BID customers involved in the Direct Install program.

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e)v. IOU program interactions

The sub-program will coordinate its activities with local government partnerships and External Affairs in order to leverage existing infrastructures (e.g., Chambers of Commerce and Business Improvement Districts) that provide outreach to small business customers.

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vi. Similar IOU and POU programs

Not applicable

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b) Program delivery and coordination

Direct Install contractors are selected using a competitive bid process to ensure cost-effective delivery of services. All customer outreach, existing equipment surveys, explanation and promotion of retrofits and installation of retrofits for customers will be delivered by the contractors.

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The IOU Program Management staff provides a customer contact list to the Direct Install contractors. Using this list the contractors will contact the customer to set up an appointment to assess and install the recommended measures at no cost to the customer. In cases where a customer name is not shown on the list (for example, a new business that opened after the list was generated), the contractor confirms their eligibility before performing a survey. Contractors have the main responsibility for contacting eligible customers, but also work with appropriate CBO/FBO and local government partnerships to reach customers.

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After completing the energy survey, the contractors must discuss the recommendations with the customer and explain which fixtures and/or lamps measures are recommended for upgrade and/or replacement. The contractor must then ask the customer whether to proceed with the retrofit:

- a. ~~If the customer needs time to consider the offer, the contractor must leave a copy of a "Customer Authorization Form" and a contact telephone number.~~
- b. ~~If the customer declines or decides not to proceed, the contractor must write the customer's reasons on the authorization.~~
- c. ~~If the customer accepts or decides to proceed with the retrofit/installation, the contractor must have him/her sign the authorization. The contractor uses the Customer Authorization Form to obtain the customer's written permission to proceed with the work. The Customer Authorization Form includes language defining an agreement between the customer and the contractor, and holds the contractor solely responsible, even if the contractor assigns a subcontractor to perform the actual work.~~

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The contractor typically installs the equipment within a few days of obtaining permission to proceed. ~~The customer must complete the installation no more than 30 days after the~~

~~customer signs the Customer Authorization Form.~~ After completing the installation, the contractor must do ~~three-two~~ things:

- ~~—~~ Perform an on-site post-verification of the installation. The test must ensure that all retrofit work is completed and in compliance with all applicable statutes, acts, ordinances, regulations, codes and standards of the federal, state and local governmental agencies having regulatory jurisdiction.
- ~~e.1.~~ ~~Have the customer complete and sign a Customer Questionnaire.~~
- ~~e.2.~~ If a customer has any complaint about work done through the Program, the Contractor is ultimately responsible for handling it.

Any advertising or marketing material that the contractor uses must be approved by the Program manager in advance. All customer communications must be presented in the customer's primary language whenever possible and appropriate categories).

~~a.i.~~ **Emerging Technologies program**

Not applicable; this program does not seek to influence emerging technologies.

~~b.ii.~~ **Codes and Standards program**

Not applicable; this program is not directly involved with the Codes and Standards, but is indirectly involved insofar as Title 20/24 requirements dictate minimum efficiency standards.

~~e.iii.~~ **WE&T efforts**

Direct Install contractors will be required to provide customers with informational materials on statewide and local WE&T opportunities. In addition, the Direct Install program (through its contractor delivery network) offers an opportunity for achieving one of the primary goals of Workforce Education & Training – providing energy efficiency jobs for low income and disadvantaged workers. The linkage between Direct Install and the Statewide WE&T efforts will be made stronger as the WE&T program coalesces.

~~e.iv.~~ **Program-specific marketing and outreach efforts**

Program outreach occurs by working closely with local governments, Faith Based and Community Based Organizations. Marketing and outreach efforts focus on the energy efficiency benefits of the equipment installed, proper operation and maintenance and cross-promotion of DR activities. (Specific IOU budget information for this marketing activity is provided in Table 1.)

~~e.v.~~ **Non-energy activities of program**

As a turnkey program, Direct Install contractors are responsible for outreach efforts, equipment specification, equipment procurement, equipment installation, job-site clean-up, equipment disposal and post-installation inspection.

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f.vi. Non-IOU Programs

Direct Install will leverage the efforts of other philanthropic, faith-based and community-based organizations to achieve additional energy savings. These efforts will be further defined as the program design details are finalized developed and third-party contracts are negotiated.

g.vii. CEC work on PIEREPIC

Not applicable; see Section 6.b.i.

h.viii. CEC work on codes and standards

Not applicable; see Section 6.b.ii.

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ix. Non-utility market initiatives

Not applicable

c) Best Practices

Direct Install Programs were successfully offered during the ~~2006-2008~~2010-2012 program cycle. Best practices were derived from these programs and include:

- Keep messaging and participation simple for the customer.
- Understand the key motivators that drive an industry and use that information to market the program.
- Make the program visible to targeted customers.
- Contact targeted customers through identified organizations and associations,
- Maintain a high level of customer service by providing customers with assistance with vendor management and other no cost, low cost recommendations.
- Identify qualifying products simply and effectively.

d) Innovation

As the market matures with information regarding energy efficiency, many small businesses are expressing an interest in the adoption of ~~advanced-emerging~~ technologies, such as solid state lighting, ~~T-8 to T-8 retrofits~~ and demand response enabling technologies. The IOU Direct Install Program Management team will continually evaluate these technologies and incorporating them into the program delivery model including potential customer co-pay into the program.

IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper savings.

e) Integrated/coordinated Demand Side Management

The Direct Install model provides a great opportunity to market other DSM (i.e., DR and CSI) to traditionally hard-to-reach customers. The program will make every effort to do so; however, it is acknowledged that these small business customers likely do not have the resources (both financial and personnel) to actively pursue participation in such programs (especially CSI). To help bridge this resource gap, DSM promotional materials will describe all known non-IOU programs that offer tax credits/rebates/financing for solar PV systems. Information on DR programs and rate alternatives/changes appropriate to the small-business (~~less than 100 kW~~) customer class will also be provided.

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f) Integration across resource types

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Promotional materials described in Section 6.e will also include information on water energy savings. In addition, such water savings measures (e.g., low flow faucets) may be evaluated for inclusion in the program delivery.

g) Pilots

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Not applicable

h) EM&V

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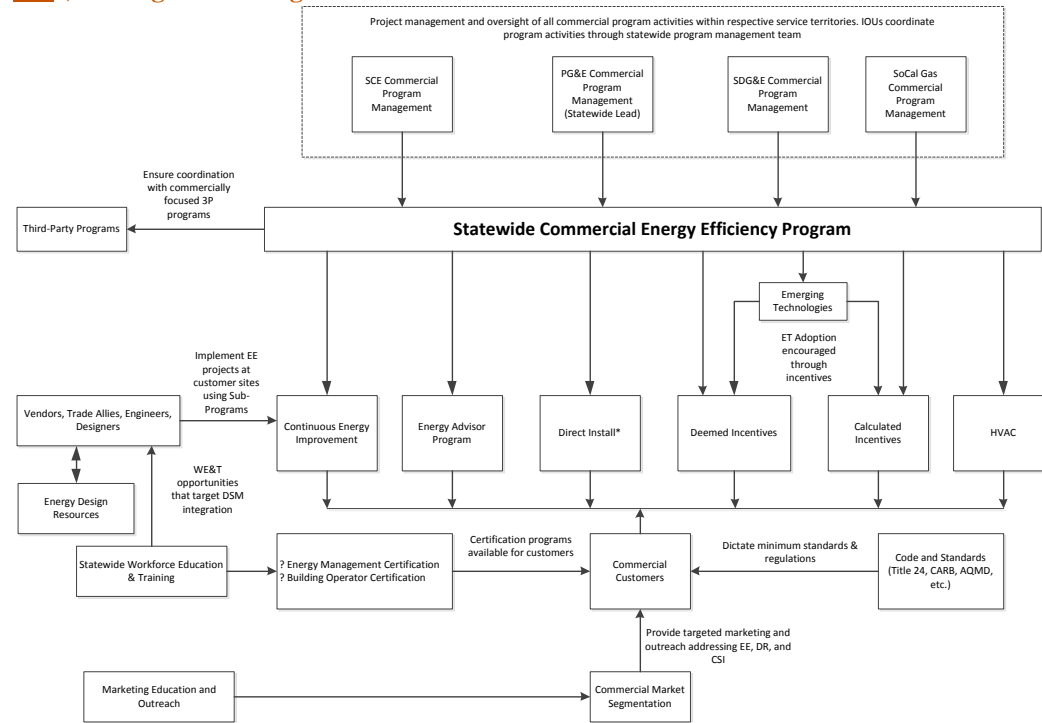
~~The utilities will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. The utilities plan to work together and with the Energy Division to develop a complete plan for 2010-2012 studies and budgets after the program plans are finalized and filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. This plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.~~

~~Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions.~~ However, a brief description of the current, preliminary plans is provided below:

- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

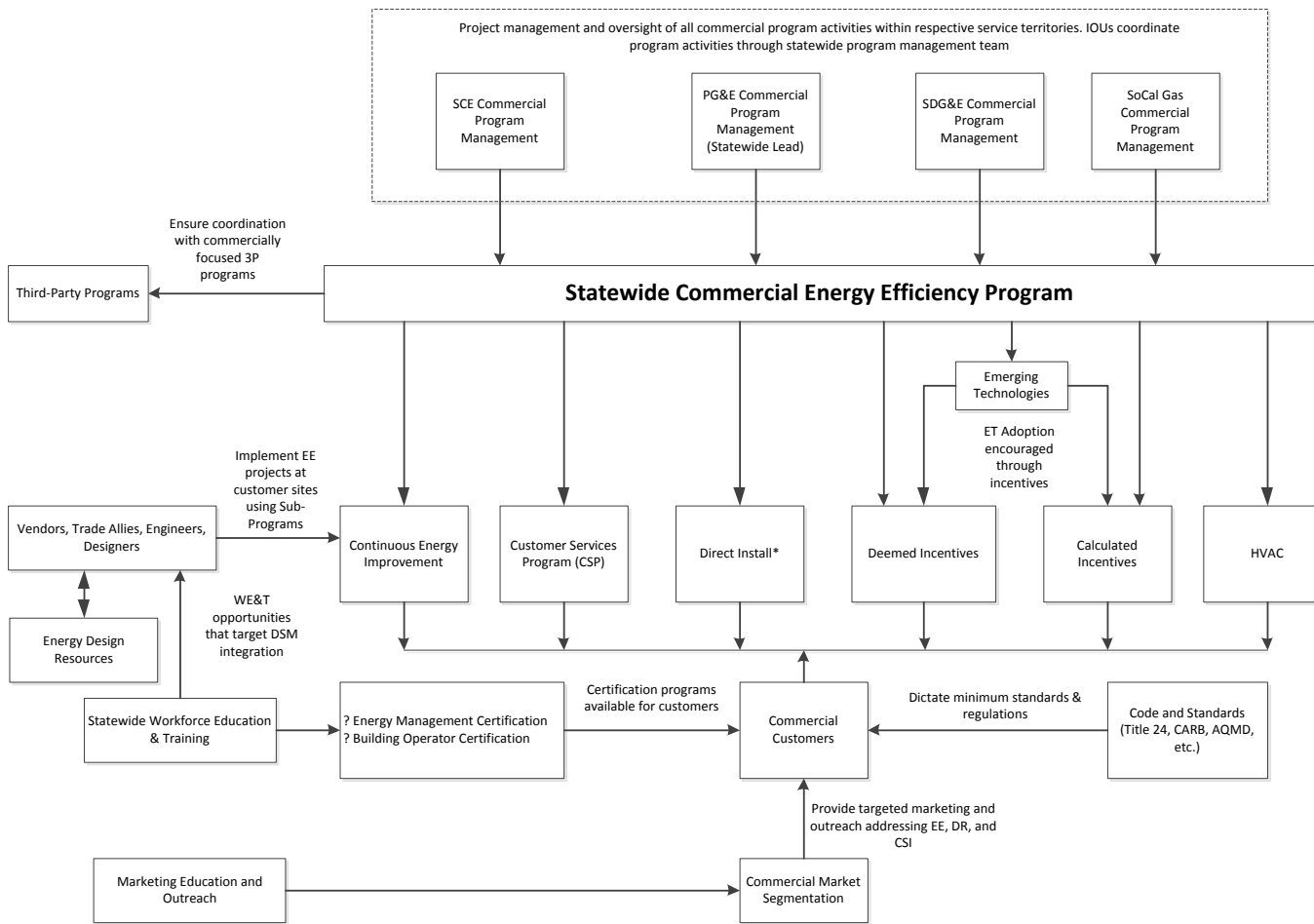
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7. 7) Diagram of Program



* PG&E and SGC deliver direct install through Local Government Programs and Third-Party Programs

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*PG&E and SCG deliver direct install through Local Government Programs and Third-Party Programs

Diagram of Program

Please see the core program diagram.

8.) Program Logic Model

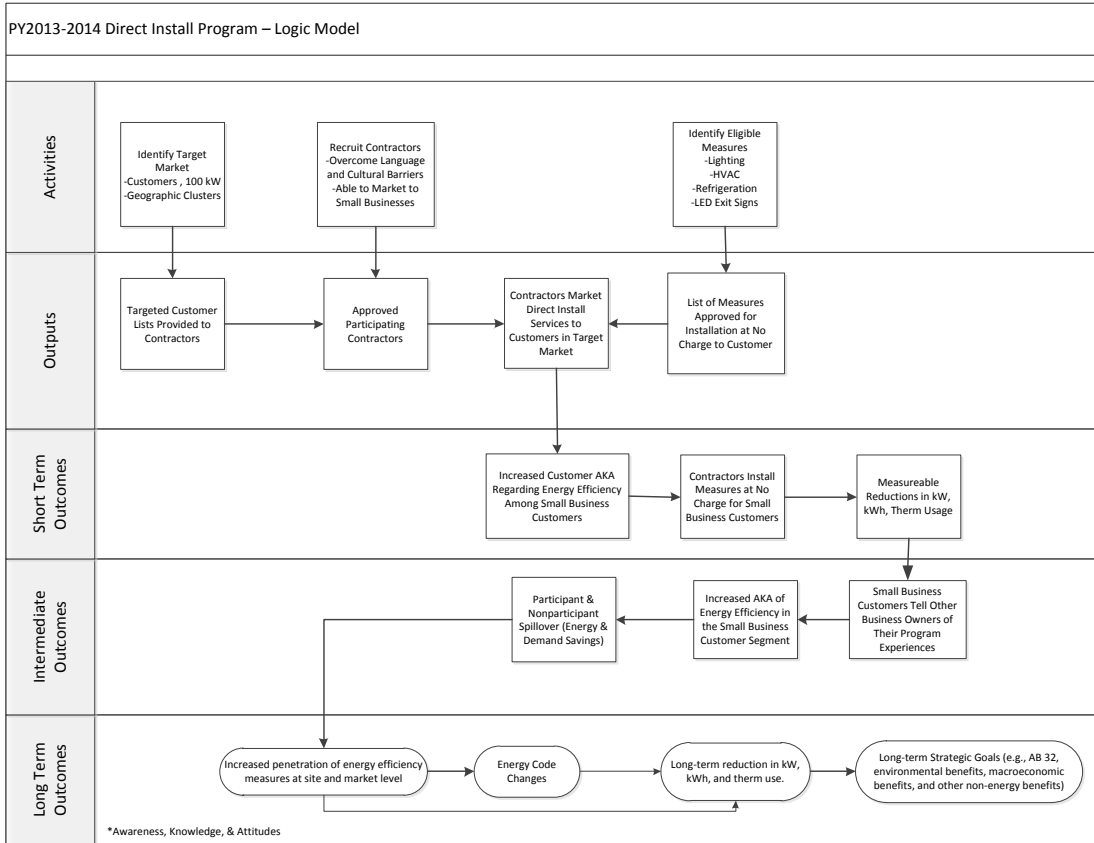
On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Direct Install Sub-program.

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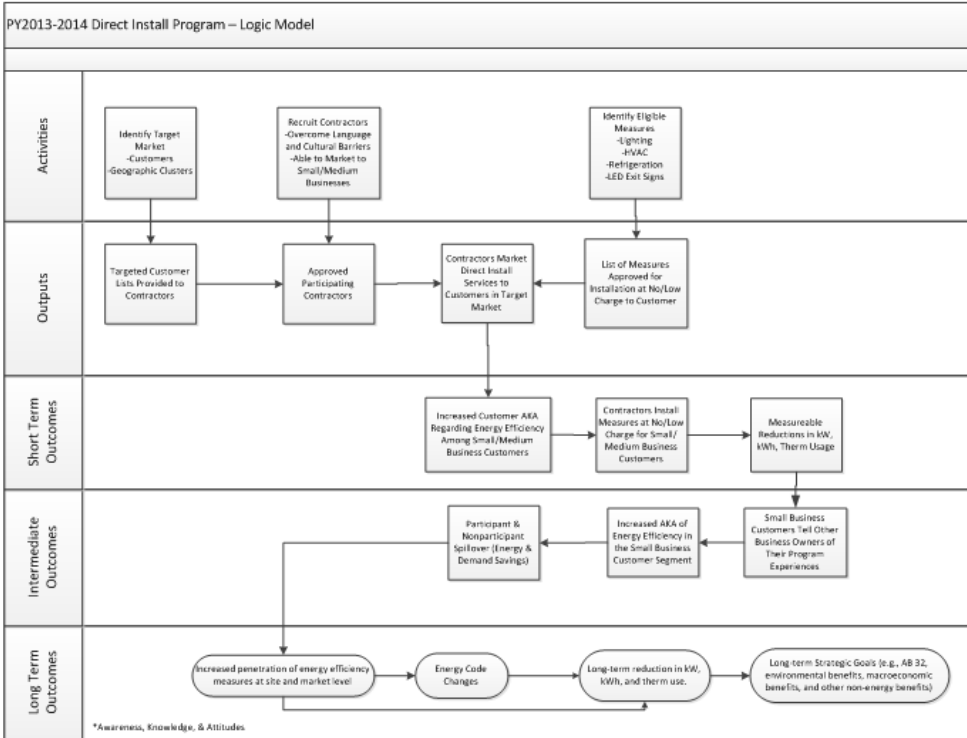
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2013-2014 PIP Addendum

Program Name	Statewide Industrial Energy Efficiency Program	Date Submitted	July 2, 2012
Subprogram Name	Statewide Industrial Energy Advisor Statewide Industrial CEI Statewide Industrial Calculated Incentives Statewide Industrial Deemed Incentives	Utility Name	SoCalGas
Program ID	SCG3713 SCG3714 SCG3715 SCG3716	IOU Program Contact	Andrew Ytuarte
		Program Cycle	2013-2014

This form is to be used to document any required changes to the Program Implementation Plans (PIPs). The following are triggers that will require a PIP change:

1. Changes to eligibiity rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission-Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

4. Portfolio Budget and Other Commission-Directed Changes

Driver of Change:

Aim to reduce the complexity in IOUs' portfolios while increasing customer participation.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

The 2010-2012 Industrial Energy Efficiency Program program implementation plan (PIP) reflects the following sub-programs:

1. Nonresidential Audits Program
2. Calculated Incentives Program
3. Deemed Incentives Program
4. Continuous Energy Improvement

The new 2013-2014 Commercial Energy Efficiency Program will be simplified and consist of the following sub-programs:

1. Energy Advisor Program
2. Commercial Calculated Incentives Program
3. Commercial Deemed Incentives Program
4. Continuous Energy Improvement (CEI)

Revision Date: 05/11/2012

PIP Section and/or Wording to be Changed or replaced:

Changes are throughout the 2013-2014 Statewide Industrial Energy Efficiency Program.

Replacement Language or Information

Refer to Description of Program of 2013-2014 Statewide Industrial Energy Efficiency Program PIP for details on changes .

Revised Energy Savings (If Any):

Refer to 2013-2014 Statewide Industrial Energy Efficiency Program PIP for details.

Other PIP Changes Required:

Refer to 2013-2014 Statewide Industrial Energy Efficiency Program PIP for details of other changes.

2013-2014 Energy Efficiency Programs Statewide Industrial Energy Efficiency Program Program Implementation Plan

- 1. Program Name:** Statewide Industrial Energy Efficiency Program
Program ID#: SCG3713 – SW-IND- Energy Advisor
 SCG3714 – SW-IND-CEI
 SCG3715 – SW-IND-Calculated Incentives
 SCG3716 – SW-IND-Deemed Incentives
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Industrial Energy Efficiency Programs					
3713	SW-IND-Energy Advisor	\$79,591	\$10,000	\$1,126,416	\$0	\$1,216,007
3714	SW-IND-CEI	\$35,237	\$29,706	\$581,056	\$0	\$645,999
3715	SW-IND-Calculated Incentives	\$1,754,457	\$1,608,723	\$11,053,458	\$13,241,552	\$27,658,191
3716	SW-IND-Deemed Incentives	\$314,012	\$237,985	\$1,118,358	\$413,177	\$2,083,532
	TOTAL:	\$2,183,297	\$1,886,414	\$13,879,289	\$13,654,729	\$31,603,729

3. Projected Program Gross Impacts Table

Table 2

Program #	Main/Sub Program Name	2012-2013 Gross kW Savings	2012-2013 Gross kWh Savings	2012-2013 Gross Therm Savings
	SW Industrial Energy Efficiency Program			
3713	SW-IND-Energy Advisor	0	0	0
3714	SW-IND-CEI	0	0	0
3715	SW-IND-Calculated Incentives	0	0	21,902,488
3716	SW-IND-Deemed Incentives	0	0	2,947,836
	TOTAL:	0	0	24,850,324

4. Program Description

a) Describe program

The purpose of the Statewide Industrial Energy Efficiency Program is to provide services to improve the energy efficiency of industrial facilities in California. The primary services provided to industrial customers include:

- Energy audits covering energy efficiency and demand management opportunities;
- Technical assistance in measures specification, procurement, and project management;
- Post-installation inspection and analysis to verify performance;
- Continuous energy improvement consultation; and
- Financial incentives and project financing for installed measures

Financial incentives will be based on:

- Deemed energy savings by per unit of equipment; and
- Calculated energy savings by per unit of energy

2013-2014 Energy Efficiency Programs Statewide Industrial Energy Efficiency Program Program Implementation Plan

The significance of the industrial sector in energy use in California is evident by recognizing that it is responsible for a third of energy consumption in the state, as shown in the table below, taken from the California Long-Term Energy Efficiency Strategic Plan.

Contribution of the Industrial Sector	(% of total in CA)
Electricity use	16
Natural gas use	33
Energy use	22
End-use CO ₂	20

There are several factors unique to the industrial sector, as compared to the residential and commercial sectors, that present challenges to achieving energy efficiency and greenhouse gas (GHG) goals for the state. As taken from the Strategic Plan, these factors include:

- Industry uses a large quantity of energy and other resources via complex proprietary processes to create and bring products to market. Products, to varying degrees, have embedded energy that traditionally cannot be “zeroed out.”
- Industrial facilities are increasingly managed by corporations that reside outside of the state or the country, and that view these facilities as mobile assets in a competitive global marketplace.
- Industry is highly diverse in type, size, and operation. Customer types include the full range of industries from assembly plants, beverage manufacturing, and chemical production to water and wastewater treatment. Thus, uniform programs often will not match corporate or facility needs.
- Industries are subject to multiple policies and rules in resource areas (e.g. air quality, water quality, energy efficiency, GHG reductions, solid waste management), where compliance can raise competing objectives and outcomes.

To address these factors and challenges, the Statewide Industrial Energy Efficiency Program offers California’s industrial segment a statewide-consistent suite of products and services designed to:

- meet customer needs;
- overcome market barriers to energy management;
- enhance adoption of integrated demand-side management (IDSMS) practices; and
- advance the industry toward achieving the goals of the California Long Term Energy Efficiency Strategic Plan.

The program overcomes barriers through policies that:

- provide integrated solutions for the customer;
- create heightened awareness through education and outreach;
- foster continuous energy improvement (CEI);
- promote the use of commonly accepted standards; and

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- support training to create a highly skilled energy efficiency workforce that is accessible to industry.

The Statewide Industrial Energy Efficiency Program includes four statewide sub-program elements that together comprise the core product and service offerings. Each of the four investor-owned utilities in the state also offers local programs that complement and enhance the core offerings in their region. The local portfolio mix of SoCalGas is specifically designed to enhance energy efficiency and DSM opportunities for industrial customers, including financial solutions.

Together, these offerings are designed to not only overcome the traditional market barriers to energy efficiency, but also use efficiency to advance demand response (DR) and distributed generation (DG) opportunities (including solar and renewables) uniquely suited to the industrial segment.

The four statewide sub-programs are summarized below.

- Industrial Energy Advisor: Brings together under one program all audit services offered to support the customer's (1) education; (2) participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits; and (3) awareness of greenhouse gas and water conservation activities. These services include Benchmarking, Online Energy Audit Tool, Continuous Energy Improvement (CEI) (see CEI sub-program PIP), Nonresidential Audits, Pump Efficiency Services, and retrocommissioning (RCx).
- Industrial Calculated Energy Efficiency Program: Features incentives based on calculated energy savings for measures installed as recommended by comprehensive technical and design assistance for customized and integrated energy efficiency/DR initiatives in new construction, retrofit, and RCx projects. Because it presents a calculation method that can consider system and resource interactions, the program will become the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan.
- Industrial Deemed Energy Efficiency Program: Features rebates per unit measure for installed energy-saving projects. It provides IOU representatives, equipment vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts.
- Industrial Continuous Energy Improvement Program: Features a consultative service which targets long-term and strategic energy planning. CEI is designed to reintroduce the importance of energy management by transforming the market and to help reduce energy intensity through a comprehensive energy management approach. CEI will address technical and management opportunities for commercial customers while creating sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principles of well-known business continuous

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improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary IOU and non-IOU products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.

The IOUs and CPUC have worked collaboratively to define a set of Program Performance Metrics (PPM) to measure progress made by the programs and sub-programs towards their short term goals and Market Transformation. Statewide coordination and planning will facilitate inter-IOU sharing of successes, lessons learned, and best practices in the pursuit of those targets and metrics.

Statewide coordination and planning between IOU program planning staff, IOU functional departments, government agencies, and other key partners and stakeholders will also be critical to the advancement of the Strategic Plan. In addition, leveraging national and state initiatives, tools, and resources to manage energy, use and protection of natural resources and environmental impacts will be key to optimizing the potential for California's industrial segment. The Statewide Industrial Energy Efficiency Program includes the staged integration and coordination with existing initiatives and regulations today, and later will drive or support advancements in integrated resource planning, energy management certification, industry benchmarking, workforce education and training, and sharing of industry best practices towards a goal of optimized energy utilization.

An integrated approach should be an effective way to help customers meet overall economic and green goals. In alignment with California's preferred loading order, however, the IOUs will continue to aggressively market and support energy efficiency first as the most cost-effective energy resource through education and training, as well as when pursuing strategic energy planning with customers.

b) List measures

The key end-use technology categories addressed through the Statewide Industrial Energy Efficiency Program are pumping, engines, heat recovery systems, process steam, loads, and heating, air compressors, hot water systems, and insulation.

- Refrigeration
- Industrial Process
- Gas Measures

c) List non-incentive Industrial Energy Advisor Services

Non-incentive Industrial Energy Advisor offered through the Statewide Industrial Energy Efficiency Program will include the following:

Industrial Energy Advisor

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- Remote energy audits
- Integrated energy auditsRetrocommissioning audits
- Benchmarking
- Pump tests and pumping systems technical support
- Water leak detection services

Continuous Energy Improvement (CEI)

- Energy management assessments
- Energy planning consulting
- Energy use baselines establishment
- Facility/customer benchmarking
- CEI education and training
- Customer recognition
- Plant certification

Education and Training

- System-assessment DOE training
- Basic, Intermediate and Specialist Training (in support of ANSI Certification) in industrial pumps, motors, compressed air, and steam
- Other system-specific training
 - Steam system and process heating seminar
 - Air systems
 - Industry-specific integrated energy management workshops and seminars developed by the IOUs
 - Control systems
 - Energy management systems

Workforce Education and Training (WE&T)

- Training to build team of highly skilled personnel to perform plant certification and assessment.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”² The Strategic

² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

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Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies³.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical, dimensions 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴. Markets are social institutions⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed not to immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶, as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁷. According to York⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors, such as past market sales, that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market

³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>.

⁴ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>.

⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.ecee.org/conference_proceedings/ecee/2001/Panel_2/p2_7/Paper/

⁶ Sebald, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

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transformation⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory¹⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers)."¹³ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the IOUs look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide

⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>.

¹⁰ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹¹ Example in bottom chart of this graphic from NYTimes:

<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>.

¹² Sebold et al (2001) p. 6-5.,

¹³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

¹⁴ CPUC (2008) Strategic Plan, p. 5.

¹⁵ Nadel, Thorne, Saches, Prindle & Elliot (2003).

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for MT program developers¹⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first step includes forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can (1) define and characterize markets, (2) measure baselines with better access to historical data, (3) define objectives, (4) design strategies and tactics, (5) implement programs and (6) evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of expected market effects, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector, a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a behavioral based metric for this sector, a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

¹⁶ Pelozo & York, (1999).

2013-2014 Energy Efficiency Programs Statewide Industrial Energy Efficiency Program Program Implementation Plan

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385 approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle. Below are the approved PPMs and metric types for the Industrial Energy Efficiency Program (Resolution E-4385, Appendix A, pp. 32-33):

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED		
* Data to be reported in disaggregate form by SW program (commercial, industrial, and agricultural)		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub-programs (NRA, Deemed, Calculated, and CEI) by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and by Hard to Reach (HTR)** ** “HTR” is as defined in the EE Policy Manual	2a
<i>Continuous Energy Improvement (CEI)</i>	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short-term (2010-2012) milestones as identified by their long term energy plans.	2a
	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N)	2b
	*3. Number and percent of commercial, industrial and agricultural customers that created an energy plan via CEI will be tracked by program.	2a
<i>Energy Advisor(EA)</i>	*1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.	2b
	*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices. (Report disaggregated data by type of audit - Basic, Integrated, and Retro-commissioning audit.) **(1) **Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates. (1) – An audit completed in one portfolio may have measures implemented over several years and portfolios.	2b
<i>Deemed Incentives</i>	*1. Number and percent of new, improved, or ETP measures** installed in the commercial, industrial and agricultural programs. ** “ETP measure” defined as ET measures first introduced into the EE portfolio	2a

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SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
	since January 1, 2006.	
<i>Calculated Incentives</i>	*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.	2a

b) Market Transformation Indicators (MTIs)

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in “Attachment H” are approved for this sub-program as applicable.

c) Program Design to Overcome Barriers

There are a multitude of significant barriers to achieving technical and economic potential for energy efficiency in the industrial sector according to the Strategic Plan (p. 46). While primarily institutional and behavioral, rather than technical, these barriers include:

- Lack of awareness of energy efficiency opportunities;
- Difficulty in accessing industry-specific technical assistance;
- Inadequate availability of plant and management personnel to foster energy efficiency;
- Prioritization of production over energy management;
- Aversion to the risk of investing in new technologies and processes with unknown impacts to industrial output or quality; and
- Limited capital and inhibiting internal investment rates.

Further, the industrial sector faces an array of barriers common to all nonresidential customers:

- A high percentage of building developers, owners, managers, and contractors build or retrofit to current standards (Title 24). Likewise, architects and engineering (A&E) firms tend to specify known and familiar equipment and designs.
- Because viable high efficiency emerging technologies are unknown to facility owners and system designers, these technologies are slow to penetrate the market, causing lost energy efficiency opportunities.
- Insufficient access to information creates barriers associated with:
 - operating best practices;
 - energy efficiency opportunities;
 - impacts of an energy efficiency project on emissions, resource consumption, or waste discharge streams;
 - difficulty in obtaining technical assistance; and
 - inadequate availability of qualified industry specialists, which can all impede adoption of energy efficiency.

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Statewide Industrial Energy Efficiency Program

Program Implementation Plan

The SoCalGas Industrial Energy Efficiency Program will employ all four strategies listed in the Strategic Plan to address the barriers. These strategies include:

- Integrated solutions
- Education and outreach
- Branding and certification
- Workforce training.

The Statewide Finance PIP includes plans to explore and develop additional finance tools to facilitate the adoption of integrated projects.

d) Quantitative Program Targets

Table 5 - Program targets are provided at the sub-program level.

e) Advancing Strategic Plan goals and objectives

The SoCalGas Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector.

Goal 1: Support California industry's adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals and other resource goals.

To address this goal, the strategy adopted, in line with the Strategic Plan, is to develop an interagency framework that could combine energy efficiency incentives to achieve measured performance improvements in resource management, including water, air quality, GHG emissions, and energy efficiency. This first goal focuses on developing a minimum regulatory energy efficiency requirement for individual company or industrial sub-sectors as a whole. One example is to integrate AB32 requirements to allow industries to use energy efficiency to meet or exceed regulatory requirements for GHG emission reductions. An IOU – CARB AB32 team will be formed to study the feasibility of implementing negotiated agreements between agencies SoCalGas.

Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

This second goal focuses on companies that want to exceed a minimum regulatory requirement by actively managing their energy use over time. To this end, this program offers CEI options that include participation in a recognized national effort to certify industrial facilities for energy efficiency. Industrial customers will then be able to reach their GHG emission reductions targets via a supported, structured program based on best practices and develop world wide recognition for their efforts through third-party certification e.g. DOE's SEP program, based on proven best practices. The IOUs will be partnering with DOE Industrial Technologies

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Program or EPA Technologies program, for example, to gain access to highly skilled professionals in energy management systems.

Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

The primary interest with this goal is to provide a clearinghouse of technical knowledge and information so that industry personnel can access information on emerging technology and industry-specific research. The clearinghouse will leverage extensive knowledge on energy efficiency developed by other organizations like DOE and EPA. In alignment with the Strategic Plan, the statewide team will be developing this clearinghouse on the EDR website, which is an existing statewide resource.

6. Program Implementation

a) Statewide IOU coordination

i. **Program name:** Statewide Industrial Energy Efficiency Program

ii. **Program delivery mechanisms**

The Statewide Industrial Energy Efficiency Program will be coordinated on a statewide level to ensure the program is continuously updated and enhanced throughout the two year transition period and beyond. In addition, each of the four sub-programs in the Industrial Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. A detailed description of each of these program aspects and how they will be coordinated statewide is provided in sub-program descriptions. The two coordination systems, one for the core program and one for the sub-program level, will interact with and support one another. The broad, high-level coordination effort for the core program will be described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Industrial Program.

The Statewide IOU Coordination process for the Statewide Industrial Program will be as follows:

1. Designate an IOU Program Lead

The coordination process will begin with each IOU designating a Statewide Industrial Energy Efficiency Program “lead”. The IOU lead will represent one industrial sub-program, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges show potential for impacting the Statewide Industrial Energy Efficiency Program across multiple sub-programs or the Statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.

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2. Hold Periodic Steering Committee Meetings

The Industrial Steering Committee will comprise all designated IOU leads (including at least one lead for each of the four sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the periodical steering committee meeting, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be transmitted to all IOUs. The steering committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the Industrial program's progress against statewide metrics and goals.

3. Adopt Program Enhancements

Once the steering committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide steering committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.

4. Evaluate Program Enhancements Against Statewide Targets

To complete the adaptive management loop, the steering committee will track the program's accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The steering committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the three-year implementation cycle will be enabled. The details of actual implementation of these coordination activities are to be determined by the IOU's industrial program managers.

iii. Incentive levels

Details on the incentive levels are discussed with each of the four sub-programs.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

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The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the industrial sub-program plans.

To reach out to the diverse customer segments, IOUs will continue to foster strategic partnerships with industry and community groups, as well as trade professional associations, to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. Specific efforts will include:

- Participation in trade association meetings to market the industrial program;
- Close partnerships with key industry associations, and participation in their annual conferences, with an effort to develop conference speaking engagements;
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement;
- Ads and articles, with program information and case studies, in trade magazines;
- Targeted customer efforts through IOU account representatives, program engineers, third parties, and government partnerships;
- Phone and web-based customer support and outreach;
- Development of coordinated industrial resources into a centralized “one stop shopping” clearinghouse; and
- Development of marketing collateral that drives customers to account representatives and websites for additional support.

The IOUs will raise awareness of energy efficiency programs available using a number of strategies, including:

- IOU representatives will make a regular and consistent customer calling effort to key customers within this sector; and
- IOU representatives, Energy Efficiency program management representatives, and field engineers will be available to provide additional expertise.

To help ensure that IOUs are marketing the right products to the right customer at the right time through the right channels, the IOUs need to be able to segment customers based upon their individual characteristics and energy needs. The IOU's efforts to collect this customer data will guide the development and implementation of its IDSM marketing and outreach activities.

This customer segmentation will help the IOUs develop an understanding of customers' needs and respond accordingly with products and services that customers want. The segmentation analysis looks at what the customer requires and how the customer is engaged with each IOU. This foundational segmentation will evolve with incremental insight into customer mindsets, behaviors, responses and motivations to achieve the most

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effective level of energy use. Based upon this evolving segmentation, the IOUs will be able to identify what integrated product offerings are specific to individual customer needs, and offer those products through the most relevant channels.

Based on the segmentation analysis, the IOUs will be able to focus on providing consistent marketing and overall messaging focused on the customer's:

- Business/personal goals;
- Unique needs; and
- Green/global climate change goals

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Statewide Industrial Energy Efficiency Program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with commercial customers, as appropriate. Conventionally, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. The sub-program descriptions provide more specific information on linkages with other government programs.

vi. Similar IOU and POU programs

Some initiatives, such as the California Advanced Lighting Controls Training Program, are joint efforts with the other California IOUs and publicly owned utilities (POUs), as well as other domestic and international utilities. In addition to these joint efforts, local third-party programs that address niche opportunities within the commercial market will be implemented in each of the IOUs service territory. These various efforts will be coordinated to ensure a consistent approach in terms of program message, delivery and measure incentives.

b) Program delivery and coordination

i. Emerging Technologies (ET) program

The long-term energy efficiency vision of California can be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training, and market development to maximize the energy efficiency benefits of cutting-edge technologies. In recognition of the importance of emerging technologies, the program will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions..

ii. Codes & Standards program

The industrial offering relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As codes and standards

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impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination subprogram. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will ensure that the latest cost-effective technologies/services (e.g., LEDs) are made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream.

iii. WE&T efforts

Workforce Education & Training efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Industrial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings will take place through IOUs energy centers and technology centers. In general, the Statewide Industrial Energy Efficiency Program will interface with the Workforce Education and Training Program Implementation Plan to serve the goals of the Strategic Plan.

iv. Program-specific marketing and outreach efforts (provide budget)

In addition to the general efforts listed above in 6.a.iv., specific marketing and outreach efforts for sub-programs are found in the sub-program documents.

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

v. Non-energy activities of program

Integrated comprehensive energy audits (described in the Industrial Energy Advisor sub-program) that look across the various energy efficiency program offerings, as well as complementary options available through other entities (e.g., water agencies) will be used to identify the opportunities to be recommended to the specific commercial customer.

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The SoCalGas Industrial Energy Efficiency Program will offer information to customers about the non-energy benefits associated with recommended measures, such as improved safety, productivity, indoor air quality, comfort, and appearance.

vi. Non-IOU programs

A variety of programs to be determined will be coordinated and leveraged to support program objectives. These include:

- Connecting customers with the CA Climate Action Registry;
- AB32 support through CO₂ tracking in program resources;
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations;
- Non-IOU financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives;
- Water/Energy efforts within California;
- ANSI standards (see CEI section); and
- ISO international energy management standards (see CEI section).

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC

As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.

viii. CEC work on C&S

As indicated in Section 6.b.ii, planned enhancements to Title 20 and in eligible measures and services.

ix. Non-utility market initiatives

The program will support, educate, and/or enforce such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

The Program will leverage the following efforts:

- California Green Building Initiative
- LEED
- Zero-net energy

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- DOE
- AB1103
- AB758

c) **Best Practices**

The SoCalGas Statewide Industrial Energy Efficiency Program reflects the best of each IOU program's successful components of statewide Industrial program offerings, and introduces new elements from other utilities and national efforts as well. Best practices include:

- **Continuous Energy Improvement:** This approach proposes to transform the market and reduce energy intensity through addressing technical and management opportunities.
- **Technical Assistance:** Recognizing the need for personalized assistance for customers, the IOUs will offer a full-service approach starting from audits/pump tests to design and technical assistance, presentation of recommendations, resources to develop a long term plan, and potential of project management assistance, with financial incentives.
- **Vendor Partnerships:** This strategy will be coupled with vendor support and educational workshops and classes to provide the full breadth of support customers may need to influence their decision to implement energy efficient equipment and practices.
- **Statewide Coordination:** In order to take advantage of the statewide implementation of the program, the IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.
- **Leveraging Industry-Specific Resources:** We will make full use of resources available, such as industry trade and professional associations.

d) **Innovation**

One innovation is that the program focuses on energy efficiency savings through not just hardware installation but also documented permanent changes in operations. Further, it covers all energy resources including energy efficiency, demand response, energy storage, combined heat and power, distributed generation, renewables, and emerging technologies.

The products and services are bundled in an integrated fashion to serve the customer's need and are geared towards a value creation solution that helps customers realize that they can run their operations efficiently and also meet their business and regulatory objectives. This approach brings to market a more customer-centric energy solution that takes into account their short- and long-term energy usage management and planning and helps overcome some of the barriers to making energy efficiency a priority. It also helps industrial customers identify, develop and document energy efficiency improvements and their economic benefits.

With the introduction of the new CEI product and services, customers now play a more active role in managing their energy usage and GHG reduction. Bundling the program offerings (energy audits, calculated energy savings, deemed energy savings, and continuous energy improvement) makes it easier for customers to participate in a one-stop shop program.

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Integrated offerings will also garner significant gains in energy efficiency and make the goals envisioned in California's long-term energy efficiency Strategic Plan a reality.

In addition, this approach will enable industry to integrate AB32 requirements such that industrial facilities can use energy efficiency to meet and exceed regulatory requirements for GHG emissions and can also aid in water conservation, waste disposal and air quality improvement. It also moves the program towards a more holistic approach in managing all energy resources utilization, which includes energy efficiency, demand response, energy storage, combined heat and power, distributed generation, renewables and emerging technologies.

Another innovation used in the program design is the creation of the infrastructure for a statewide centralized technical resource to enable customers to seek energy efficiency information and best practices to manage their energy resource. It provides a resource otherwise unavailable due to business resource limitations.

A web-based technical resource is envisioned that includes tools to help customers calculate their energy savings. Also web-based training may be offered in energy efficiency and energy management. It would also link the customer to industry sites that may offer industry-specific information e.g., the latest trends in industry for energy efficiency.

This resource center will be developed on the existing EDR (Energy Design Resource) website and will be readily available to customers. It is another avenue to increase awareness of energy efficiency opportunities by customers, industry consultants and suppliers that was identified as a barrier to the adoption of energy efficiency.

Some of the outcomes from this innovative program approach are listed below:

- IOUs establish a stronger presence with trade associations and community groups, enabling a deeper understanding of customer needs and how energy efficiency can be a part of their solution to their primary concerns. This will enable a deeper and more effective penetration of energy efficiency solutions to a broader base of customers.
- Integrated Energy Efficiency Assessments are offered to provide targeted Industrial, food processing, and water customers with a holistic approach to maximizing energy efficiency, maximizing investment efficiency and maximizing GHG reductions.
- IOU assistance makes customers aware of renewable energy opportunities, with emphasis on system available for California Solar Initiative, Renewable Generation, Department of Industrial and other incentives, grants and rebates.
- Web-based services, including energy efficiency information, training, and modeling tools, are available to help customers with retrofit or new construction projects, via a new enhanced "Energy Design Resources" website.
- Training is designed to strategically target internal personnel, vendors and trade associations, and customers in a focused alignment, which will create a synergistic effort that will overcome many informational and transactional barriers.

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- Seminars are offered to train customers on how to identify energy efficiency opportunities at their facility/in their process. Classroom software tool training is available on modeling and quantifying savings opportunities. IOUs may also provide a PDA energy efficiency tool or tools from the statewide IOU tool lending library that customers can use at their sites.
- Energy measuring and benchmarking assistance/services are offered to customers so they can see how their facility/process measures up to “best in class” systems utilizing tools such as the U.S. EPA’s Energy Star Benchmarking tool.
- Information on “green” energy opportunities is provided when doing basic audits or in-depth assessments. Education and training on green and renewable energy opportunities will be available on the EDR website.
- Assistance is offered to help customers quantify the carbon emissions savings that EE opportunities identified during audits and assessments offer.
- A web link will be developed between customers and the California Climate Registry to document a plant’s carbon footprint.
- Trained personnel help (a) identify, assess and make available to customers an integrated assessment tool and (b) train customers on the use of the tool, empowering customers to identify the best EE opportunities at their facilities.
- An application process improved for statewide consistency makes it easier for customers to participate in the program.

e) Integrated/coordinated Demand Side Management

Integrating the portfolio of IOU offerings to include energy efficiency, demand response and distributed generation—as well as other resources, such as air and water as they connect to energy—supports future cost-effectiveness of the portfolio and the CA loading order instituted by the California Energy Action Plan. Integration serves the needs and wants of our customers, who are interested in any energy solution that solves their problems and meets their business needs. It also advances significantly the goals of the Strategic Plan. On a broader scale IDSM also includes the integration of Third-Party programs and Local Government Partnerships (LGP) delivery channel with the statewide industrial program.

Customers prefer a single IOU point of contact that understands multiple options. They benefit from a single, coordinated planning process that helps them prioritize integrated investment decisions based on their unique needs. To that end, the statewide IOUs have made tremendous progress in advancing integrated solutions. These include:

- Marketing

In marketing integration, the IOUs are placing major emphasis on getting the right message to the right customer at the right time. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which outline multiple tactics, delivery channels and key messages to target to specific customers based on their specific needs. The account representatives, who serve as the key customer point of contact, will be trained to ensure consistent delivery of portfolio offerings.

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- Education and training

Workshops organized around a customer segment provide an ideal situation to integrate customer energy solutions. Building on past successes of providing integrated workshops to customers, the IOUs will offer workshops that provide opportunities, cross-sell solutions and share key information from other IOU departments. As appropriate, Workforce Education and Training will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures.

- Integrated audits

These will combine funds and resources of energy efficiency and demand response programs. They will provide integrated recommendations to customers that emphasize energy management in proper sequence, as supports the CA Loading Order, which calls for permanent reductions through energy efficiency before implementing demand response. Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in the larger facilities, particularly as part of monitoring-based retro-commissioning efforts, where controls to facilitate demand response efforts would be installed.

Integrated audits combine funds and resources of energy efficiency and demand response programs to provide integrated recommendations to customers that emphasize energy management in proper sequence, in support of the California Loading Order. Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in the larger facilities, especially as part of monitoring-based retro-commissioning efforts where the controls to facilitate demand response efforts would be installed. Additionally, any energy efficiency audits required for participation in distributed generation programs will be expanded to include DR opportunities when appropriate and thus address the three facets of DSM integration.

As required, IOU distributed generation programs require that customers receive an energy audit before being eligible to receive solar audits.

- Emerging Technologies and CEC

Program collaboration with Emerging Technologies and CEC is expected to include pilot projects and market acceleration assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

Over the last few years, traditional DSM programs have shown that successful customer participation in one program often leads to repeat participation in the same program or other similarly related types of programs. Nonetheless, cross-marketing DSM programs with these customers remains a challenge, due to program-specific silos. To eliminate these silos, the

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Program will leverage lessons learned from past program experience and offer comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that these two efforts are at odds with each other, as both programs reduce the potential for each other's financial incentives to the customer. For example, energy efficiency may reduce the overall baseline that serves as the basis for the demand response program's incentives. Also, benefits from long-term energy savings derived from technological measures often outweigh the temporary demand reduction benefits derived from behavioral actions. To overcome this barrier and maximize the potential of both programs, additional incentives will be paid for energy efficiency measures that enable demand response

A secondary issue when integrating energy efficiency and demand response programs is that communication messages for both types of DSM programs are often not coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the program will offer integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable. Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response, as well as energy efficiency, programs.

In summary, the program seeks to overcome the many issues raised by integration of energy efficiency and demand response by focusing on several tactics:

- Promoting and setting incentives for demand response in a way that helps ensure that energy efficiency is completed first to maximize potentials;
- Integrating and coordinating year-round marketing (e.g. applications, collateral, web sites, and events);
- Linking of program eligibility requirements (e.g., customer size);
- Providing unified technical assistance through enhanced energy efficiency and demand response audits through the TA Program to allow for cross-harvesting opportunities;
- Integrating presence on IOU websites; and
- Coordinating regular meetings between energy efficiency and demand response program management.

During the current cycle, funding for energy efficiency and demand response must remain non-commingled; therefore payments will be split between the two programs, as appropriate.

f) Integration across resource types (energy, water, air quality, etc)

California's industrial sector faces a multitude of environmental and regulatory challenges that affect their competitiveness and, in some cases, survival. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

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To help deal with these challenges, the industrial program will coordinate with the regulating agencies and the programs they are operating to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. IOUs will continue to offer targeted trainings to customers who share common regulatory challenges, in an effort to educate customers on impending regulatory requirements for their business operation and the most efficient solution options to consider for compliance. Future workshops may look at wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 industrial targets.

IOUs will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other utilities will help reduce administrative cost and has a greater impact on societal benefits.

Where applicable, the Program will integrate topics such as GHG reduction and water conservation into targeted customer workshops, and marketing and communications, building on a strong track record from the past program cycle. Marketing and communications material will include savings opportunities and messaging.

g) Pilots

The Statewide Industrial Energy Efficiency Program will coordinate on a statewide level to ensure the program is continuously updated and enhanced throughout the two-year implementation cycle. Pilots may be developed at that time in response to customer's needs or to further advance the goals of the Strategic Plan.

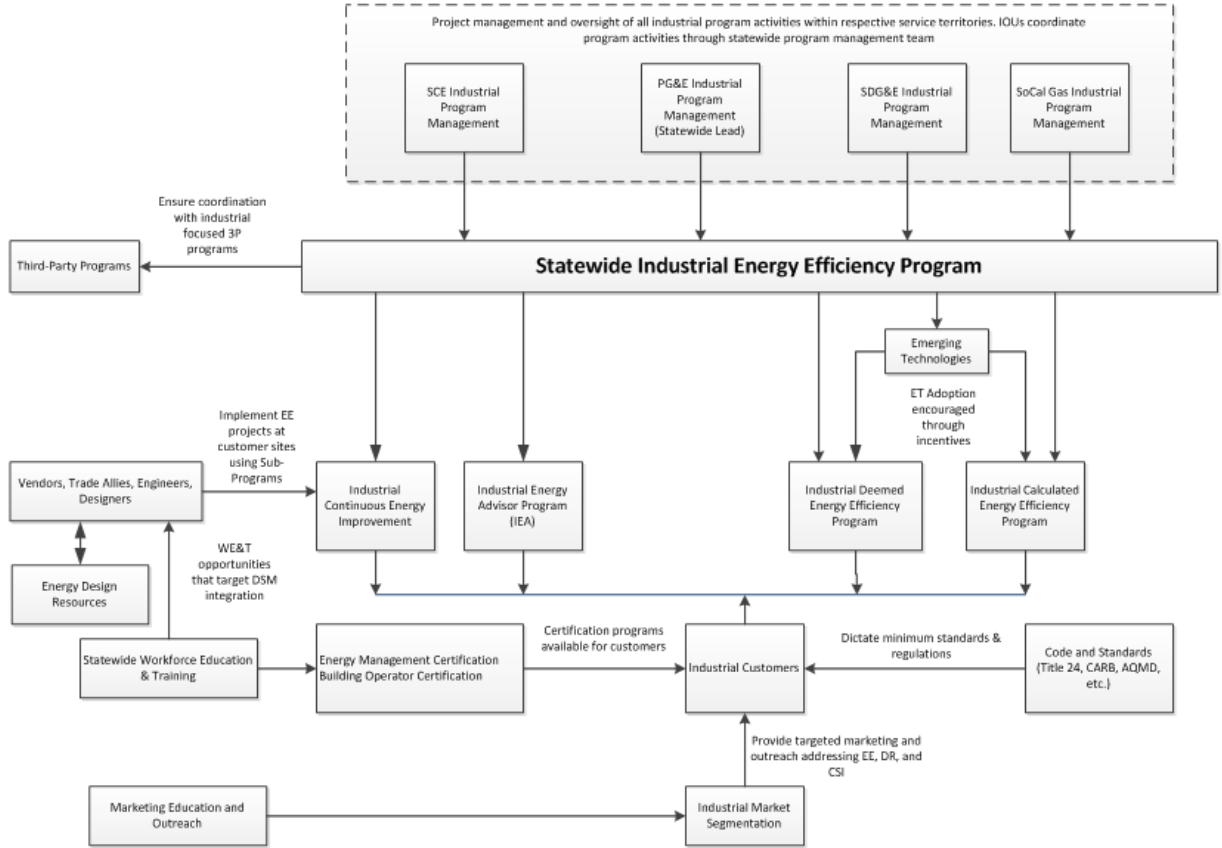
The IOUs intend to implement methods to gather and retain more detailed performance and usage data on a pilot basis. This will determine the more effective methods and achieve savings. Exploring incentives for sub-metering is an option, as is expanding the tool library in lieu of incentives.

h) EM&V

SoCalGas is proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases, after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

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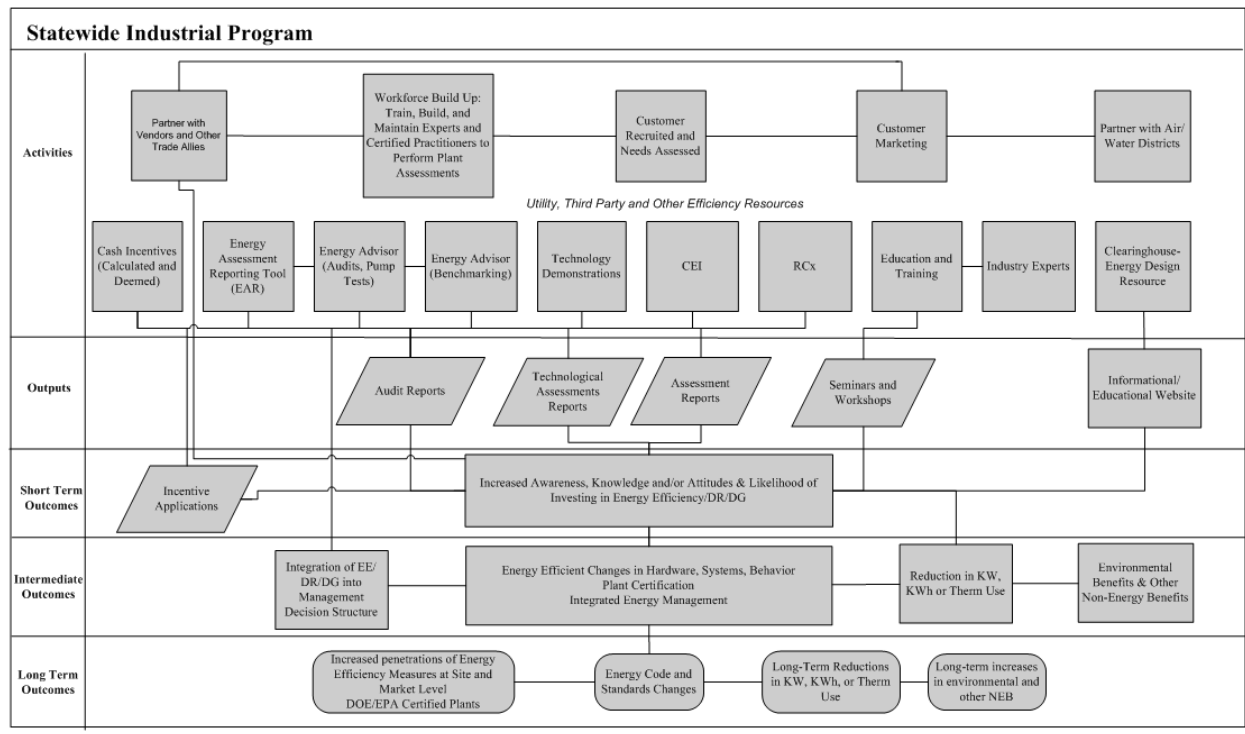
7. Diagram of Program



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8. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statement energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Statewide Industrial Energy Efficiency Program.



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1. **Program Name:** Industrial Energy Advisor, Core Sub-Program
Program ID#: SCG-3713
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – See the overarching program for budget details.

3. **Projected Program Gross Impacts Table**

Table 2 - See the overarching program for savings details.

4. **Program Description**

- a) **Describe program**

The Statewide Investor Owned Utilities (IOUs) have created the Industrial Energy Advisor (IEA) to bring together SoCalGas under one program all services offered to support customer education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

IEA was created to provide a streamlined and coordinated assignment of right-sized customer solutions. The key is to start the process with an initial analysis of a customer's needs, determination from the analysis which audit will service the customer with the highest cost/benefit, and identify additional program support and key indicators that will motivate the customer to implement energy saving recommendations.

The IOUs anticipate the restructuring of IEA will affect the way audits are provided. IEA will enhance the IOUs' ability to match customer need(s) with the right audit service. This will result in an increased cost-effective delivery of these audit services with an increased expectation for customer adoption/installation of provided customer specific recommendations.

In its offerings, IEA will place an emphasis in deep energy saving measures and emerging technologies, where appropriate. When the technologies and customer opportunities are correctly aligned, customers will become more open to the benefits these technologies offer to their business and will therefore increase their acceptance and adoption.

Together the IEA offerings will work to support the achievement of Strategic Plan objectives across all segments (agriculture, commercial and industrial).

The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

The Industrial EA package consists of five distinct offerings:

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- **Benchmarking** is the first step for a customer to begin to understand the energy use of their building. Benchmarking is an initiative designed to educate and motivate customers to measure and track the energy use of their facilities, to educate customers of the benefits of benchmarking their facilities and to show them how they can track the impact of energy savings after implementing energy saving measures. To support the customer's efforts, the IOUs will offer technical support, hands-on workshops that will provide customers with information about how to benchmark, how benchmarking can be used as an energy management tool and what to do next after benchmarking.

The IOUs will develop or continue Benchmarking initiatives that support the customers' ability to comply with AB1103 benchmarking requirements (upon its implementation), utilizing ENERGY STAR Portfolio Manager and IOU supported Automated Benchmarking Services.

The IOUs will also continue to offer customers technical support ranging from email and phone hotlines, hands-on workshops and web-based benchmarking educational and instructional materials.

They will continue their support to identifying, evaluation and make information about other benchmarking tools available.

The primary focus for benchmarking activities will continue to be centered on commercial buildings (in alignment with the target building type of AB 1103).

- **Industrial Continuous Energy Improvement (CEI)** is a consultative service aimed at helping industrial customers (IOUs will target CEI services inline with market segment potential in their service territories and resource availability) engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of IOU customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices which address energy savings, reduction of greenhouse gas emissions and water conservation, through high-level energy commitments from executive and board-level management.

CEI offers customers the pinnacle of audit offerings, guiding executive management to levels of energy management self-actualization that make energy and environmental issues a consideration in all management/business operational decisions and in long term energy planning. For additional information about CEI, please consult the Industrial CEI Program Implementation Plan.

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- **Non Residential Audits (NRA)** The Transition Period will provide Integrated Comprehensive Energy Audits (ICEA) that focus on customer energy savings, cost/benefits, and the targeted delivery of financial and technical assistance. Audit information must communicate complex information in a simple and understandable way to enable customers to identify energy efficiency, demand response and distributed generation opportunities. Audits use “ex ante” Deemed and Calculated methodologies for energy savings analysis information.

As stated above, NRA offers ICEA. In Appendix A, each IOU defines the sub-categories of ICEA that they provide.

In this program cycle, emphasis will be given to meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), streamlining the audit process, increasing its efficiency, lessening complexity, and increasing the effectiveness of influencing customer implementation actions through actions such as integration of the demand response technical audit component directly into NRAs offerings. In addition, the IOUs will investigate ways to implement meaningful financial measurements, such as return on investment and/or simple payback metrics, and to be effective, the financial tool selected should ensure cost assumptions are appropriate to the customer to provide meaningful information. Also, NRA may assume the audit and budget responsibilities for Demand Response’s technical audit services, as applicable. It is intended that these audits will be a critical component of the integrated comprehensive audit service offering.

- **Pump Efficiency Services** is designed to help industrial customers make informed decisions about improving inefficient pumping systems and operations through recommendations derived from pump test audit or direct observations of processes.

The Pump Efficiency Services program element, implemented by a team of trained in house or third party contractors, aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, retrofit incentives, and targeted education, training and technical support for customers and pump companies. Each IOUs database of pump test results will be used in the near-term to target pumps in need of retrofit as a means to capture savings. However, pump performance data aggregation at the statewide level will contribute to the development of metrics and targets for pump improvements. This will support a statewide pumping focus across segments, in agriculture, commercial and industrial, supporting their strategies and objectives.

The IOUs will continue to offer pump testing services at no or low cost and pumping system efficiency workshops through their energy education centers or other event opportunities during the Transition Period.

- **Retrocommissioning:**

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The IOUs will continue to enhance their core Retrocommissioning (RCx) programs. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments.

The RCx element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary adjustments to correct the deficiency. RCx is offered to industrial customers, based on the market segment potential and resources of the respective IOU. The range of projects may involve measures which reset, repair or replace existing system controls and components. Simple payback for these measures is usually short in duration and must meet customer expectations. Through the RCx assessment report, comprehensive projects are identified and referred to other sub-programs for completion (i.e., Calculated and Deemed sub-programs). Energy savings from projects identified through RCx will be claimed in the Industrial Calculated Energy Efficiency Program.

Enhanced RCx program elements will explore and may include but not be limited to:

- Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- Continuous commissioning and monitoring-based commissioning;
- Strategies to drive savings persistence;
- Appropriate alignment with retrofit activities; and
- Overall program incentives, targeting, and delivery.

The RCx program is a key offering in the Industrial Calculated Sub-Program and a more detailed description of the program is provided.

The Transition Period will be used to develop and test the EA design strategy. The strategy focuses on simplifying the way audits are provided to customers. Through various assessment functions, the IOUs will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (i.e. primarily EE, DR, and SG).

It is anticipated that IEA will allow the expansion of services across diverse class of customers, potentially across all segments and will interconnect the customer with the wide and diverse range of programs offered. From a customer perspective, the impact on customer time and resources will be reduced. The audit analyses will include DSM, greenhouse gas reduction information and will provide water conservation recommendation all in a single report. The resulting report will identify comprehensive solutions that will simplify the customer decision-making process.

The primary program objectives for 2013-2014 are:

- Support the Strategic Plan by offering integrated audits across a wide selection that address the full spectrum of energy solutions, including energy efficiency, demand

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response, and distributed generation (California Solar Initiative and distributed generation) focusing on industrial facilities as defined by each IOU's market potential and resource availability.

- Continue to deliver high value audit reports to the customer. Audit reports will be designed in such a way that they will provide the customer with information which motivates them to implement energy efficiency, demand response and consider renewable generation options.
- Enhance efforts to identify and provide financial analyses focused on deeper energy savings and technologies. Identify ways different financial metrics, such as return on investment and/or simple payback, can be provided where the values presented have meaning to the customer.
- Explore and evaluate the potential of enhanced customer incentive options that are contingent on a customer's receiving an audit prior to applying to incentive programs.
- Incorporate new and/or emerging technologies appropriate for the customer's facility.
- Develop and implement enhancements to current Benchmarking workshops (targeting industrial buildings) and continue providing Benchmarking and AB1103 technical support through established and new delivery channels.
- Encourage statewide consistency by offering similar energy audits with the ultimate goal of offering customers the best energy management practices and technologies.
- Enhance the IEA offerings by including activities such as, but not limited to:
 - Highlighting emerging technologies and deep energy savings opportunities and providing education on long-term energy planning/project management strategies (in coordination with CEI program).
 - Continuing existing water saving services, leak detection services, and strategies which will be offered to customers in all customer segments, as determined by the IOUs to provide customer benefits and cost-effective administration. The services will be offered through the use of audit teams, in house and/or contracted, and may be required as a service in the delivery of all integrated comprehensive audits.
- IEA will play a key role in exploring options for identifying deep energy savings, promoting emerging technologies and providing proper support to customers who take advantage of more than three measures from Industrial Deemed Incentive subprogram.
- IEA will develop processes to assist energy audit teams and customers identify facilities and services that will provide the greatest return on benefits from the audit. The IOUs may explore leveraging tools to complete energy audits, usage analysis, assessments and/or building performance benchmarking as the first step in determining a customer's need.
- IEA may also enhance tracking and audit component capabilities to support customer needs analysis, reduce program application barriers, maximize recommendation follow up and streamlined audit report generation.

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b) List measures

The IEA primarily offers non-resource, auditing services. It does not offer incentives, but ultimately influences the customer's implementation of energy efficiency, demand response, and self-generation opportunities in combination with incentive from the core incentive programs (refer to the Industrial Deemed and Calculated sub-programs for specific information). However, each IOU reserves the ability to offer incentives specific to IEA's individual service offerings.

c) List non-incentive Industrial Energy Advisor Services

The Industrial Energy Advisor (IEA) is designed to deliver a coordinated and customer specific service. IEA features a statewide integrated demand side management customer specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer's need(s).

Such activities include, but are not limited to: energy management assessments, energy planning, marketing and outreach, baselining and benchmarking, project implementation support, technical support, energy savings calculations, process evaluations and report generation, and web-based energy resources.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

c) Program Design to Overcome Barriers

The EA offers services which change corporate/management cultures that prevent successful implementation of comprehensive energy policies. These offerings help overcome customers' lack of awareness of DSM opportunities by providing a customer focused, comprehensive package of energy solutions designed specifically to motivate the customer to implement recommendations. Information such as cost/benefit analysis (i.e. ROI, or simple payback) and identification of appropriate IOU incentive and/or finance programs, can significantly enhance the financial benefit of the energy saving recommendation. IEA also provides

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customers with tools to measure the effects of implemented energy savings actions on their bottom line.

IEA brings together audits and related services to implement energy saving activities.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 4

	Program Target by 2013	Program Target by 2014
Number of Audits	402	445

e) Advancing Strategic Plan goals and objectives

The IEA is designed to promote DSM coordination and the integration strategies of the Strategic Plan. Foremost are recognition of the linkage between energy and environmental policy and the importance of integrating energy efficiency, demand response and distributed generation to support California’s plan to reduce greenhouse gas emissions.

Specific near-term strategies proposed by the Strategic Plan that are addressed by the IEA include the following:

- Facilitate all State-Owned and Leased Buildings having a Retrocommissioning option.

By offering a dedicated retrocommissioning program, a mechanism is created whereby IOUs can facilitate the achievement of this goal as a coordinated effort with the IOU Government and Institutional Partnership Programs.

- Strengthen Tools and Practices for Building Commissioning.

Based on the IOUs' experience with managing the Retrocommissioning program, lessons learned and best practices can be integrated into the 2013-2014 offering. To increase market adoption of these program best practices, the IOUs will work in cooperation with the California Commissioning Collaborative to disseminate relevant information to the retrocommissioning community. Services may be extended to all segments as deemed appropriate by each IOU.

- Identify New and Improved Tools and Strategies to Reduce Energy Consumption in industrial facilities.

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Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the benchmarking, CEI, NRA and RCx demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, industrial/ agricultural processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing agricultural facilities contribute to California's zero net energy goals. Once implemented, recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.

- Encourage State/Local Governments and Major Corporations to Commit to Achieve EE Targets

IEA's offerings will seek to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop an actionable plan to achieve these goals; (4) guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

- Develop Tools to Reduce Energy in Industrial Facilities.

As part of the implementation of specific IEA offerings, the IOUs will partner with energy industry peers, industry associations, and DOE/CPUC-sponsored labs and consultants to enhance the use of existing tools and explore new tools to help industrial customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

- Management Standard for Energy SME2000-2008;
- DOE's Superior Energy Performance; and
- ISO-50001.

- Develop Business Models to Deliver Energy Management Solutions.

IEA's offerings will address the fundamental purpose to influence decision-making practices from Industrial customers to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the agricultural market sector.

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In addition, IEA's offerings promote acceptable practices of accounting, auditing, and evaluation by:

- Offering integrated and focused audits, benchmarking, savings calculation assistance for retrofit and retrocommissioning opportunities; and simplifying the audit-to-project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action.
- Guiding and supporting customers as they implement technologies, processes and practices to achieve energy efficiency savings.
- Long term energy planning SoCalGas support.

6. Program Implementation

- Assessment and identification of the best way to support the use of the BEARS tool
- Enhancement of current Benchmarking workshops and continuation of Benchmarking and AB1103 technical support through established and new channels
- Emphasis and support of integration in emerging technologies and deeper energy measure opportunities
- In coordination with incentive programs, identification of ways to streamline the end-to-end process for customers wanting to participate in IOU energy saving programs
- **Statewide IOU coordination**

i. Program name: Industrial Energy Advisor

ii. Program delivery mechanisms

SoCalGas IEA will employ a variety of delivery mechanisms or channels. Most of IEA's offering will use IOU customer energy efficiency staff and contractors, service and sales representatives, website and/or marketing, and outreach efforts. Other delivery channels may also be developed.

In addition, where applicable, IOU customer SoCalGas account representatives or program management staff will support this activity within the statewide industrial sector, as well as third parties, government partnerships, and SoCalGas local programs.

iii. Incentive levels

Not applicable.

iv. Marketing and outreach plans

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs, in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs.

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Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost-effectiveness of reaching customer groups.

The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

IEA's energy recommendations will continue to recognize the regulations required by other bodies. For example, information about GHG reductions resulting from AB32 and water conservation efforts may be incorporated into the customer recommendations and factored into the project's cost-effectiveness, as appropriate.

Program offerings will collaborate and support the CEC's AB1103 mandate by assisting customers with technical and awareness activities. IEA will advance the introduction of the BEARS and California Rating Tool where reasonable.

IEA recognizes the efforts of the CEC's Green Building Initiative programs, DOE "ISO plant certification" programs, EPA Energy Star Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs. IEA will leverage such activities to the customer's benefit.

a) Program delivery and coordination

The sub-program will be coordinated with the following activities, as applicable:

i. Emerging Technologies (ET) program

The IOU IEA Management Team will stay abreast of and incorporate relevant emerging technologies into audit recommendations as appropriate.

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ii. Codes & Standards program

IEA implementation will include information about pending new codes and standards that may affect planning or prioritization of retrofit or new construction projects. Audit reports will include customer recommendations that are consistent with current governing codes.

iii. WE&T efforts

IEA implementation will integrate with WE&T efforts, as needed, by providing CSI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches, as required.

iv. Program-specific marketing and outreach efforts

In 2013-2014, SoCalGas' IEA marketing campaigns will provide a wide range of action-oriented solutions targeting specific segments and sub-segments of business customers. In addition, IEA marketing efforts will be "bundled" as a menu of demand response, energy efficiency and conservation programs providing customers with a full array of EE and DR opportunities. By providing packaged energy management solutions for each industry segment, the IOUs will be better able to communicate with and serve customers.

Marketing activities will target business customers and select effective channels to reach entities such as trade associations, local business groups, and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support may be utilized.

Marketing collateral and messages for energy efficiency will be integrated with other IOU programs. Through additional market segmentation and feedback from customers, IOUs will further adjust approaches based on the varied needs of targeted customers. Additional sub-program marketing will be accomplished by leveraging local third-party programs. Specific IOU marketing budgets are provided in Table 1 of the core industrial program.

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

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v. Non-energy activities of program

The IOU IEA team will participate in Statewide and national efforts to develop and enhance audit, benchmarking and retro-commissioning, and continuous energy improvement tools and practices. Such activities will likely occur in conjunction with ongoing industry efforts managed by the California Energy Commission (CEC), Consortium for Energy Efficiency (CEE), ENERGY STAR and the California Commissioning Collaborative (CCC).

CEI implementation will include non-energy activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy-related LEED points and definitions, and use of computerized financial analysis tools and cost estimating and forecasting tools

vi. Non-IOU programs

IEA reports will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IEA will partner with programs offered by CEC, ARB, Air Quality Management Districts, ENERGY STAR, and other government and quasi-governmental agencies to capitalize on opportunities to develop co-branded program information and marketing collateral targeted to industrial sector customers, as opportunities present themselves.

With respect to water conservation, IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release notices for programs with interactive water and energy effects (ESPM, BEARS, California Rating Tool, Water Agencies and others).

vii. CEC work on PIER

Not applicable.

viii. CEC work on C&S

IEA will not be implemented with a direct linkage to codes and standards efforts. However, IEA will reflect code and standards regulation in its energy savings calculations, as deemed appropriate.

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-IOU information and guidance that IEA offering SoCalGas will provide to customers. In addition, the IOUs will participate in state and national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

b) Best Practices

The IOUs will continue to leverage best practices and lessons learned at regularly scheduled statewide program management meetings. These meetings are forums to discuss program

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design and implementation issues, and as appropriate provide statewide collaborated guidance in RFP solicitations and awareness of program offerings. This will ensure that customers operating multiple facilities across IOU service territories will receive the same customer experience.

Other best practices approaches apply the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the industrial market sectors. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach will continue through the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

c) Innovation

For 2013-2014, the IOUs are identifying and evaluating program processes to increase effectiveness, simplification and increase the benefits the program delivers. Each IOU's set of lessons learned from these efforts will be shared and implemented to enhance energy savings benefits to all California IOU customers.

IEA will continue to improve as a new standard for packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customers for implementing strategic energy management. Other IEA offerings may also consider specialized incentive approaches based on delivery, target markets and/or other opportunities.

d) Integrated/Coordinated Demand Side Management

IEA will provide a comprehensive approach for integrated audit services. Its services will have the flexibility of meeting every level of a customer's audits needs from integrated comprehensive audits to targeted or focused audits (which center on specific systems or processes), to assessments or general walk-through audits or online "do-it-yourself" audits (currently for small business customers). When properly applied, these audits can assist in identifying the areas of the customer's greatest energy interest, the customer's financial ability to invest in improving its energy use, and other programs that can be discussed to motivate a customer to move forward with the energy saving plan.

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IEA services can coordinate the audit with retrofitting or retrocommissioning opportunities, benchmarking tools, or long-term planning. Audit reports can present a truly integrated analysis to customers, seamlessly providing information and recommendations regarding energy efficiency, distributed-generation, demand response, greenhouse gas emissions and water energy savings. Customers will be referred to other IOU programs that will help them implement the recommendations resulting from the audit report. As a result, they will receive

e) Integration Across Resource Types

IEA will focus on DSM integration.

IEA implementation will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IOU IEA managers will partner with the appropriate programs, when applicable, with government agencies in order to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers.

Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote IEA offerings, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, IOU program managers will collaborate with the local water districts to produce marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

f) SoCalGas Pilots

IEA services may consider the development of test markets especially in the introduction of new energy benchmarking or saving tools.

g) EM&V

SoCalGas is proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

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7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

Please see the Commercial Energy Advisor program logic model.

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Statewide Audit Type Matrix

Audit Type	Detail	SCG	SDG&E	PG&E	SCE
Integrated Customer Energy Audits	Phone	Yes	Yes	Yes	Yes
	Online (Web-Based)	Yes	Yes	Yes	Yes
	Onsite	Yes	Yes	Yes	Yes

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- 1. Program Name:** Industrial Calculated Incentives Program
Program ID#: SCG3715
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the overarching program for savings details

4. Program Description

a) Describe program

The purpose of the Statewide Industrial Calculated Energy Efficiency Program is to provide services to improve the energy efficiency of industrial facilities in California, including financial incentives based on calculated energy savings. The energy savings are calculated for measures installed as recommended by comprehensive technical and design assistance for customized projects. Integrated projects are encouraged to combine energy efficiency and demand response. Eligible projects include new construction, retrofit, and retrocommissioning.

The Calculated Energy Efficiency Program is part of a suite of programs within the Statewide Industrial Energy Efficiency Program. The Calculated Energy Efficiency Program is utilized for projects where:

- a rebate is not available through the statewide Deemed Energy Savings Program,
- customized calculations provide the most accurate savings estimates, or
- interactive effects between measures are best captured through whole building or whole system modeling.

Because it presents a calculation method that can consider system and resource interactions, the program will become the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan).

Key features in the process include:

- Energy audits of facilities and processes with recommendations for energy efficiency, demand response, distributed generation technologies as well as opportunities for greenhouse gas reductions;
- Calculations/estimates of energy savings for exceeding Title 24 code or industry standard practice baselines;
- Technical assistance from IOUs through SoCalGas energy audits, facility walk-through surveys and calculated savings analyses that consider specific projects;

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- Submission of project proposal for SoCalGas review and approval;
- Pre-inspection by SoCalGas for the preliminary approval of retrofit projects;
- Post-inspections on approved and completed projects to verify performance; and
- Payment of incentives from SoCalGas.

Energy audits may be completed by customers directly or authorized participants. Authorized participants may include contractors, design teams, vendors, and energy service companies. The completed audit may then be submitted for review and approval.

For the energy audit feature, statewide consistent calculators are publicly available. The statewide IOU-created and maintained SPC Calculator can be used for retrofits and some new construction applications and is available online. For whole building construction projects, IOUs typically accept calculations generated with programs such as Energy Pro, Trane Trace 700, Carrier HAP (available for license), and the IOU-sponsored eQuest (available for free on the statewide Energy Design Resources website www.energydesignresources.com), among others. Calculations must be submitted in open, unlocked, native format for review and consideration in the IOU's programs.

Retrocommissioning (RCx) is also eligible in the program for delivering energy savings. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or operations and maintenance, which deal with routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit.

O&M items with an effective useful life greater than three years can also be identified through this assessment. Additionally, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay.

RCx will be offered as a bundle of products/services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Initial benchmarking;
- Collecting data to quantify the owner's operational requirements;
- Performing detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities, inclusive of improved and enhanced preventive maintenance and repair programs;
- Defining measures, quantifying implementation costs and savings;
- Assisting customers with measure implementation;
- Verifying completion of measures;
- Providing post installation documentation and training as well as other persistence techniques; and
- Posting project benchmark.

b) List measures

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A broad range of measures is eligible for the Calculated Energy Savings Program. The current incentives are summarized in the following table. The incentives for these measures are standard across the IOUs participating in the statewide Industrial Calculated Energy Efficiency Program.

The following measure categories are eligible for Calculated Incentives:

- Refrigeration
- Gas measures

c) List non-incentive Industrial Energy Advisor Services

The Industrial Calculated Energy Efficiency Incentives Program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical and calculation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd the project through the process.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Industrial Calculated Energy Efficiency Program includes numerous features designed to overcome these barriers, as identified and discussed below.

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Integrated Demand Side Management Approach

The program offers California's industrial segment a statewide suite of products and services to overcome market barriers to optimize energy management and meet the goals of the Strategic Plan. It overcomes multiple barriers through the implementation of strategies that provide an integrated solution to the customer, offer education and outreach to create awareness and promote continuous energy efficiency improvement. The program also enables a facility to attain resource management levels that exceed industry standards and gain them market and worldwide recognition.

CEI Program Offering

The Continuous Energy Improvement (CEI) program compliments the Industrial Calculated Energy Efficiency Program by helping customers implement energy efficiency measures that have been identified through energy efficiency audits or in-depth facility/process assessments. Such assessments may be jointly provided by the IOUs and the U.S. Department of Energy (DOE) or ANSI. It focuses on improving production and optimizing energy efficiency and provides integrated resource management solutions including greenhouse gas reduction. This approach overcomes such barriers as lack of awareness of energy efficiency opportunities and provides a highly skilled workforce educated towards energy efficiency, process optimization, and resource management.

Marketing and Outreach

To increase awareness of the program, a statewide centralized clearinghouse will be developed to give customers access to information on operating best practices in energy efficiency, industry relevant technical assistance, baselines, case studies, tools and computer based training. This clearinghouse addresses the issue of availability of information and qualified industry specialists to fully assess a building, system or process and help customers understand how energy efficiency can impact their emissions, resource consumption or waste discharge streams. It helps alleviate the problem often run into by non-residential customers of getting incorrect or out-of-date information from some local networks. It will also enable design engineers to specify energy efficient measures to exceed industry accepted baseline standards when constructing new or retrofitting existing buildings or systems, instead of specifying only what they know or what they are familiar with.

The program's information and services will be delivered primarily through account representatives, IOU call centers hotlines, local government partnerships, third parties, and IOU internet sites. Information will also be made available through industry events, such as the Plant Engineering Expo, through industry organizations, such as the California Manufacturing Association and the Building Owners and Managers Association (BOMA); and through advertising in industry and trade publications. Other avenues to reach out to customers and identify energy efficiency opportunities include non-resource programs such as Education and Outreach, Workforce Education and Training, or through Emerging Technologies Programs.

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Education and Training

Highly skilled Energy Management Professionals may conduct technical training and seminars to educate the public as well as develop a highly trained energy efficiency workforce that is accessible to industry.

Emerging Technologies (ET)

In collaboration with ET and the CEC, ET may conduct studies, pilots, and demonstrations to prove the viability of promising emerging technologies and lower the risk of investment which in turn will speed up market penetration.

Financial Assistance

Rebates and incentives properly priced and based on energy savings quantified through technical assessments or basic audits, can help customers overcome internal financial hurdle rates. Skilled energy efficiency personnel may also assist customers and provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives or other local sources of project funding.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Projects	TBD	TBD

e) Advancing Strategic Plan goals and objectives

The Statewide Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector. General advancement of the goals is presented in the program implementation plan for the Statewide Industrial Energy Efficiency Program. More specific support of the goals is presented here.

Goal 1: Support California Industry’s adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals and other resource goals.

Strategy 1.1: Develop coordinated energy and resource management program for CA’s industrial sector, to enhance use of energy efficiency.

Near-term: Establish CARB AB32 Industry Team

The Calculated sub-program infrastructure is designed to facilitate the customer’s implementation of large-scale projects that are supported by detailed energy calculations. There is an opportunity to augment the various tools used for preparing such calculations with GHG emission information that will allow customers to immediately quantify these benefits. This activity will be managed through the IOU CARB AB32 Industry Team, which is proposed as part of the core Industrial Energy Efficiency Program.

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Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

Strategy 2.2: Implement certification

Near-term: Plan pilot and recruit host sites (8-10 facilities)

The program will seek out opportunities to recruit host sites for the certification program by surveying project submittals for potential candidates.

Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

Strategy 3.1: Compile technical and resource management regulatory materials into centralized assistance repository.

Near-term: 1) Identify and incorporate priority energy and other data; 2) Develop clearinghouse or integration system.

The Calculated Energy Efficiency Program will give support by providing information on results and experience in the program, including case studies of innovative projects.

5. Program Implementation

a) Statewide IOU coordination

i. **Program name:** Industrial Calculated Energy Efficiency Program

ii. **Program delivery mechanisms**

Program delivery mechanisms for SoCalGas will include account representatives, technical services personnel, incentives processing staff, and inspection officials. Also important to program delivery will be customer facility owners and managers; energy efficient equipment manufacturers, distributors, and service contractors; industry trade associations; and others in the energy efficiency equipment value chain.

Industrial Calculated Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The Industrial Calculated Energy Efficiency Program will coordinate with the core Industrial Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the implementation cycle will be enabled.

SoCalGas account representatives support this activity within the statewide industrial sector, as well as third parties, government partnerships, and SoCalGas local programs.

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iii. Incentive levels

Incentives will be at \$1.00/therm, capped at 50% of project cost.

The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division and market direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Calculated Incentive sub-program.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The Industrial Calculated Energy Efficiency Program will be marketed through IOU's Account Executives, as well as through trade allies, education, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and e-mail support will be provided.

Marketing campaigns will provide a wide range of action-oriented solutions targeted to "personas" identified through segmentation research. In addition, marketing efforts will be "bundled." That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry, IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness, and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Market outreach to raise awareness of available EE programs will use a number of strategies, as follows:

- Providing a regular and consistent customer calling effort to key customers within this sector through account representatives;

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- Providing additional expertise from IOU representatives, program management representatives, and field engineers;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the industrial market sector;
- Attendance at the key trade shows for each high priority sub-segment within the industrial market sector;
- Hosting IOU-sponsored training events at the IOU's Customer Training Centers and other convenient locations within the IOU's service territory;
- Hosting IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Linking written collateral pieces that give an overview of the IOU's Energy Efficiency programs to the appropriate IOU DSM web page.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above. Furthermore, industrial facilities are recognized as large energy and water consumers. IOUs will develop proposals, as appropriate, to facilitate water-energy nexus projects.

The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Industrial Calculated Energy Efficiency Program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with industrial customers, to the extent possible. Conventionally, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

With respect to water conservation, IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Calculated sub-program incentives for energy efficient equipment that may also reduce water and greenhouse gas emissions.

vi. Similar IOU and POU programs

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The IOUs will be delivering many third-party programs that utilize the Industrial Calculated Energy Efficiency Program infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program delivery and coordination

i. Emerging Technologies program

The long-term energy efficiency vision of California can only be attained through the long-term and continuous development, verification, and acceptance of emerging technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the sub-program will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. In addition, portfolio staff actively works to incorporate promising emerging technologies from the ET program.

ii. Codes and Standards program

The program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As codes and standards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost-effective technologies/services (e.g., LEDs) are made available as they transition from research and development to mainstream program offerings.

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iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Industrial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings take place through IOU's energy centers and technology centers.

iv. Program-specific marketing and outreach efforts

Marketing and outreach initiatives will include:

- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the industrial sector, as appropriate;
- Attendance at key trade shows within the industrial sector;
- IOU-sponsored training events at the IOU's Customer Training Centers and other convenient locations within the IOUs service territory;
- Hosting of IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Development of case studies, web pages, and marketing material that provide an overview of the IOUs' energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program provides a significant challenge to integrating DSM initiatives to non-energy activities due to the general industry structure, the nature of market sector resource use, limited resource savings potential with smaller businesses, and limits to small business owner and operator bandwidth. Therefore, integrated audits that look across the various energy efficiency program offerings, as well as complementary options available through other entities (e.g. water agencies), will be used to identify the opportunities to be recommended to the specific industrial customer.

With respect to water conservation, IOU program managers will contact the local water districts to co-brand marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers incentives for energy efficient equipment that may also reduce water and GHG emissions.

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In addition, the program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, ARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC

As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.

viii. CEC work on C&S

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The program will support and educate customers, and/or facilitate such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

The Industrial Calculated Energy Efficiency Program builds upon the more than 10 years of experience that IOUs have offered such a program¹⁸. Deeper penetration into industrial process loads will be achieved by closely aligning the sub-program with the Industrial Energy Advisor and Industrial Continuous Energy Improvement Programs to ensure that there is an avenue for implementing a variety of customer projects. The infrastructure developed by the Industrial Calculated Energy Efficiency Program will also be used as the core processing backbone for targeted third-party programs in order to reduce the program administrative and processing costs of those programs.

d) Innovation

For the 2013-2014 program cycle, California IOUs will implement an incentive structure that emphasizes advanced controls that enable demand response motivating customers to

¹⁸ Before 2009-2011, the Calculated Energy Efficiency Program was commonly referred to as the Standard Performance Program or "SPC."

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participate in energy efficiency and demand response incentive programs as well as signing up demand response programs.

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Changes will (a) target ease of program understanding and participation, (b) measure eligibility, (c) increase of customer's economic benefits, and (d) identify policy restrictions that are barriers to participation. IOUs are implementing such process based on market studies conducted on the subject and preceding discussion of the policy change. Among other modifications that would be potentially discussed and implemented are incentive caps and redesign of measure/equipment early retirement according to the CPUC concept.

IOUs are planning to elaborate and utilize positive experience obtained using SBD Simplified tool and extend it to energy efficiency retrofit projects. Such tools substantially reduce application processing and review time, and minimize the number of hand-offs, without sacrificing accuracy of energy saving calculations.

Where possible, IOUs will use an integrated approach to addressing DSM opportunities. Innovative approaches will be used, such as merging energy efficiency and demand response analysis and converting recommendations to projects. In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions, will maximize customer adoption rates for most cost-effective energy management opportunities.

IOUs are planning to consolidate various calculating software such as SPC Software, Engage and other measure specific calculating tools to standardize our calculating methodology. This will ensure that calculations will be more uniform and consistent amongst all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures.

IOUs are planning to continue and expand their core RCx program in multiple target markets. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments to correct the system. Measures may involve resetting, repair or replacement of existing system controls and components, and in general are low-cost projects with simple payback periods of less than four years.

After an energy audit is complete and applicable no-cost/low-cost measures are identified, the scope of work will be handed off to a RCx implementer who, in-turn, will follow RCx program protocols, execute the scope of work (measure implementation, EM&V plan, incentive payment for energy savings, etc.) and report final results to the core program office. The IOUs are exploring innovative means of improving the Industrial Calculated Energy Efficiency Program based on Energy Division direction. One possible method to comply

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with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" and to "raise incentive levels for Emerging Technologies" is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Industrial Calculated Energy Efficiency Incentive Program.

e) Integrated/coordinated Demand Side Management

Energy audits will include recommendations for not only energy efficiency, but also for demand response and other demand-side management opportunities. Participating customers will be encouraged to participate in other demand-side management opportunities, including demand response and distributed generation. Participating customers will also be encouraged to take a more comprehensive approach to demand-side management and strive for continuous improvement.

f) Integration across resource types (energy, water, air quality, etc)

California's industrial sector faces a multitude of environmental and regulatory challenges that affect their competitiveness and, in some cases, survival. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

To help deal with these challenges, the industrial program will coordinate with the regulating agencies and the programs they are operating to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. IOUs will continue to offer targeted trainings to customers who share common regulatory challenges in an effort to educate customers on impending regulatory requirements for their business operation, and the most efficient solution options to consider for compliance. Future workshops may look at small and medium sized water and wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 industrial targets.

IOUs will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other utilities will help reduce administrative cost and has a greater impact on societal benefits.

Where applicable, the Program will integrate topics such as GHG reduction and water conservation into targeted customer workshops, and marketing and communications, building on a strong track record from the past program cycle. Marketing and communications material will include savings opportunities and messaging.

Water/Energy Nexus Strategy

SoCalGas supports improving the efficiency of water systems as one of the most critical strategies to capture water/energy nexus benefits in the energy efficiency programs.

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SoCalGas plans to focus its efforts in areas that use gas engines as the energy source to deliver and treat water. For water agencies within SoCalGas' territory, we plan to issue an RFP to utilize a contractor to implement leak-loss detection and remediation and pressure management services applicable to storage, pumping and distribution through SoCalGas' core or Third Party Program. SoCalGas will explore new project ideas for the water/energy nexus, as well as the calculation of ancillary water benefits (e.g. "embedded" energy savings). SoCalGas will accelerate the expansion of cost-effective water-energy nexus programs by coordinating with the other utilities, water agencies, and municipalities to study the cost effectiveness and the embedded energy savings for water/energy efforts. Our intent is to continue to offer measures and services to the water sector through the "calculated" and audit programs. SoCalGas will also explore for new direct energy measures that can be incented under the calculated program. Additionally, we will increase our efforts to capture the water-energy nexus and sustainability in the agriculture, industrial, and commercial segments.

g) Local Element (Negotiated Incentive Option)

SoCalGas will provide a local component which will include incentives for energy-efficient retrofits, systems new construction, or replacements of existing equipment at SoCalGas customer sites. Participants may be either customers or energy-efficiency service providers (EESP's) acting as project sponsors for activities at customer sites. To qualify, a project must save a minimum of 1,000,000 therms per year. Associated energy, resource such as water, sewerage and emissions, and Greenhouse gas (GHG) emissions savings will be considered when evaluating a project for funding. A project may consist of a single project at a single site, or may be aggregated from multiple projects belonging to a single customer, and may include a variety of measures.

This local element is designed to serve the largest non-residential customers within the SoCalGas service territory. Non-residential customers in this group are comprised of but not limited to the following industry sub-segments: Government/Utilities, Manufacturing/Processing Industries and Institutional. Each sub-segment has distinct energy use patterns, differences in equipment and facility design, and various management structures and decision-making processes. Because each industry sub-segment is unique, this option will use a customized, customer-focused approach. Participating customers, taking into account their individual energy and resource conservation opportunities as well as internal hurdle rates, will propose or "bid" to SoCalGas the incentive level needed to enable large EE and Resource savings projects. This ensures that this option will be adaptable to the unique needs of each market segment.

The program is designed to be flexible and cost effective: The project sponsor proposes a project and desired incentives. Incentives may cover up to 50% of the incremental project costs less any additional funding received from other sources. Measurement and verification (M&V) is required for all projects. As a performance-based incentive program, the approved M&V report will ultimately determine the energy savings for each project. The total sum of incentives paid for a project may not exceed the amount "bid" by the customer and agreed to by SoCalGas.

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h) Pilots

Not applicable.

i) EM&V

SoCalGas is proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

Please see the Commercial Calculated Energy Efficiency Program logic model.

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- 1. Program Name:** Industrial Deemed Incentives Program
Program ID#: SCG3715
Program Type: Statwide Core Program

2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table

Table 2 - reference the overarching program for savings details

4. Program Description

a) Describe program

The purpose of the statewide Industrial Deemed Energy Efficiency Program is to provide services to improve the energy efficiency of industrial facilities in California, including financial incentives based on deemed energy savings. The energy savings are deemed for measures installed. Integrated projects are encouraged to combine energy efficiency and demand response.

The Industrial Deemed Energy Efficiency Program is part of a suite of programs within the Statewide Industrial Energy Efficiency Program.

Key features of the program include:

- Information and technical assistance from SoCalGas on energy efficiency measures and savings potential;
- Application via mail, fax, internet and phone by customer for eligible measures;
- Reservation of financial incentives by SoCalGas, if requested by customer;
- Pre- and post-installation inspection by SoCalGas, as determined by SoCalGas based on prior participation and other factors; and
- Payment of incentives from SoCalGas.

b) List measures

Itemized retrofit measures have prescribed energy savings and incentive amounts. These measures are categorized under the following end uses:

- Food service
- Refrigeration
- Industrial Process
- Gas Measures

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c) List non-incentive Industrial Energy Advisor Services

The Industrial Deemed Incentives sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical consultation and application preparation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Industrial Deemed Energy Efficiency Program is designed to overcome several barriers. The program directly addresses key market factors that lead to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This element makes it attractive for customers to spend money in the short run in order to achieve lower energy costs in the long run.

Using itemized energy efficiency measures is intended to overcome barriers that prevent many business customers from adopting energy efficiency alternatives. The barriers are addressed by itemizing common energy efficiency measures and rebates, stimulating the supply of high efficiency equipment and products (through higher demand), and offering rebates that help offset higher start-up and down payment expenses for energy efficient retrofits.

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Furthermore, to ensure equity to all business customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Projects	TBD	TBD

e) Advancing Strategic Plan goals and objectives

The Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector. The Industrial Deemed Energy Efficiency Program supports at least two goals.

Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

Strategy 2.5: Implement ME&O program to educate industry and consumers

Near-term: Form industrial collaboration mechanisms

The Deemed Energy Efficiency Program facilitates participation by allowing customers to apply for program participation in many ways, including mail, fax, internet and phone. SoCalGas will implement marketing and outreach activities through account executives, trade associations, and in numerous other ways to stimulate participation. It will encourage participants to adopt a policy of continuous improvement.

Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

Strategy 3.2: Conduct statewide marketing and education effort to create demand for industrial information clearinghouse.

Near-term: 1) Develop ME&O Plan; 2) Implement Plan

SoCalGas will participate in the development of the plan and then encourage industrial customers to use the clearinghouse as part of the implementation of the plan.

6. Program Implementation

a) Statewide IOU coordination

i. Program name: Industrial Deemed Energy Efficiency Program

ii. Program delivery mechanisms

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Program delivery mechanisms for SoCalGas will include account representatives, technical services personnel, incentives processing staff, and inspection officials. Also important to program delivery will be customer facility owners and managers; energy efficient equipment manufacturers, distributors, and services contractors; industry trade associations; and others in the energy efficiency equipment value chain.

At the statewide level, the Industrial Deemed Energy Efficiency Program will be coordinated to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The Industrial Deemed Energy Efficiency Program will coordinate with the core Industrial Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correcting program weaknesses that reveal themselves during implementation, and ensuring achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the two-year implementation cycle will be enabled.

iii. Incentive levels

Incentive levels are based on measure type and will be set at uniform amounts across the state. Higher incentive levels will be provided for Emerging Technologies (ET) to spur traction in the market as feasible. The scale of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, therms, equipment cost, other market factors and cost effectiveness.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The Industrial Deemed Energy Efficiency Program will be marketed through IOU account executives, as well as through trade allies, education, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support will be provided.

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness, and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

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Market outreach to raise awareness of energy efficiency programs available will use a number of strategies, as follows:

- Providing a regular and consistent customer calling effort to key customers within this sector through account representatives;
- Providing additional expertise from IOU representatives, program management representatives, and field engineers will be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the industrial market sector;
- Attendance at the key trade shows for each high priority sub-segment within the industrial market sector;
- Hosting IOU-sponsored training events at the IOU's Customer Training Centers and other convenient locations within the IOU's service territory;
- Hosting of IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Linking written collateral pieces that give an overview of the IOU's Energy Efficiency programs to the appropriate IOU's IDSM web page.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above.

The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Industrial Deemed Energy Efficiency Program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with industrial customers to the extent possible. Conventionally, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

With respect to water conservation, IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers program incentives for energy efficient equipment that may also reduce water and greenhouse gas emissions.

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vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that are permitted to use the Industrial Deemed Energy Savings Program infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program delivery and coordination

i. Emerging Technologies program

The long-term energy efficiency vision of California may be attained through the long-term and continuous development, verification, and acceptance of emerging technologies (ET) into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting-edge technologies. In recognition of the importance of emerging technologies, the program is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff actively works to incorporate promising emerging technologies.

ii. Codes and Standards program

The program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As codes and standards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost-effective technologies/services (e.g., LEDs) are made available as they transition from research and development to mainstream program offerings.

iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Industrial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings take place through IOU’s energy centers and technology centers.

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iv. Program-specific marketing and outreach efforts (provide budget)

Marketing and outreach initiatives will include:

- Participation and membership in key trade associations affiliated with each high-priority sub-segment within the industrial sector, as appropriate;
- Attendance at key trade shows within the industrial sector;
- Building awareness and training of vendors of energy equipment and systems about the program eligibility requirements and participation procedures;
- Educating community based organizations (CBOs), faith based organizations (FBOs), other non-profit organizations, and other non-government organizations (NGOs) with unique access to certain industry segments;
- Informing enabling partners, such as financial institutions, law firms, and environmental organizations;
- Approaching other organizations with complementary value propositions from the customers' perspective, such as energy, water, materials management, recyclables, and corporate social responsibility;
- IOU-sponsored training events at the IOU's customer training centers and other convenient locations within the IOU's service territory;
- Hosting of IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Development of case studies, web pages, and marketing materials that provide an overview of the IOU's energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, ARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC

As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to

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incorporate promising emerging technologies and project in coordination with the applied research of CEC.

viii. CEC work on codes and standards

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

Non-utility market initiatives

The program will support, educate customers, and/or facilitate such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

To maximize program effectiveness, best practices in program design and implementation will be employed and shared amongst IOUs.

Best practices in Program Design include:

- Regular communication amongst IOUs, which is critical to effective program design.
- Identification of qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, FSTC website).
- Seeking input from industry in the development of new programs. The IOU programs are trying to change how an industry operates from manufacturer design to the customers' purchasing and maintenance practices.
- Industry participation that increases program volume and speeds market transformation.

Best practices in Program Implementation include:

- Striving to simplify messaging and participation for the customer. (Look for the ENERGY STAR label, purchase from a qualifying products list, etc.)
- Understanding the key motivators that drive an industry and using that information to market your program. Formulating certain outreach efforts that make your program visible to your customers and the market that is catering to your customers.
- Continuously communicating program marketing and advertising plans in advance to appropriate industry channels. Advanced notice allows industry partners an opportunity to leverage off of IOU marketing efforts and reinforce the messaging we are trying to deliver to our customers.

d) Innovation

Innovative aspects of the program include improving major program performance indicators, such as accuracy of energy saving calculation, higher realization rate, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrated energy management.

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For the new program cycle, California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During the 2013-2014 program cycle, the new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance, including measure bundling incentives. The IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper savings.

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Changes will (a) target ease of program understanding and participation, (b) measure eligibility, (c) increase of customer's economic benefits, and (d) identify policy restrictions that are barriers to participation. IOUs are implementing such process based on market studies conducted on the subject and preceding discussion of the policy change. Among other modifications that would be potentially discussed and implemented are incentive caps and redesign of measure/equipment early retirement according to the CPUC concept.

Where possible, IOUs will use an integrated approach to addressing DSM opportunities. Innovative approaches will be used, such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retrocommissioning and/or Calculated program. In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions, will maximize customer adoption rates for most cost-effective energy management opportunities.

e) Integrated/coordinated Demand Side Management

Once enrolled, participating customers will be encouraged to participate in other demand-side management opportunities, including demand response and distributed generation. Participating customers will also be encouraged to take a more comprehensive approach to demand-side management and strive for continuous improvement.

Integration across resource types (energy, water, air quality, etc)

California's industrial sector faces a multitude of environmental and regulatory challenges that affect their competitiveness and, in some cases, survival. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

To help deal with these challenges, the industrial program will coordinate with the regulating agencies and the programs they are operating to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. IOUs will continue to offer targeted trainings to customers who share common regulatory

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challenges in an effort to educate customers on impending regulatory requirements for their business operation, and the most efficient solution options to consider for compliance. Future workshops may look at small and medium sized water and wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 industrial targets.

IOUs will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other utilities will help reduce administrative cost and has a greater impact on societal benefits.

Where applicable, the Program will integrate topics such as GHG reduction and water conservation into targeted customer workshops, and marketing and communications, building on a strong track record from the past program cycle. Marketing and communications material will include savings opportunities and messaging.

f) Pilots

Not applicable.

g) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

Please see the Commercial Deemed Energy Efficiency Program logic model.

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1. **Program Name:** Industrial Continuous Energy Improvement Program
Program ID#: SCG3714
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – reference the overarching program for budget details

3. **Projected Program Gross Impacts Table**

Table 2 - reference the overarching program for savings details

4. **Program Description**

- a) **Describe program**

Continuous Energy Improvement (CEI) is a consultative service that is aimed at helping industrial customers engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of IOU customers and with current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; and (5) Evaluation and Modification. At each stage of customer engagement, there are a variety of complementary IOU and non-IOU products and services that can be customized to fit different customer profiles and optimize the cost effectiveness of the delivered energy management solution.

In 2013-14, CEI will be expanded to include select group of mid-sized non-residential customers. Available options to help target these customers may include an individualized, small group, or mass-market remote deployment approach.

CEI will coordinate its services with the Industrial Energy Advisor subprogram offerings. CEI offers customers what can be considered the pinnacle of audit offerings, guiding senior management to instill energy considerations in all management/business operational decisions and in long-term energy planning.

The CEI program implements the following steps:

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1. Commitment

CEI begins with a high-level management commitment to improving energy performance, which increasingly can be combined with other environmental and regulatory commitments that energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy—like safety—is a priority issue requiring attention. Corporate commitment also paves the way for establishing the required company resources required to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, or technical systems and software required for energy management.

Gaining true customer commitment can take time, but it is critical. In implementation, IOUs will formalize the Commitment phase with more intensive customers through a CEI participation agreement. This agreement outlines the IOU CEI services being offered as well as minimum customer expectations.

2. Assessment

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities but also systemic energy management practices and cultural shifts. These can improve overall facility management practices and sustain continuous improvements towards long-term company targets. A component to the assessment will also include tools to help identify Energy Efficiency (EE), Distributed Generation (DG), and Demand Response (DR) opportunities.

There are many tools and resources – IOU and non-IOU, free and licensed – available to support comprehensive customer energy assessment. They include ENERGY STAR's Guidelines for Energy Management; customer energy management assessment software products like those developed by Envinta; benchmarking tools; Integrated Comprehensive Energy Audits; through the Industrial Energy Advisor sub-program, or local and third-party programs that can offer specialized technical expertise and assessment.

Based on screening criteria, IOUs will offer comprehensive energy assessment services utilizing, but not limited to, vetted sources like those described below, to develop a customer specific strategic energy plan.

- ENERGY STAR's Guidelines for Energy Management is housed on the ENERGY STAR website and provides step-by-step guidelines to customers to support CEI in general. It also guides customers to ENERGY STAR's numerous assessment tools. This option is a low-cost resource for smaller and medium customers interested in CEI.
- Energy Management Assessment Tools such as Envinta's One-To-Five, Achiever, or Challenger software products offer professionally facilitated energy management

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assessment with company decision makers. They also explore management practices and company priorities to develop a CEI roadmap for energy goals and actions.

- Integrated Comprehensive Energy Audits provide an inventory of technical facility end-uses and energy efficiency, demand response and self-generation investment opportunities. For a full description, see the Industrial Energy Advisor sub-program plan.
- Benchmarking can measure the energy performance of a company, building, process, or piece of equipment to industry standards or comparable groupings. Benchmarking is a natural first step for the CEI process. Customers with multiple facilities find benchmarking useful to prioritize efficiency projects, track progress toward energy or greenhouse gas (GHG) improvement goals, or drive competition among similar benchmarked facilities. Units of measurement vary widely. For industrial buildings, the unit is energy used/square foot for a unit of time. Benchmarking can also be applied to other resources and environmental issues such as water use, CO₂, and emissions.

3. Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation, as appropriate. Planning for customers will typically involve Account Representatives and/or consultants. As discussed in the Strategic Plan and in Section 6.e below, strategic planning can also include complementary non-energy considerations, such as greenhouse gas (GHG) reductions, water efficiency, and waste-stream minimization, all of which have embedded energy components.

Data and findings from a comprehensive customer Assessment are critical in developing any comprehensive energy plan. These include the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information is analyzed and used to develop realistic and achievable company goals and the prioritized shorter-term tactics that are needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (“Company X will reduce its overall energy intensity by 3% over the next 3 years”), carbon reduction goals (“Company X will be carbon neutral by 2014”), or management-oriented goals (“Company X will implement energy teams by 2013”). Goals can be internal documents or can be made public through press releases as part of larger sustainability plans. Publicized goals are increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as the

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resources, staff and schedule for tracking. Action plans typically include activities such as (a) prioritizing process systems or facilities based on benchmarking or company drivers, (b) identifying internal resources required for plan implementation, and (c) developing project justification and incentive application documentation lists and detailed schedules.

4. Implementation

In the implementation stage, IOUs partner with customers to identify technical support and IOU and non-IOU resources available to support implementation of projects, such as rebates, incentives, third-party and government partnership programs, and state and national resources. These may include:

- Statewide Deemed rebates;
- Statewide Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning/repair;
- Third-Party and Government Partnership programs (described in the statewide and local third party filings);
- IOU and non-IOU financing options; and
- External and internal engineer support.

5. Evaluation and Modification

In any continuous improvement program, evaluation is an ongoing process of comparing actual performance against company goals, targets and action plans. It may include repeating the benchmarking and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward.

b) List measures

CEI does not provide incentives to customers, but ultimately facilitates the customer's implementation of energy efficiency projects through incentive programs. However, depending on the outcome of the 2012 process evaluation, customer incentives may be offered.

c) List non-incentive Industrial Energy Advisor

CEI is a non-resource program that provides comprehensive strategic energy planning and consulting services for industrial customers. These services include energy management assessments, energy planning, baselining and benchmarking, project implementation support, customer recognition (e.g. "corporate sustainability awards"), and web-based energy resources.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

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By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers include:

- Lack of information: The CEI evaluation and modification process provides data that customers can use to reevaluate their commitment and/or modify their energy goals.
- Performance uncertainties: Through CEI’s comprehensive baselining and benchmarking assistance, customers will have access to real-time data that demonstrates how their facility is performing relative to their established goals.
- Organizational customs: The high-level customer commitment that is at the core of CEI increases the likelihood that corporate cultures that prevent successful implementation of comprehensive energy policies will be changed.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Number of Engagements	TBD	TBD

e) Advancing Strategic Plan goals and objectives

The Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector. General advancement of the goals is presented in the program implementation plan for the Industrial Energy Efficiency Program. More specific support of the goals in the Industrial CEI Program is presented here.

Goal 1: Support California Industry’s adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals and other resource goals.

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Strategy 1.1: Develop coordinated energy and resource management program for CA's industrial sector, to enhance use of energy efficiency

The core deliverable through CEI is the development of a comprehensive energy management plan that customers can adopt as an operating strategy. This plan will allow customers to quantify and manage their GHG emissions in a responsible manner.

Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

Strategy 2.2: Implement certification

Near-term: Plan pilot and recruit host sites (8-10 facilities)

The Continuous Energy Improvement sub-program will manage the statewide participation in the development of an industrial certification program. This certification program will be piloted in 2013-2014. It will leverage the various industrial sub-program tactics described throughout this program implementation plan to identify the best potential host sites. The lessons learned from this pilot will be used to expand the certification in the next program cycle.

Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

Strategy 3.1: Compile technical and resource management regulatory materials into centralized assistance repository.

Near-term: 1) Identify and incorporate priority energy and other data; 2) Develop clearinghouse or integration system.

The Continuous Energy Improvement sub-program will support the development of an industrial clearinghouse by providing information on results and experience in the program, including case studies of innovative projects and best practices about implementing comprehensive energy management plans at industrial facilities.

6. Program Implementation

a) Statewide IOU coordination

i. Program name: Industrial Continuous Energy Improvement Program

ii. Program delivery mechanisms

CEI will be coordinated to unify the implementation of program aspects such as program name, program delivery mechanisms, marketing and outreach plans, and IOU program interactions. The Industrial CEI Program will coordinate with the core Industrial Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide

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targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the two-year implementation cycle will be enabled.

Where applicable, the SoCalGas account representatives will support this activity within the statewide industrial sector, as well as third parties, government partnerships, and SoCalGas local programs.

iii. Incentive levels

Not applicable. (CEI is a non-resource program).

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

As with other information and education programs, CEI will be delivered primarily by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other channels of delivery may be developed.

The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with industrial customers.

vi. Similar IOU and POU programs

Over the next two years, the IOUs will seek to increase their interactions with the POUs, as applicable, to promote the CEI concept throughout the state.

This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

b) Program delivery and coordination

i. Emerging Technologies program

The CEI program management team will stay abreast of and incorporate relevant emerging technologies into audit recommendations. In addition, IOU field engineers, who play a large role in the delivery of CEI to industrial customers, are active

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contributors to the Emerging Technology (ET) process by their participation in ET Roundtable/Information meetings and continually seek to offer new technologies to customers.

ii. Codes and Standards program

CEI implementation will include information about pending new code that may affect planning or prioritization of retrofit or new construction projects.

iii. WE&T efforts

CEI implementation will integrate with WE&T efforts by providing CEI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. SoCalGas will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

SoCalGas will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches. Program costs will be shared with WE&T.

iv. Program-specific marketing and outreach efforts

A broad range of marketing activities will be used to promote audits and elevate customer engagement. The Industrial CEI program will be promoted via direct communication between customers and Account Executives with the support of Project Managers from individual programs, as well as through traditional advertising activities, such as internet, bill inserts, brochures, trade shows, etc. Marketing activities will be coordinated between IOUs, and Distributed Generation departments within SoCalGas.

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

v. Non-energy activities of program

Integrated energy audits are a key tool for identifying non-energy opportunities for specific customers. The energy audits can identify non-energy benefits associated with recommended measures, such as improved safety, productivity, indoor air quality, comfort and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

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vii. CEC

Not applicable.

viii. CEC work on C&S

See Section 6.b.ii.

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-IOU information and guidance that CEI will provide customers. In addition, the IOUs will participate in national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

c) Best Practices

The CEI approach applies the principals of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management: Commitment, Assessment, Planning, Implementation, Evaluation and Modification in order to achieve widespread adoption of long-lasting sustainable energy management practices in the industrial market sector. This approach can now be successfully implemented given the two-year program cycle allowing longer term and deeper project development engagements with customers.

d) Innovation

CEI is a new way of packaging energy efficiency, demand response and self-generation products and services aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

e) Integrated/coordinated Demand Side Management

CEI includes project analysis and implementation support of recommendations of the Integrated Comprehensive Energy Audits, which provide customers with an inventory of facility end-use breakdown and energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related types of programs. While a successful program experience leads to repeat participation, there has been difficulty in cross-pollinating similarly related types of programs with these candidates due to program-specific silos. To

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overcome the historic siloing of DSM, the CEI sub-program will leverage lessons learned from IDSM efforts by offering comprehensive, coordinated marketing and program delivery.

CEI is recognized as a strategy to advance Statewide IDSM program's goals and objectives. SoCalGas will increase IDSM messaging and coordination within CEI.

f) Integration across resource types (energy, water, air quality, etc)

CEI implementation will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support efforts. IOU CEI sub-program managers will partner, as appropriate, with CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers. Conventionally, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will inform the customer about the mutual benefit of combining complementary resource programs.

In the effort to promote CEI, SoCalGas will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, IOU program managers will partner with the local water districts to produce co-branded marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects.

g) Pilots

Not applicable.

h) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V plan after the program implementation plans are filed. This may include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies.

More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

Once results of the 2010-2012 evaluations are ready, recommendations will be reviewed for modifying the CEI PIP accordingly.

7. Diagram of Program

Please see the core program diagram.

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8. Program Logic Model

Please see the Commercial CEI program logic model.

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- 1. Program Name:** Statewide Industrial Energy Efficiency Program
Program ID#: SCG-3713 - SW-IND-Energy Advisor; SW-IND-Energy Advisor
SCG-3714 - SW-IND-CEI
SCG-3715 - SW-IND-Calculated Incentives
SCG-3716 - SW-IND-Deemed Incentives
Program Type: Statewide Core Program

Note: The projected program budget and savings impacts shown in Tables 1 and 2 below were approved in SCE/SCG's 2010-2012 EE Compliance Advice Letter 2410-E effective March 24, 2010, per the Energy Division's disposition letter dated April 8, 2010.

2. Projected Program Budget Table

Table 1⁴

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Industrial Energy Efficiency Programs					
3713	SW-IND-Energy Advisor	\$79,591	\$10,000	\$1,126,416	\$0	\$1,216,007
3714	SW-IND-CEI	\$35,237	\$29,706	\$581,056	\$0	\$645,999
3715	SW-IND-Calculated	\$1,754,457	\$1,608,723	\$11,053,458	\$13,241,552	\$27,658,191
3716	SW-IND-Deemed	\$314,012	\$237,985	\$1,118,358	\$413,177	\$2,083,532
	TOTAL:	\$2,183,297	\$1,886,414	\$13,879,289	\$13,654,729	\$31,603,729

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Industrial Energy Efficiency Programs					
3713	SW-IND-Energy Advisor	\$79,591	\$10,000	\$1,126,416	\$0	\$1,216,007
3714	SW-IND-CEI	\$35,237	\$29,706	\$581,056	\$0	\$645,999
3715	SW-IND-Calculated Incentives	\$1,754,457	\$1,608,723	\$11,053,458	\$13,241,552	\$27,658,191
3716	SW-IND-Deemed Incentives	\$314,012	\$237,985	\$1,118,358	\$413,177	\$2,083,532
	TOTAL:	\$2,183,297	\$1,886,414	\$13,879,289	\$13,654,729	\$31,603,729

3.

⁴ Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).
Total Direct Implementation includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.
Total Budget is the sum of all other columns presented here
Definition of Sub Program: A "sub program" of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

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SCE-SW-003	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	Total Direct Implementation (Actual)	Integration Budget Allocated to other Programs (If Applicable)	Total Budget By Program (Actual)
	Industrial Energy Efficiency Program					
	Industrial Energy Audit Program	\$ 241,231	\$ 86,265	\$ 2,919,066	\$ -	\$ 3,246,563
	Industrial Calculated Energy Efficiency Program	\$ 5,364,125	\$ 1,111,151	\$ 68,288,157	\$ -	\$ 74,763,433
	Industrial Deemed Energy Efficiency Program	\$ 763,041	\$ 222,341	\$ 12,247,693	\$ -	\$ 13,233,075
	Industrial Continuous Energy Improvement Program	\$ 531,509	\$ 452,145	\$ 1,128,597	\$ -	\$ 2,112,251
	TOTAL	\$ 6,899,906	\$ 1,871,902	\$ 84,583,513	\$ -	\$ 93,365,321

4.

SCE-SW-003	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	Total Direct Implementation (Actual)	Integration Budget Allocated to other Programs (If Applicable)	Total Budget By Program (Actual)
	Industrial Energy Efficiency Program					
	Industrial Energy Audit Program	\$ 241,231	\$ 86,265	\$ 2,919,066	\$ -	\$ 3,246,563
	Industrial Calculated Energy Efficiency Program	\$ 5,364,125	\$ 1,111,151	\$ 68,288,157	\$ -	\$ 74,763,433
	Industrial Deemed Energy Efficiency Program	\$ 763,041	\$ 222,341	\$ 12,247,693	\$ -	\$ 13,233,075
	Industrial Continuous Energy Improvement Program	\$ 531,509	\$ 452,145	\$ 1,128,597	\$ -	\$ 2,112,251
	TOTAL	\$ 6,899,906	\$ 1,871,902	\$ 84,583,513	\$ -	\$ 93,365,321

5.

6.

7.

3. Projected Program Gross Impacts Table
8. by calendar year

Table 2

Program #	Main/Sub Program Name	2012-2013 Gross kW Savings	2012-2013 Gross kWh Savings	2012-2013 Gross Therm Savings
	SW Industrial Energy Efficiency Program			
3713	SW-IND-Energy Advisor	0	0	0
3714	SW-IND-CEI	0	0	0
3715	SW-IND-Calculated Incentives	0	0	21,902,488
3716	SW-IND-Deemed Incentives	0	0	2,947,836
	TOTAL:	0	0	24,850,324

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SCE-SW-003	Industrial Energy Efficiency Program	2010-14 EE Program Gross kWh Savings	2010-14 EE Program Gross kW Savings	2010-14 EE Program Gross Therm Savings
	Industrial Energy Audit Program	68,059,926	11,767	-
	Industrial Calculated Energy Efficiency Program	397,924,872	66,403	-
	Industrial Deemed Energy Efficiency Program	48,341,383	10,591	-
	Industrial Continuous Energy Improvement Program	-	-	-
	TOTAL	514,326,180	88,761	-

SCE-SW-003	Industrial Energy Efficiency Program	2010-14 EE Program Gross kWh Savings	2010-14 EE Program Gross kW Savings	2010-14 EE Program Gross Therm Savings
	Industrial Energy Audit Program	68,059,926	11,767	-
	Industrial Calculated Energy Efficiency Program	397,924,872	66,403	-
	Industrial Deemed Energy Efficiency Program	48,341,383	10,591	-
	Industrial Continuous Energy Improvement Program	-	-	-
	TOTAL	514,326,180	88,761	-

[CG](#) is forecasting installations beyond 2012 to capture those projects committed (funds reserved) in the 2010-2012 program cycle, however are not installed until after 2012. [SCE](#)

10.

4. Program Description

11.

a) Describe program

The purpose of the Statewide Industrial Energy Efficiency Program is to provide services to improve the energy efficiency of industrial facilities in California. The primary services provided to industrial customers include:

- Energy audits covering energy efficiency and demand management opportunities;
- Technical assistance in measures specification, procurement, and project management;
- Post-installation inspection and analysis to verify performance;
- Continuous energy improvement consultation; and
- Financial incentives [and project financing](#) for installed measures

Financial incentives will be based on:

- Deemed energy savings by per unit of equipment; and
- Calculated energy savings by per unit of energy

The significance of the industrial sector in energy use in California is evident by recognizing that it is responsible for a third of energy consumption in the state, as shown in the table below, taken from the California Long-Term Energy Efficiency Strategic Plan.

Contribution of the Industrial Sector	(% of total in CA)
Electricity use	16
Natural gas use	33
Energy use	22
End-use CO ₂	20

There are several factors unique to the industrial sector, as compared to the residential and commercial sectors, that present challenges to achieving energy efficiency and greenhouse gas (GHG) goals for the state. As taken from the Strategic Plan, these factors include:

- Industry uses a large quantity of energy and other resources via complex proprietary processes to create and bring products to market. Products, to varying degrees, have embedded energy that traditionally cannot be “zeroed out.”

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- Industrial facilities are increasingly managed by corporations that reside outside of the state or the country, and that view these facilities as mobile assets in a competitive global marketplace.
- Industry is highly diverse in type, size, and operation. -Customer types include the full range of industries from assembly plants, beverage manufacturing, and chemical production to water and wastewater treatment. Thus, uniform programs often will not match corporate or facility needs.
- Industries are subject to multiple policies and rules in resource areas (e.g. air quality, water quality, energy efficiency, GHG reductions, solid waste management), where compliance can raise competing objectives and outcomes.

To address these factors and challenges, the Statewide Industrial Energy Efficiency Program offers California’s industrial segment a statewide-consistent suite of products and services designed to:

- meet customer needs;
- overcome market barriers to energy management;
- enhance adoption of integrated demand-side management (IDSM) practices; and
- advance the industry toward achieving the goals of the California Long Term Energy Efficiency Strategic Plan.

The program overcomes barriers through policies that:

- provide integrated solutions for the customer;
- create heightened awareness through education and outreach;
- foster continuous energy improvement (CEI);
- promote the use of commonly accepted standards; and
- support training to create a highly skilled energy efficiency workforce that is accessible to industry.

The Statewide Industrial Energy Efficiency Program includes four statewide sub-program elements that together comprise the core product and service offerings. Each of the four investor-owned utilities in the state also offers local programs that complement and enhance the core offerings in their region. The local portfolio mix of [SCE](#) [SoCal](#) [Gas](#) [SCG](#) is specifically designed to enhance energy efficiency and DSM opportunities for industrial customers. ~~These include the AB 32 Carbon Emissions Reduction (CER) Program and financial solutions, including financial solutions.~~

Together, these offerings are designed to not only overcome the traditional market barriers to energy efficiency, but also use efficiency to advance demand response (DR) and distributed generation (DG) opportunities (including solar and renewables) uniquely suited to the industrial segment.

The four statewide sub-programs are summarized below.

- ~~Industrial Customer Services Energy Advisor: b~~ Brings together under one program all audit services offered to support the customer’s (1) education; and (2) participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits; along with and (3) awareness of greenhouse gas and water conservation

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activities. These services include Benchmarking, Online Energy Audit Tool, Continuous Energy Improvement (CEI) (see CEI sub-program PIP), Nonresidential Audits, Pump Efficiency Services, and retrocommissioning (RCx),

- ~~Energy Audits Program~~ ~~Customer Services~~ ~~Energy Advisor~~ ~~Energy Audits Program:~~ ~~Basic audits, integrated audits, and (RCx) audits that provide an inventory of technical project opportunities and financial analysis information to populate a customer's short- or long-term energy plan.~~

- **Industrial Calculated Energy Efficiency Program:** Features incentives based on calculated energy savings for measures installed as recommended by comprehensive technical and design assistance for customized and integrated energy efficiency/DR initiatives in new construction, retrofit, and RCx projects. Because it presents a calculation method that can consider system and resource interactions, the program will become the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan.

- **Industrial Deemed Energy Efficiency Program:** Features rebates per unit measure for installed energy-saving projects. It provides ~~utility~~ IOU representatives, equipment vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts.

- ~~Industrial Continuous Energy Improvement (CEI) Program: Features a~~ ~~consultative service which targets long-term and strategic energy planning. CEI is designed to reintroduce the importance of energy management by transforming the market and to help reduce energy intensity through a comprehensive energy management approach. CEI will address technical and management opportunities for commercial customers while creating sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary IOU and non-IOU products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.~~

- ~~Continuous Energy Improvement (CEI) Program: Offers a collection of Strategic Planning tools and resources that lay the groundwork for long-term integrated energy planning and provide a platform for launching other utility and non-utility programs and services. Through analysis, benchmarking, long term goal setting, project implementation support, performance monitoring, and ultimately energy management certification, CEI aims to transform the market away from a "project-to-project" approach toward a continuous improvement pathway. In support of the Strategic Plan, the CEI also sets the stage for integration of non-energy resources, such as GHG reduction, water conservation, and regulatory compliance.~~

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The ~~utilitiesIOUs~~ and CPUC have worked collaboratively to define a set of Program Performance Metrics (PPM) to measure progress made by the programs and sub-programs towards their short term goals and Market Transformation. Statewide coordination and planning will facilitate inter-~~utilityIOU~~ sharing of successes, lessons learned, and best practices in the pursuit of those targets and metrics.

Statewide coordination and planning between ~~utilityIOU~~ program planning staff, ~~utilityIOU~~ functional departments, government agencies, and other key partners and stakeholders will also be critical to the advancement of the Strategic Plan. In addition, leveraging national and state initiatives, tools, and resources to manage energy, use and protection of natural resources and environmental impacts will be key to optimizing the potential for California's industrial segment. The Statewide Industrial Energy Efficiency Program includes the staged integration and coordination with existing initiatives and regulations today, and later will drive or support advancements in integrated resource planning, energy management certification, industry benchmarking, workforce education and training, and sharing of industry best practices towards a goal of optimized energy utilization.

An integrated approach should be an effective way to help customers meet overall economic and green goals. In alignment with California's preferred loading order, however, the ~~utilitiesIOUs~~ will continue to aggressively market and support energy efficiency first as the most cost-effective energy resource through education and training, as well as when pursuing strategic energy planning with customers.

b) List measures

The key end-use technology categories addressed through the Statewide Industrial ~~Energy Efficiency~~ Program are pumping, ~~engines, motors,~~ heat recovery systems, process steam, loads, and heating, air compressors, hot water systems, ~~and~~ insulation, ~~plug load controls and lighting. Incentive levels will be aligned with those of the Calculated Energy Efficiency Program and the Deemed Energy Efficiency Program.~~

~~The Deemed Energy Efficiency Program offers itemized retrofit measures that have prescribed energy savings and incentive amounts. These measures are categorized under the following end-uses:~~

- ~~● Lighting~~
- ~~● Air conditioning~~
- ~~● Food service~~
- Refrigeration
- Industrial Process
- ~~● Motors~~
- ~~● Plug loads~~
- Gas Measures

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~~For the Calculated Energy Efficiency Program, statewide incentive levels are based on type of measure and savings in kilowatt hours (kWh) and kilowatts (kW).~~

Measure Type	Incentive level (kWh/kW)
Lighting	5 cents per kWh + \$100/pk kW
AC & Refrigeration	15 cents per kWh + \$100/ pk kW
Motors and Others	9 cents per kWh + \$100/ pk kW
Controls	Xx cents per kWh + \$100/pk kW
Gas measures	\$1 per therm

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c) **List non-incentive Industrial customer services Energy Advisor Services**

Non-incentive Industrial customer services Energy Advisor offered through the Statewide Industrial Energy Efficiency Program will include the following:

Industrial Energy Audits Customer Services Energy Advisor Audits

- Basic remote audits Remote energy audits audits
- Integrated energy audits
- Retro-commissioning Retro commissioning Retro commissioning audits;
- Benchmarking
- Pump tests and pumping systems technical support
- Water leak detection services

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Continuous Energy Improvement (CEI)

Continuous Energy Improvement (CEI)

- Energy management assessments
- Energy planning consulting
- Energy use baselines establishment
- Facility/customer benchmarking
- CEI education and training
- CEI resources on www.energydesignresources.com
- Customer recognition
- Plant certification

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Education and Training

- System-assessment DOE training
- Basic, Intermediate and Specialist Training (in support of ANSI Certification) in industrial pumps, motors, compressed air, and steam
- Other system-specific training
 - Steam system and process heating seminar
 - Air systems
 - Industry-specific integrated energy management workshops and seminars developed by the IOUs
 - Control systems
 - Energy Management management systems

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Workforce Education and Training (WE&T)

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- Training to build team of highly skilled personnel to perform plant certification and assessment.

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5. Program Rationale and Expected Outcome

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a) Quantitative Baseline and Market Transformation Information

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies³.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical dimensions and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴. Markets are social institutions⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed ~~to~~ not to immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶, as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁷. According to York⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-

² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁴ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at

http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/4

⁶ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors, such as past market sales, that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory¹⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers)."¹³ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

¹⁰ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹¹ Example in bottom chart of this graphic from NYTimes: <http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

¹² Sebold et al (2001) p. 6-5.

¹³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume I.* Available at <http://calmac.org/publications/1998121SCAD0001ME.PDF>.

¹⁴ CPUC (2008) Strategic Plan, p. 5.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the ~~utilities~~IOUs look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers¹⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps includes forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can (1) define ~~markets, and~~ characterize markets, (2) measure baselines with better access to historical data, ~~and~~ (3) define objectives, (4) design strategies and tactics, (5) implement programs and (6) ~~then~~ evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of expected market effects ~~we can expect~~, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector, a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a ~~behaviorial~~behavioral based metric for this sector, a battery of questions about energy efficient behaviors could be used to create a

¹⁵ Nadel, Thorne, Saches, Prindle & Elliot (2003).

¹⁶ Pelozo & York, (1999).

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scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

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Program Performance Metrics (PPMs)

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On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency:

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- Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise).

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- Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Industrial Energy Efficiency Program (Resolution E-4385, Appendix A, pp. 32-33):

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED		
* Data to be reported in disaggregate form by SW program (commercial, industrial, and agricultural)		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub programs (NRA, Deemed, Calculated, and CEI) by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and by Hard to Reach (HTR)**	
	** "HTR" is as defined in the EE Policy Manual.	
C	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short term (2010-2012) milestones as identified by their long term energy plans.	
a		
#	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N)	
f		
i		
#		
#	*3. Number and percent of commercial, industrial and agricultural customers that created an energy plan via CEI will be tracked by program.	
s		
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SW PROGRAM <i>/Sub-Program</i>	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
<p style="text-align: center;">F o r e m u n i t (C E I)</p>		
<p style="text-align: center;">N o n- R e s i d e n t i a l A u d i t P e r f o r m (N R A)</p>	<p>*1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.</p> <p>*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices^{2,3}. (Report disaggregated data by type of audit—Basic, Integrated, and Retro-commissioning audit.)^{**()}.^{**()}.^{**()}(1)</p> <p>**Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates.</p> <p>(1)—An audit completed in one portfolio may have measures implemented over several years and portfolios.</p>	
<p style="text-align: center;">D e</p>	<p>*1. Number and percent of new, improved, or ETP measures^{**} installed in the commercial, industrial and agricultural programs.</p>	

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<u>SW PROGRAM / Sub-Program</u>	<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
e m e d I # e # t i v e s	** "ETP measure" defined as ETP measures first introduced into the EE portfolio since January 1, 2006.	
C a l c u l a t e d I # e # t i v e s	*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.	
INDUSTRIAL		
1. The number and percent of first time** participants in energy efficiency programs. (Report disaggregate data by sub-program.)) **"First time" means customer has not participated in energy efficiency programs since December 31, 2005.		

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<u>SW PROGRAM / Sub-Program</u>	<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED * Data to be reported in disaggregate form by SW program (commercial, industrial, and agricultural)		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub-programs (NRA, Deemed, Calculated, and CED) by NAICS code, by size (+/- 200 kW per yr or +/-	2a

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<u>SW PROGRAM / Sub-Program</u>	<u>PROGRAM PERFORMANCE METRIC (PPM)</u>	<u>Metric Type</u>
	50K therms per yr), and by Hard to Reach (HTR)** ** "HTR" is as defined in the EE Policy Manual	
<u>Continuous Energy Improvement (CEI)</u>	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short-term (2010-2012) milestones as identified by their long term energy plans.	2a
	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N)	2b
	*3. Number and percent of commercial, industrial and agricultural customers that created an energy plan via CEI will be tracked by program.	2a
<u>Non-Residential Audit Program Energy Advisor (NRAEA)</u>	*1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.	2b
	*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices. (Report disaggregated data by type of audit - Basic, Integrated, and Retro-commissioning audit.) *(1) **Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates. (1) – An audit completed in one portfolio may have measures implemented over several years and portfolios.	2b
<u>Deemed Incentives</u>	*1. Number and percent of new, improved, or ETP measures** installed in the commercial, industrial and agricultural programs. ** "ETP measure" defined as ET measures first introduced into the EE portfolio since January 1, 2006.	2a
<u>Calculated Incentives</u>	*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.	2a

b) Market Transformation Indicators (MTIs)

~~Resolution E-4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities IOUs to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 20130-201422010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.~~

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Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per

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[Energy Division Guidance on June 19, 2012, the MTIs to be found in “Attachment H” are approved for this sub-program as applicable.](#)

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c) **Program Design to Overcome Barriers**

There are a multitude of significant barriers to achieving technical and economic potential for energy efficiency in the industrial sector according to the Strategic Plan (p. 46). While primarily institutional and behavioral, rather than technical, these barriers include:

- Lack of awareness of energy efficiency opportunities;
- Difficulty in accessing industry-specific technical assistance;
- Inadequate availability of plant and management personnel to foster energy efficiency;
- Prioritization of production over energy management;
- Aversion to the risk of investing in new technologies and processes with unknown impacts to industrial output or quality; and
- Limited capital and inhibiting internal investment rates.

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Further, the industrial sector faces an array of barriers common to all nonresidential customers:

- A high percentage of building developers, owners, managers, and contractors build or retrofit to current standards (Title 24). Likewise, architects and engineering (A&E) firms tend to specify known and familiar equipment and designs.
- Because viable high efficiency emerging technologies are unknown to facility owners and system designers, these technologies are slow to penetrate the market, causing lost energy efficiency opportunities.
- Insufficient access to information creates barriers associated with:
 - operating best practices;
 - energy efficiency opportunities; ~~and~~
 - impacts of an energy efficiency project on emissions, resource consumption, or waste discharge streams; difficulty in obtaining technical assistance; inadequate availability of qualified industry specialists can all impede adoption of energy efficiency.
 - difficulty in obtaining technical assistance; and
 - inadequate availability of qualified industry specialists, which can all impede adoption of energy efficiency.

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The ~~Statewide~~ SCGSoCalGas Industrial Energy Efficiency Program will employ all four strategies listed in the Strategic Plan to address the barriers. These strategies include:

- Integrated solutions
- Education and outreach
- Branding and certification
- Workforce training.

The Statewide Finance PIP includes plans to explore and develop additional finance tools to facilitate the adoption of integrated projects.

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d) Quantitative Program Targets

Table 5 - Program targets are provided at the sub-program level.

e) Advancing Strategic Plan goals and objectives

The Statewide SCSO CalGas Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector.

Goal 1: Support California Industry's-industry's adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals and other resource goals.

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To address this goal, the strategy adopted, in line with the Strategic Plan, is to develop an interagency framework that could combine energy efficiency incentives to achieve measured performance improvements in resource management, including -water, air quality, GHG emissions, and energy efficiency. This first goal focuses on developing a minimum regulatory energy efficiency requirement for individual company or industrial sub-sectors as a whole. One example is to integrate AB32 requirements to allow industries to use energy efficiency to meet or exceed regulatory requirements for GHG emission reductions. An IOU – CARB AB32 team will be formed to study the feasibility of implementing negotiated agreements between agencies. In addition, SCE SoCalGas SCG will offer a local AB32 Carbon Emissions Reduction (CER) Program in conjunction with the IOU-CARB AB32 efforts. Along the same lines, the IOUs are also undertaking a pilot program with the food processing industry, under the agriculture program.

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Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

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This second goal focuses on companies that want to exceed a minimum regulatory requirement by actively managing their energy use over time. To this end, this program offers CEI options that include participation in a recognized national effort to certify industrial facilities for energy efficiency. Industrial customers will then be able to reach their GHG emission reductions targets via a supported, structured program based on best practices and develop world-wide recognition for their efforts through third-party certification e.g. DOE's SEP program, based on proven best practices. The IOUs will be partnering with DOE's Industrial Technologies Program or EPA Technologies program, for example, to gain access to highly skilled professionals in energy management systems.

Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

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The primary interest with this goal is to provide a clearinghouse of technical knowledge and information so that industry personnel can access information on emerging technology and industry-specific research. The clearinghouse will leverage extensive knowledge on energy efficiency developed by other organizations like DOE and EPA. In alignment with the Strategic Plan, the statewide team will be developing this clearinghouse on the EDR website, which is an existing statewide resource.

6. Program Implementation

14.

a) Statewide IOU coordination

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i. Program name: Statewide Industrial Energy Efficiency Program

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ii. Program delivery mechanisms

The Statewide Industrial Energy Efficiency Program will be coordinated on a statewide level to ensure the program is continuously updated and enhanced throughout the ~~three-year~~ two year transition period - implementation cycle and beyond. In addition, each of the four ~~subsidiary-sub~~ programs in the Industrial Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and ~~utility~~ IOU program interactions. A detailed description of each of these program aspects and how they will be coordinated statewide is provided in sub-program descriptions. The two coordination systems, one for the core program, and one designed for the sub-program level, will interact with and support one another. The broad, high-level coordination effort for the core program will be described below, focusing on how the utilities IOUs will work together to effect the continuous improvement of the Statewide Industrial Program.

The Statewide IOU Coordination process for the Statewide Industrial Program will be as follows:

1. Designate an IOU Program Lead

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The coordination process will begin with each IOU designating a Statewide Industrial Energy Efficiency Program "lead". The IOU lead will represent one industrial sub-program, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges show potential for impacting the Statewide Industrial Energy Efficiency Program across multiple sub-programs or the Statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.

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2. Hold Periodic Steering Committee Meetings

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The Industrial Steering Committee will comprise all designated IOU leads (including at least one lead for each of the four sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the periodical steering committee meeting, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be transmitted to all IOUs. The steering committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the Industrial program's progress against statewide metrics and goals.

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3. Adopt Program Enhancements

Once the steering committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide steering committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.

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4. Evaluate Program Enhancements Against Statewide Targets

To complete the adaptive management loop, the steering committee will track the program's accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The steering committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

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The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the ~~three~~-year implementation cycle will be enabled. The details of actual implementation of these coordination activities are to be determined by the IOU's industrial program managers.

iii. Incentive levels

Details on the incentive levels are discussed with each of the four sub-programs.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target

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customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the industrial sub-program plans.

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To reach out to the diverse customers segments, utilities IOUs will continue to foster strategic partnerships with industry and community groups, as well as trade professional associations, to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. Specific efforts will include:

- Participation in trade association meetings to market the industrial program;
- Close partnerships with key industry associations, and participation in their annual conferences, with an effort to develop conference speaking engagements;
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement;
- Ads and articles, with program information and case studies, in trade magazines;
- Targeted customer efforts through utility IOU account representatives, program engineers, third parties, and government partnerships;
- Phone and web-based customer support and outreach;
- Development of coordinated industrial resources into a centralized “one stop shopping” clearinghouse; and
- Development of marketing collateral that drives customers to account representatives and websites for additional support.

The utilities IOUs will raise awareness of energy efficiency programs available using a number of strategies, including, including:

- Utility IOU representatives will make a regular and consistent customer calling effort to key customers within this sector; and
- Utility IOU representatives, Energy Efficiency program management representatives, and field engineers will be available to provide additional expertise.

To help ensure that utilities IOUs are marketing the right products to the right customer at the right time through the right channels, the IOUs need to be able to segment customers based upon their individual characteristics and energy needs. The IOU’s efforts to collect this customer data will guide the development and implementation of its IDSM marketing and outreach activities.

This customer segmentation will help the utilities IOUs develop an understanding of customers’ needs and respond accordingly with products and services that customer-s want. The segmentation analysis looks at what the customer requires and how the customer is engaged with each IOU. This foundational segmentation will evolve with incremental insight into customer mindsets, behaviors, responses and motivations to achieve the most effective level of energy use. Based upon this evolving segmentation, the utilities IOUs will be able to identify what integrated product offerings are specific to individual customer needs, and offer those products through the most relevant channels.

Based on the segmentation analysis, the utilities IOUs will be able to focus on providing consistent marketing and overall messaging focused on the customer's customers' customers:

- 1. Business/personal goals;
- 2. Unique needs; and
- 3. Green/global climate change goals

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Statewide Industrial Energy Efficiency Program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with commercial customers, as appropriate. Conventionally, each government agency and utility IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. The sub-program descriptions provide more specific information on linkages with other government programs.

vi. Similar IOU and POU programs

Some initiatives, such as the California Advanced Lighting Controls Training Program, are joint efforts with the other California IOUs and publicly owned utilities (POUs), as well as other domestic and international utilities. In addition to these joint efforts, local third-party programs that address niche opportunities within the segmented commercial market segmented will be implemented in each of the IOU's service territories. These various efforts will be coordinated to ensure a consistent approach in terms of program message, delivery and measure incentives.

b) Program delivery and coordination

i. Emerging Technologies (ET) program

The long-term energy efficiency vision of California can be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training, and market development to maximize the energy efficiency benefits of cutting-edge technologies. In recognition of the importance of emerging technologies, the program will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. It is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff actively works to incorporate promising emerging technologies and PIER projects.

ii. Codes & Standards program

The industrial offering relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. It is

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~~important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination subprogram.~~ Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will ~~be made to ensure that the latest cost-cost-effective technologies/services (e.g., LEDs) are~~ made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream.

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iii. WE&T efforts

Workforce Education & Training efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Industrial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings will take place through ~~utilities IOUs~~ energy centers and technology centers. In general, the Statewide Industrial Energy Efficiency Program will interface with the Workforce Education and Training Program Implementation Plan to serve the goals of the Strategic Plan.

iv. Program-specific marketing and outreach efforts (provide budget)

In addition to the general efforts listed above in 6.a.iv., specific marketing and outreach efforts for sub-programs are found in the sub-program documents.

~~Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.~~

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v. Non-energy activities of program

Integrated comprehensive energy audits (described in the Industrial Customer Services Energy Advisor sub-program) that look across the various energy efficiency program offerings, as well as complementary options available through other entities (e.g., water agencies) will be used to identify the opportunities to be recommended to the specific commercial customer.

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~~The on-going Water Efficiency Pilot Program that was approved in 2008 and implemented in 2009 will provide potential opportunities to reduce water use and the potential for associated energy efficiency savings. Since some customers~~

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~~within the program sectors are major water users, this sector is well positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Programs.~~

The ~~StatewideSoCalGas~~ SCG Industrial Energy Efficiency Program will offer information to customers about the non-energy benefits associated with recommended measures, such as improved safety, productivity, indoor air quality, comfort, and appearance.

vi. Non-IOU programs

A variety of programs to be determined will be coordinated and leveraged to support program objectives. These include:

- Connecting customers with the CA Climate Action Registry;
- AB32 support through CO₂ tracking in program resources;
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations;
- Non-~~utility~~ IOU financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives;
- Water/Energy efforts within California;
- ANSI standards (see CEI section); and
- ISO international energy management standards (see CEI section).

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC work on PIER

~~The program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects. Not applicable.~~

As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.

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viii. CEC work on C&SS

As indicated in Section 6.b.ii, planned enhancements to Title ~~2024 will be reflected in incentive levels and 24 will be reflected in incentive levels and~~ in eligible measures and services.

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ix. Non-utility market initiatives

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The program will support, educate ~~customers~~, and/or enforce such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

The Program will leverage the following efforts:

- California Green Building Initiative
- LEED
- Zero-net energy
- DOE
- AB1103
- AB758

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c) **Best Practices**

The ~~SCESoCalGas~~ ~~SCG~~ Statewide Industrial Energy Efficiency Program reflects the best of each ~~utility~~ IOU program's successful components of statewide Industrial program offerings, and introduces new elements from other utilities and national efforts as well. Best practices include:

- Continuous Energy Improvement: This approach proposes to transform the market and reduce energy intensity through addressing technical and management opportunities.
- Technical Assistance: Recognizing the need for personalized assistance for customers, the IOUs will offer a full-service approach starting from audits/pump tests to design and technical assistance, presentation of recommendations, resources to develop a long term plan, and potential of project management assistance, with financial incentives.
- Vendor Partnerships: This strategy will be coupled with vendor support and educational workshops and classes to provide the full ~~breath~~ breadth of support customers may need to influence their decision to implement energy efficient equipment and practices.
- Statewide Coordination: In order to take advantage of the statewide implementation of the program, the IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.
- Leveraging Industry-Specific Resources: We will make full use of resources available, such as industry trade and professional associations.

d) **Innovation**

One innovation is that the program focuses on energy efficiency savings through not just hardware installation but also documented permanent changes in operations. Further, it covers all energy resources including energy efficiency, demand response, energy storage, combined heat and power, distributed generation, renewables, and emerging technologies.

The products and services are bundled in an integrated fashion to serve the customer's need and are geared towards a value creation solution that helps customers realize that they can run their operations efficiently and also meet their business and regulatory objectives. This

approach brings to market a more customer-centric energy solution that takes into account their short- and long-term energy usage management and planning and helps overcome some of the barriers to making energy efficiency a priority. It also helps industrial customers identify, develop and document energy efficiency improvements and their economic benefits.

With the introduction of the new CEI product and services, ~~the~~ customers now play a more active role in managing their energy usage and GHG reduction. Bundling the program offerings (energy audits, calculated energy savings, deemed energy savings, and continuous energy improvement) makes it easier for customers to participate in a one-stop shop program. Integrated offerings will also garner significant gains in energy efficiency and make the goals envisioned in California's ~~long~~-~~long~~-term energy efficiency Strategic Plan a reality.

In addition, this approach will enable industry to integrate AB32 requirements such that industrial facilities can use energy efficiency to meet and exceed regulatory requirements for GHG emissions and can also aid in water conservation, waste disposal and ~~improve~~ air quality ~~improvement~~. It also moves the program towards a more holistic approach in managing all energy resources utilization, which includes energy efficiency, demand response, energy storage, combined heat and power, distributed generation, renewables and emerging technologies.

Another innovation used in the program design is the creation of the infrastructure for a statewide centralized technical resource to enable customers to seek energy efficiency information and best practices to manage their energy resource. It provides a resource otherwise unavailable due to business resource limitations.

A ~~web~~-~~web~~-based technical resource is envisioned that includes tools to help customers calculate their energy savings. -Also ~~web~~-~~web~~-based training may be offered in energy efficiency and energy management. It would also link the customer to industry sites that may offer industry-specific information e.g., the latest trends in industry for energy efficiency.

This resource center will be developed on the existing EDR (Energy Design Resource) website and will be readily available to customers. It is another avenue to increase awareness of energy efficiency opportunities by customers, industry consultants and suppliers that was identified as a barrier to the adoption of energy efficiency.

Some of the outcomes from this innovative program approach are listed below:

- IOUs establish a stronger presence with trade associations and community groups, enabling a deeper understanding of customer needs and how energy efficiency can be a part of their solution to their primary concerns. This will enable a deeper and more effective penetration of energy efficiency solutions to a broader base of customers.
- Integrated Energy Efficiency Assessments are offered to provide targeted Industrial, food processing, and water customers with a holistic approach to maximizing energy efficiency, maximizing investment efficiency and maximizing GHG reductions.
- IOU assistance makes customers aware of renewable energy opportunities, with emphasis on system available for California Solar Initiative, Renewable Generation, Department of Industrial and other incentives, grants and rebates.

- Web-based services, including energy efficiency information, training, and modeling tools, are available to help customers with retrofit or new construction projects, via a new enhanced “Energy Design Resources” website.
- Training is designed to strategically target internal personnel, vendors and trade associations, and customers in a focused alignment, which will create a synergistic effort that will overcome many informational and transactional barriers.
- Seminars are offered to train customers on how to identify energy efficiency opportunities at their facility/in their process. Class-room software tool training is available on modeling and quantifying savings opportunities. ~~Utilities IOUs~~ may also provide a PDA energy efficiency tool or tools from the statewide ~~utility IOU~~ tool lending library that customers can use at their sites.
- Energy measuring and benchmarking assistance/services are offered to customers so they can see how their facility/process measures up to “best in class” systems utilizing tools such as the U.S. EPA’s Energy Star Benchmarking tool.
- Information on “green” energy opportunities is provided when doing basic audits or in-depth assessments. Education and training on green and renewable energy opportunities ~~are will~~ be available on the EDR website.
- Assistance is offered to help customers quantify the carbon emissions savings that EE opportunities identified during audits and assessments offer.
- A web link will be developed between customers and the California Climate Registry to document a plant’s carbon footprint.
- Trained personnel help ~~(a)~~ identify, assess and make available to customers an integrated assessment tool and ~~(b)~~ train customers on the use of the tool, ~~to empower~~ empowering customers to identify the best EE opportunities at their facilities.
- ~~An Application~~ Application process improved for statewide consistency, ~~making~~ it easier for customers to participate in the program.

e) **Integrated/coordinated Demand Side Management**

Integrating the portfolio of ~~utility IOU~~ offerings to include energy efficiency, demand response and distributed generation—as well as other resources, such as air and water as they connect to energy—supports ~~not only future~~ cost-cost-effectiveness of the portfolio and the CA loading order instituted by the California Energy Action Plan. Integration serves the needs and wants of our customers, who are interested in any energy solution that solves their problems and meets their business needs. It also advances significantly the goals of the Strategic Plan. On a broader scale IDSM also includes the integration of Third-Party programs and Local Government Partnerships (LGP) delivery channel with the statewide industrial program.

Customers prefer a single ~~utility IOU~~ point of contact ~~who know that understands know know~~ multiple options, ~~and~~ They benefit from a single, coordinated planning process that helps them prioritize integrated investment decisions based on their unique needs. To that end, the statewide ~~utilities IOUs~~ have made tremendous progress in advancing integrated solutions. These include:

- Marketing

In marketing integration, the IOUs are placing major emphasis on getting the right message to the right customer at the right time. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which outline multiple tactics, delivery channels and key messages to target to specific customers based on their specific needs. The account representatives, who serve as the key customer point of contact, will be trained to ensure consistent delivery of portfolio offerings.

- Education and training

Workshops organized around a customer segment provides an ideal situation to integrate customer energy solutions. Building on past successes of providing integrated workshops to customers, the utilities IOUs will offer workshops that provide opportunities to cross-sell solutions and share key information from other utility IOU departments. As appropriate, Workforce Education and Training will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures.

- Integrated Audits

These will combine funds and resources of energy efficiency and demand response programs. They will provide integrated recommendations to customers that emphasize energy management in proper sequence, as supports the CA Loading Order, which calls for permanent reductions through energy efficiency before implementing demand response. Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in the larger facilities, particularly as part of monitoring-based retro-commissioning efforts, where controls to facilitate demand response efforts would be installed.

Integrated audits combine funds and resources of energy efficiency and demand response programs to provide integrated recommendations to customers that emphasize energy management in proper sequence, in support of the California Loading Order. Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in the larger facilities, especially as part of monitoring-based retro-commissioning efforts where the controls to facilitate demand response efforts would be installed. Additionally, any energy efficiency audits required for participation in distributed generation programs will be expanded to include DR opportunities when appropriate and thus address the three facets of DSM integration.

As required, utility IOU distributed generation programs require that customers receive an energy audit before being eligible to receive solar audits.

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- Emerging Technologies and CEC-PIER

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Program collaboration with Emerging Technologies and CEC is expected to include pilot projects and market acceleration assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

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Over the last few years, traditional DSM programs have shown that successful customer participation in one program often leads to repeat participation in the same program or other similarly related types of programs. Nonetheless, cross-marketing DSM programs with these customers remains a challenge, due to program-specific silos. To eliminate these silos, the Program will leverage lessons learned from past program experience and offer comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that these two efforts are at odds with each other, as both programs reduce the potential for each other's financial incentives to the customer. For example, energy efficiency may reduce the overall baseline that serves as the basis for the demand response program's incentives. Also, benefits from long-term energy savings derived from technological measures often outweigh the temporary demand reduction benefits derived from behavioral actions. To overcome this barrier and maximize the potential of both programs, additional incentives will be paid for energy efficiency measures that enable demand response.

A secondary issue when integrating energy efficiency and demand response programs is that communication messages for both types of DSM programs are often not coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the program will offer integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable. Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response, as well as energy efficiency, programs.

In summary, the program seeks to overcome the many issues raised by integration of energy efficiency and demand response by focusing on several tactics:

- Promoting and setting incentives for demand response in such a way as that helps ensure that energy efficiency is completed first to maximize potentials;
- Integrating and coordinating year-round marketing (e.g. applications, collateral, web sites, and events);
- Linking of program eligibility requirements (e.g., customer size);
- Providing unified technical assistance through enhanced energy efficiency and demand response audits through the TA Program to allow for cross-harvesting opportunities;
- Integrating presence on utility IOU websites; and
- Coordinating regular meetings between energy efficiency and demand response program management.

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During the current cycle, funding for energy efficiency and demand response must remain non-commingled; therefore payments will be split between the two programs, as appropriate.

f) Integration across resource types (energy, water, air quality, etc)

California's industrial sector faces a multitude of environmental and regulatory challenges that affect their competitiveness and, in some cases, survival. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

To help deal with these challenges, the industrial program will coordinate with the regulating agencies and the programs they are operating to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities.

~~Utilities-IOWs~~ will continue to offer targeted trainings to customers who share common regulatory challenges, in an effort to educate customers on impending regulatory requirements for their business operation, and the most efficient solution options to consider for compliance. Future workshops may look at wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 industrial targets.

~~Utilities-IOWs~~ will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other utilities will help reduce administrative cost and has a greater impact on societal benefits. ~~Currently the utilities are participating in the CPUC water/energy pilots with several water agencies. The results from this pilot may spur more partnerships between the utilities.~~

Where applicable, the Program will integrate topics such as GHG reduction and water conservation into targeted customer workshops, and marketing and communications, building on a strong track record from the past program cycle. Marketing and communications material will include savings opportunities and messaging,

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g) Pilots

The Statewide Industrial Energy Efficiency Program will coordinate on a statewide level to ensure the program is continuously updated and enhanced throughout the ~~three-two~~-year implementation cycle. Pilots may be developed at that time in response to customer's needs or to further advance the goals of the Strategic Plan. ~~A current program of note is the water and energy pilot program.~~

~~The IOU's intend onto implementing methods to gather and retain more detailed performance and usage data on a pilot basis. This will to determine the more effective methods and to achieve savings. Exploring incentives for sub-metering is an option, as is expanding the tool library in lieu of incentives.~~

~~A current program of note is the water and energy pilot program.~~

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h) EM&V

SCESCG plans to continue work with other utilities and the Energy Division to develop a complete plan for 2010-12 studies and budgets after the program plans are finalized and filed. This plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.

The IOUs- SoCalGasSCG is are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases, after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided here.

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Because the segment approach is a significant change from recent core programs, a preliminary process evaluation will be conducted during the first program year to determine how well the new program elements are operating, and to obtain recommendations on how to improve program operations. After the beginning of the last program year, a full process evaluation will address researchable issues based on the program theory and logic model. These issues will include, but not be limited to, the following:

- Whether program incentive levels for the deemed savings and the calculated savings elements are sufficient, not enough, or more than necessary to motivate program participation, while minimizing free ridership.
- Whether direct install elements are penetrating the intended markets.
- Whether the integrated energy audit element is inducing customers to take advantage of other program offerings, like the rebates.
- Whether the continuous energy improvement element is successful in getting corporate commitments to an EE Strategic Plan.
- How well the industrial sector activities are supporting the Strategic Plan.
- How well the core industrial activities are coordinated with other industrial program offerings, to leverage resources.
- How well program marketing supports and complements the marketing efforts of other IOU demand side management programs.

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To address these issues, the following major evaluation tasks will be completed: —

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- *Logic model and program theory.* The logic model and program theory will establish a starting point for all evaluation activities. The structure of the logic model, which links program activities and expected outcomes, will be a useful instrument for identifying specific program assumptions that can be tested using a survey or other primary data collection activities.

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• ~~*In-depth interviews.* In-depth interviews will be conducted with program managers and other key staff members. Program staff members will clarify program goals and gauge program progress, provide valuable insight into daily operations, and proposed research topics to be addressed during the evaluation. The coordinated activities of the Business Customer Division personnel and the EE Division program managers will be an important focus of this redesigned program approach.~~

• ~~*Participant survey.* The primary data collection instrument will be a participant survey, fielded over the phone. Some will be conducted in person for selected key customers with large savings, complex projects, multiple sites, etc. The surveys will explore the participant experience with program services and address the research issues identified by the logic model.~~

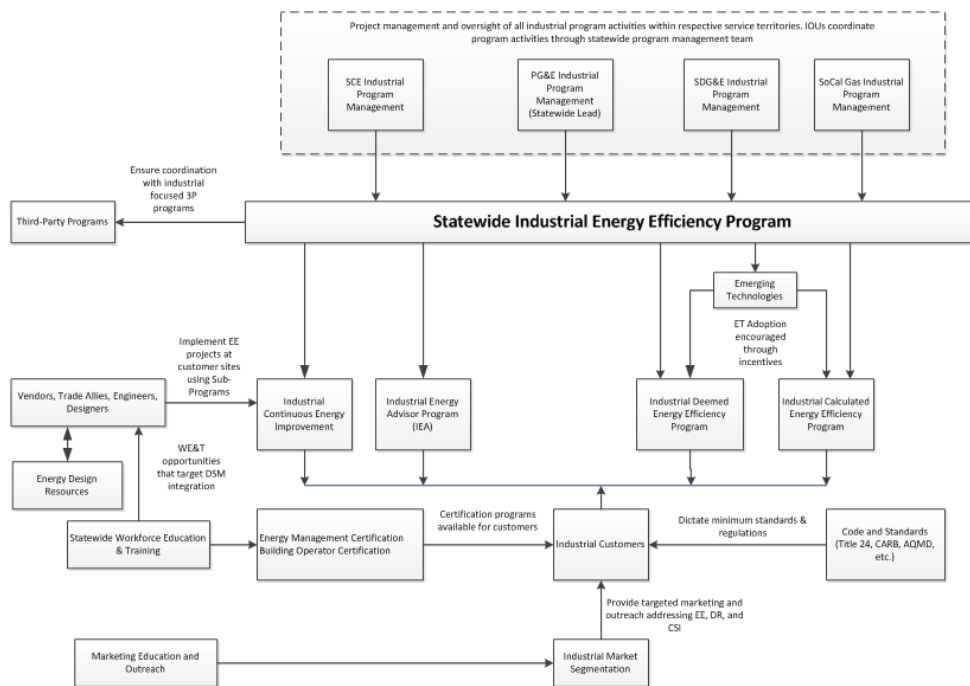
• ~~*Program specific data collection and review.* Another key evaluation activity will involve a comprehensive review of all program documents. In particular, this evaluation will assess the effectiveness of the program's marketing materials and will identify which specific recommendations have been implemented.~~

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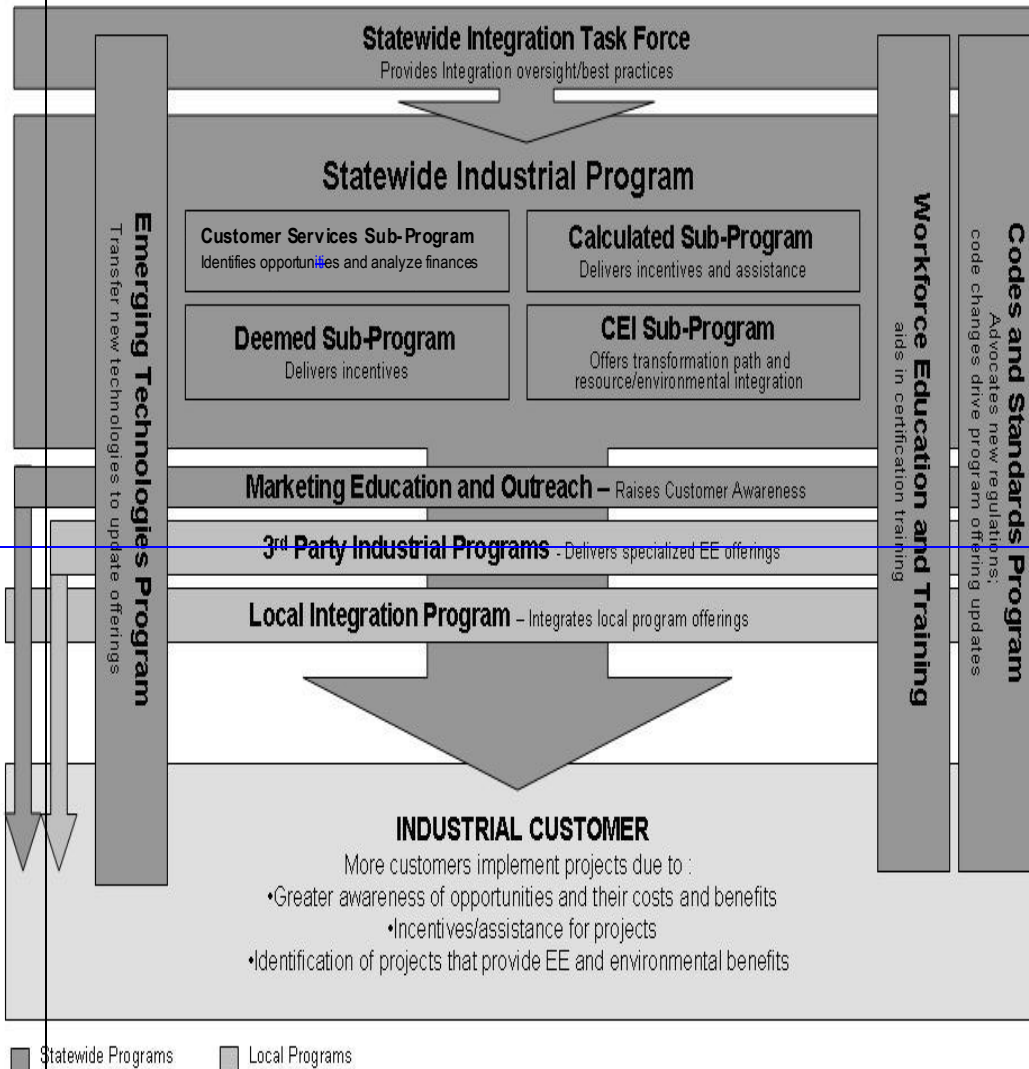
7. Diagram of Program

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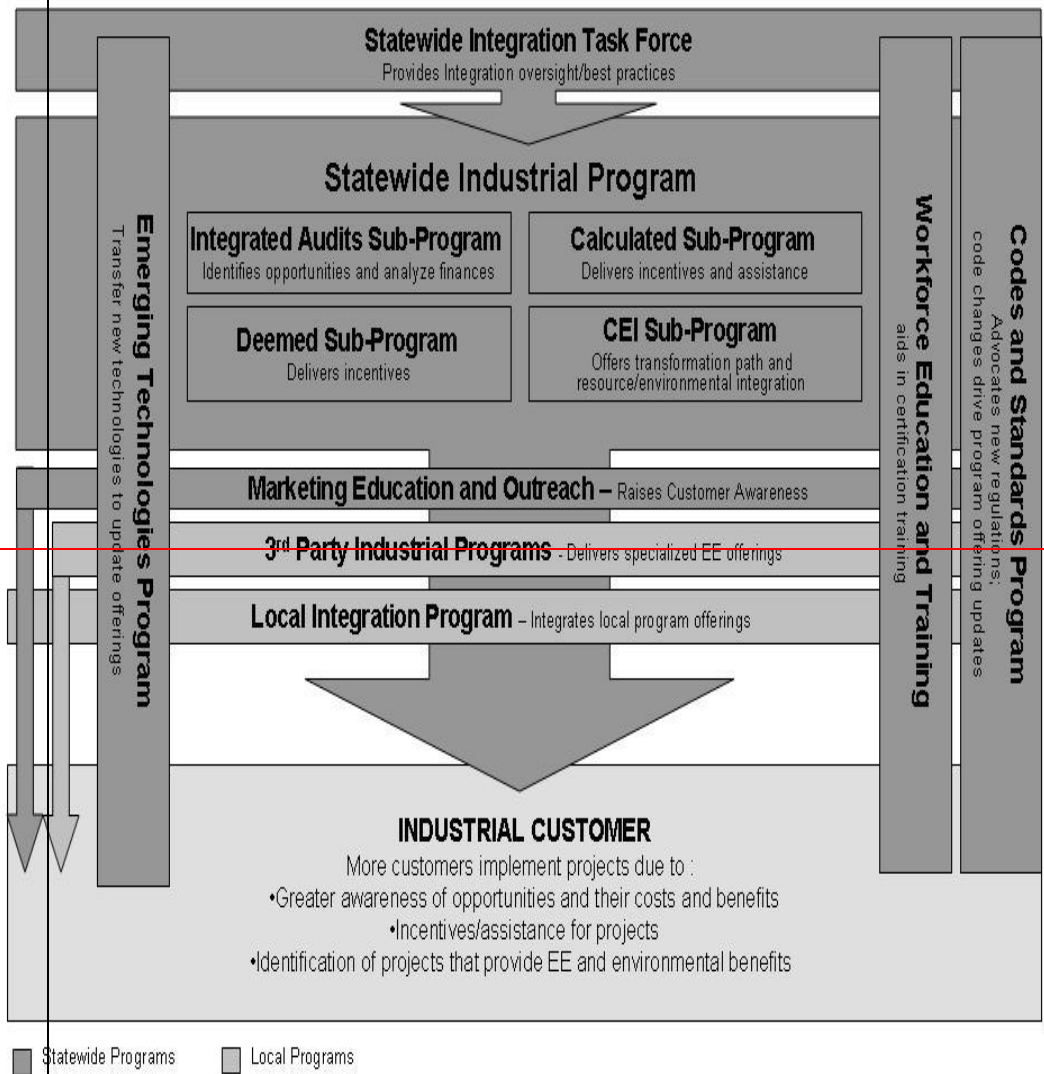


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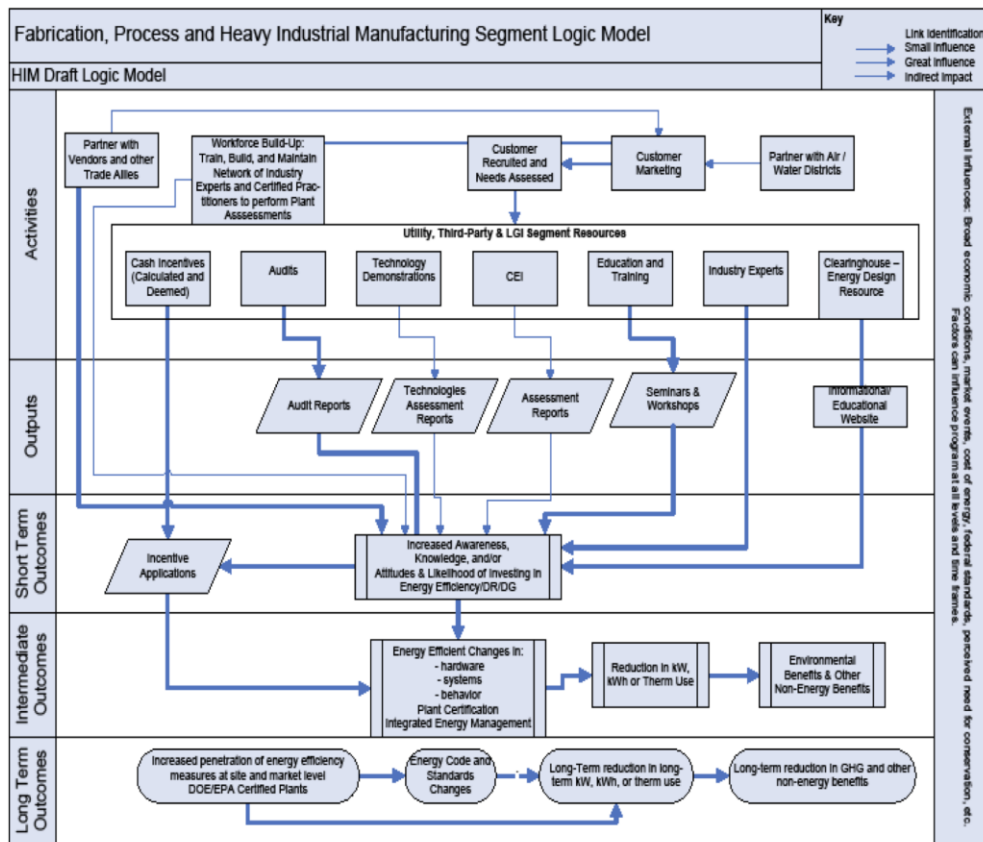
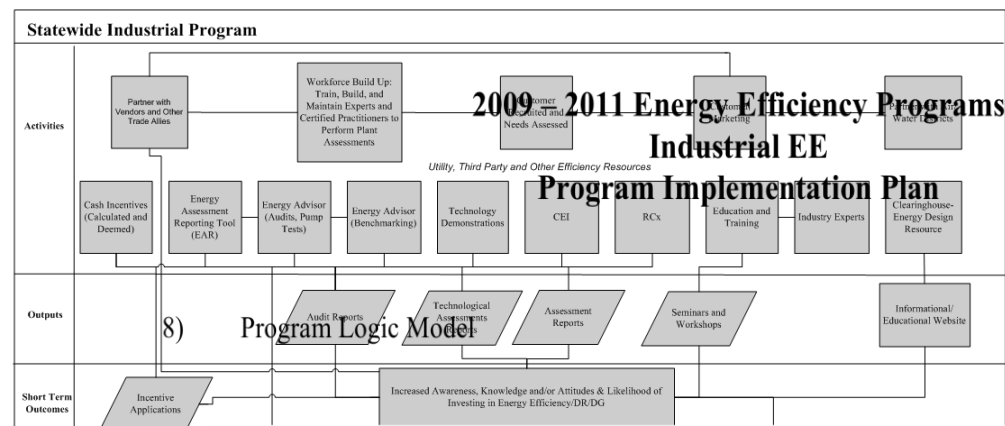
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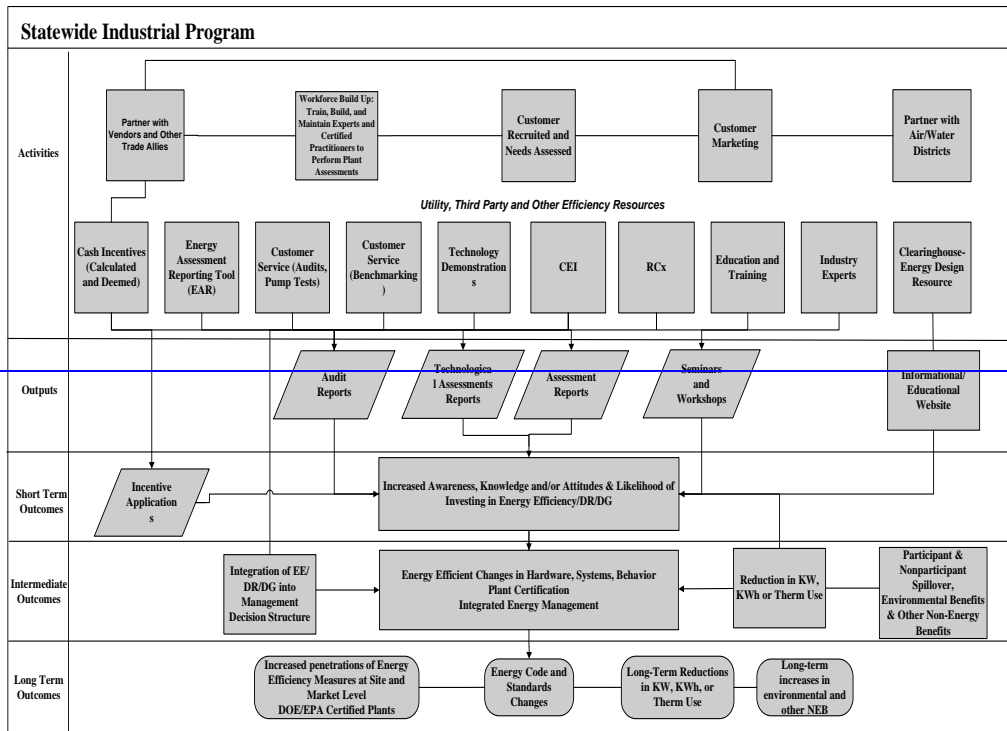
16.8. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statement energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Statewide Industrial Energy Efficiency Program.



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2013-2014 Energy Efficiency Programs
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1. Program Name: Industrial Customer Services Energy Advisor, Core Sub-Program Energy Audit Program
Program ID#: SCESCG-371313-SW-003a
Program Type: Statewide Core Program

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2. Projected Program Budget Table

— Table 1 – See reference the overarching overall program for budget details.

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3. Projected Program Gross Impacts Table — by calendar year

Table 2 - See reference the overarching overall program for gross impact details savings details.

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4. Program Description

a) a) Describe program

The purpose of the Statewide Investor Owned Utilities (IOUs) have created the Industrial Customer Services Energy Advisor Energy Audit Program (ICSPEA) to bring together is to provide energy analysis services leading to improving the energy efficiency of industrial facilities in California. The energy audit will recommend measures for energy efficiency, but will also include demand response and distributed generation. The audit will recommend emerging technologies and greenhouse gas reductions.

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The Industrial Energy Audit Program is part of a suite of programs within the Statewide Industrial Energy Efficiency Program. The Industrial Energy Audit Program will be designed to lead customers to the incentive and long-term programs, namely:

- Industrial Deemed Energy Savings Program
- Industrial Calculated Energy Savings Program
- Continuous Energy Improvement Program

Several types of energy audits will be available from SCE SoCal Gas SCG and standardized under one the statewide program all services :

Remote Audit

The Remote Audit element is designed as a “do it yourself” audit tool that is offered to support customer customers in various formats including, but not limited to, web based, mail-in, and telephone based. The audit results will be available in English as well as other languages based on particular demographics for each IOU service territory. Target customers will be those under 200 kW in maximum demand.

Integrated Energy Audits

The Integrated Energy Audit (IEA) is designed to help customers understand and identify their energy usage and provide concrete suggestions for maximizing energy efficiency, demand response, and distributed generation options. The goal is to educate customers and

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offer implementation guidance to bridge the education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities. /action gap.

IEACPS was created to provide a streamlined and coordinated assignment. A full spectrum of right-sized customer solutions. The key is to start the process with an initial analysis of a customer's needs, determination from the analysis which audit will service the customer with the highest cost/benefit, and identify additional program support and key indicators that will motivate the customer to implement energy saving recommendations.

The IOUs anticipate the restructuring of ICSPPEA will affect the way audits are provided. ICSPPEA will enhance the IOUs' ability to match customer need(s) with the right audit service. This will result in an increased cost-effective delivery of these audit services with an increased expectation for customer adoption/installation of provided customer specific recommendations.

In its offerings, ICSPPEA will place an emphasis in deep energy saving measures and emerging technologies, where appropriate. When the technologies and customer opportunities are correctly aligned, customers will become more open to the benefits these technologies offer to their business and will therefore increase their acceptance and adoption.

Together the ICSPPEA offerings will work to support the achievement of Strategic Plan objectives across all segments (agriculture, commercial and industrial).

The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

The Industrial CSPPEA package consists of five distinct offerings:

- **Benchmarking** is the first step for a customer to begin to understand the energy use of their building. Benchmarking is an initiative designed to educate and motivate customers to measure and track the energy use of their facilities, to educate customers of the benefits of benchmarking their facilities and to show them how they can track the impact of energy savings after implementing energy saving measures. To support the customer's efforts, the IOUs will offer technical support, hands-on workshops that will provide customers with information about how to benchmark, how benchmarking can be used as an energy management tool and what to do next after benchmarking.

The IOUs will develop or continue Benchmarking initiatives that support the customers' ability to comply with AB1103 benchmarking requirements (upon its implementation), utilizing ENERGY STAR Portfolio Manager and IOU supported Automated Benchmarking Services.

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The IOUs will also continue to offer customers technical support ranging from email and phone hotlines, hands-on workshops and web-based benchmarking educational and instructional materials.

They will continue their support to identifying, evaluation and make information about other benchmarking tools available.

The primary focus for benchmarking activities will continue to be centered on commercial buildings (in alignment with the target building type of AB 1103).

- **Industrial Continuous Energy Improvement (CEI)** is a consultative service aimed at helping industrial customers (IOUs will target CEI services inline with market segment potential in their service territories and resource availability) engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of IOU customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices which address energy savings, reduction of greenhouse gas emissions and water conservation, through high-level energy commitments from executive and board-level management.

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CEI offers customers the pinnacle of audit offerings, guiding executive management to levels of energy management self-actualization that make energy and environmental issues a consideration in all management/business operational decisions and in long term energy planning. For additional information about CEI, please consult the Industrial CEI Program Implementation Plan.

- **Non Residential Audits (NRA)** The Transition Period will provide ~~services will be offered to customers in support of the~~ Integrated Comprehensive Energy Audits (ICEA) that focus on customer energy savings, cost/benefits, and the targeted delivery of financial and technical assistance. Audit information must communicate complex information in a simple and understandable way to enable customers to identify energy efficiency, demand response and distributed generation opportunities. Audits use "ex ante" Deemed and Calculated methodologies for energy savings analysis information.

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As stated above, NRA offers ICEA. In Appendix A, each IOU defines the sub-categories of ICEA that they provide.

In this program cycle, emphasis will be given to meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), streamlining the audit process, increasing its efficiency, lessening complexity, and increasing the

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effectiveness of influencing customer implementation actions through actions such as integration of the demand response technical audit component directly into NRAs offerings, Demand Side Management (IDSM) portfolio. In addition, the IOUs will investigate ways to implement meaningful financial measurements, such as return on investment and/or simple payback metrics, and to be effective, the financial tool selected should ensure cost assumptions are appropriate to the customer to provide meaningful information. Also, NRA may assume the audit and budget responsibilities for Demand Response's technical audit services, as applicable. It is intended that these audits will be a critical component of the integrated comprehensive audit service offering.

- Pump Efficiency Services is designed to help industrial customers make informed decisions about improving inefficient pumping. IEA will provide Savings Calculation Assistance (SCA) targeted to specific end-uses and systems and operations through recommendations derived from pump test audit or direct observations of processes.

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The Pump Efficiency Services program element, implemented by a team of trained in house or third party contractors, aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, retrofit incentives, and targeted education, training and technical support for customers and pump companies. Each IOUs database of pump test results will be used in the near-term to target pumps in need of retrofit as a means to capture savings. However, pump performance data aggregation at the statewide level will contribute to the development of metrics and targets for pump improvements. This will support a statewide pumping focus across segments, in agriculture, commercial and industrial, supporting their strategies and objectives.

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The IOUs will continue to offer pump testing services at no or low cost and pumping system efficiency workshops through their energy education centers or other event opportunities during the Transition Period.

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~~SCA will be provided by SCFSCG engineers or through contracted third party energy engineering firms. They will provide technical assistance by helping participating customers prepare and submit accurate, technically complete retrofit project applications to the incentive programs. This technical assistance will expedite the process and reduce expensive and time consuming rework later in the process.~~

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- **Retrocommissioning:**

The IOUs will continue to enhance their core ~~The~~ Retrocommissioning (RCx) programs. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments.

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The RCx element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary adjustments to correct the deficiency. RCx is offered to industrial customers, based on the market segment potential and resources of the respective IOU. The range of A “Master List of Findings” results from the initial assessment that identifies low-cost projects with simple payback periods of less than 4 years. These projects may involve measures which reset, repair or replace of existing system controls and components. Simple payback for these measures is usually short in duration and must meet customer expectations. Through Larger-scale retrofit projects that result from the RCx assessment report, comprehensive projects are identified and referred to other sub-programs for completion (i.e., Calculated Energy Savings and Deemed sub-programs). Energy savings from projects identified through RCx will be claimed in the Industrial Calculated Energy Efficiency Program Savings.

Enhanced RCx program elements will explore and may include but not be limited to:

- Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- Continuous commissioning and monitoring-based commissioning;
- Strategies to drive savings persistence;
- Appropriate alignment with retrofit activities; and
- Overall program incentives, targeting, and delivery.

The RCx program is a key offering in the Industrial Calculated Sub-Program and a more detailed description of the program is provided.

The Transition Period will be used to develop and test the CSPEA design strategy. The strategy focuses on simplifying the way audits are provided to customers. Through various assessment functions, the IOUs will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (i.e. primarily EE, DR, and SG).

It is anticipated that ICSP EA will allow the expansion of services across diverse class of customers, potentially across all segments and will interconnect the customer with the wide and diverse range of programs offered. From a customer perspective, the impact on customer time and resources will be reduced. The audit analyses will include DSM, greenhouse gas reduction information and will provide water conservation recommendation all in a single report. The resulting report will identify comprehensive solutions that will simplify the customer decision-making process.

The primary program objectives for 2013-2014 are:

- Support the Strategic Plan by offering integrated audits across a wide selection that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed

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generation) focusing on industrial facilities as defined by each IOU's market potential and resource availability.

~~Provide a focus on the "MUSH" (municipalities, universities, colleges, schools, and hospitals) market to test ideas for deep energy retrofit efforts~~

- Continue to deliver high value audit reports to the customer. Audit reports will be designed in such a way that they will provide the customer with information which motivates them to implement energy efficiency, demand response and consider renewable generation options.
- Enhance efforts to identify and provide financial analyses focused on deeper energy savings and technologies. Identify ways different financial metrics, such as return on investment and/or simple payback, can be provided where the values presented have meaning to the customer.
- Explore and evaluate the potential of enhanced customer incentive options that are contingent on a customer's receiving an audit prior to applying to incentive programs.
- Incorporate new and/or emerging technologies appropriate for the customer's facility.
- Develop and implement enhancements to current Benchmarking workshops (targeting industrial buildings) and continue providing Benchmarking and AB1103 technical support through established and new delivery channels.
- Encourage statewide consistency by offering similar energy audits with the ultimate goal of offering customers the best energy management practices and technologies.
- Enhance the ICSPEA offerings by including activities such as, but not limited to:
 - Highlighting emerging technologies and deep energy savings opportunities and providing education on long-term energy planning/project management strategies (in coordination with CEI program).
 - Continuing existing water saving services, leak detection services, and strategies which will be offered to customers in all customer segments, as determined by the IOUs to provide customer benefits and cost-effective administration. The services will be offered through the use of audit teams, in house and/or contracted, and may be required as a service in the delivery of all integrated comprehensive audits.
- ICSPEA will play a key role in exploring options for identifying deep energy savings, promoting emerging technologies and providing proper support to customers who take advantage of more than three measures from Industrial Deemed Incentive subprogram.
- ICSPEA will develop processes to assist energy audit teams and customers identify facilities and services that will provide the greatest return on benefits from the audit. The IOUs may explore leveraging tools to complete energy audits, usage analysis, assessments and/or building performance benchmarking as the first step in determining a customer's need.

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- ICSPEA may also enhance tracking and audit component capabilities to support customer needs analysis, reduce program application barriers, maximize recommendation follow up and streamlined audit report generation.

Features in the audit will include the following:

- Recommendations on no-cost, low-cost measures
- Recommendations on capital intensive measures
- Guidance on participating in other industrial energy efficiency and demand response programs
- Guidance on available incentives from SCE/SCG

Energy audits will be fully underwritten by SCE/SCG.

b) List measures

The ICSPEA primarily offers non-resource, auditing services. It does not offer incentives, but ultimately influences the customer's implementation of energy efficiency, demand response, and self-generation opportunities in combination with incentive from the core incentive programs (refer to the Industrial Deemed and Calculated sub-programs for specific information). However, each IOU reserves the ability to offer incentives specific to ICSPEA's individual service offerings.

Energy audits will include the full range of applicable end-uses and measures for those end-uses. This will include process changes. The energy audit provides a tool that will lead customers to the measures and incentives offered in the other industrial programs.

c) List non-incentive Industrial customer services Energy Advisor Services

The Activities conducted under the Industrial Customer Services Energy Advisor Program (ICSPEA) is designed to deliver a coordinated and customer specific service. ICSPEA features a statewide integrated demand side management customer specific solution Energy Audit Program are non-resource that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer's need(s).

Such with direct incentives for actions taken. These activities include, but are not limited to: energy management assessments, energy planning, marketing and outreach, baselining and benchmarking, savings calculation assistance, retrofit project implementation support, scoping, technical support, energy savings calculations, process evaluations and report generation, and web-based energy resources assistance, and incentive application assistance.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

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Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The ICSPEA offers services which change corporate/management cultures that prevent successful implementation of comprehensive energy policies. These offerings, Industrial Energy Audit Program will help overcome customer's lack of awareness of DSM opportunities by providing a customer focused, comprehensive package of energy solutions designed specifically to motivate that the customer to ~~can~~ implement recommendations. Information such as cost/benefit analysis (i.e. ROI, or simple payback) and identification of appropriate through relevant IOU incentive and/or finance programs, can significantly enhance. ~~The audit results summarize the financial cost/benefit of identified projects and include the energy saving effect of utility incentives on the first cost of the facility upgrade.~~ The sub program also addresses the hassle or transaction costs that prevent customers from acting upon the audit recommendation. ICSPEA also provides customers with tools to measure the effects of implemented energy savings actions on ~~This barrier is reduced through the Savings Calculation Assistance, which facilitates the customer's completion of an incentive program application for their bottom line. project(s)~~

ICSPEA brings together audits and related services to implement energy saving activities.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 45

<u>Program Name</u>	<u>Program Target by 20130</u>	<u>Program Target by 20144</u>
<u>NumberNo. of Audits</u>	<u>25402</u>	<u>25445</u>
<u>Square Footage Benchmarked</u>	<u>1,291,000</u>	<u>1,780,000</u>

e) Advancing Strategic Plan goals and objectives

The ICSPEA is designed to promote DSM coordination and the integration strategies of the Industrial Energy Efficiency Program supports all three goals in the Strategic Plan. Foremost are recognition of the linkage between energy and environmental policy and the importance

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of integrating energy efficiency, demand response and distributed generation to support California's plan to reduce greenhouse gas emissions.

Specific near-term strategies proposed by the Strategic Plan that are addressed by the ICSP EA include the following:

- Facilitate all State-Owned and Leased Buildings having a Retrocommissioning option.

By offering a dedicated retrocommissioning program, a mechanism is created whereby IOUs can facilitate the achievement of this goal as a coordinated effort with the IOU Government and Institutional Partnership Programs.

- Strengthen Tools and Practices for Building Commissioning.

Based on the IOUs' experience with managing the Retrocommissioning program, lessons learned and best practices can be integrated into the 2013-2014 offering. To increase market adoption of these program best practices, the IOUs will work in cooperation with the California Commissioning Collaborative to disseminate relevant information to the retrocommissioning community. Services may be extended to all segments as deemed appropriate by each IOU.

- Identify New and Improved Tools and Strategies to Reduce Energy Consumption in industrial facilities.

Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the benchmarking, CEI, NRA and RCx demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, industrial/ agricultural processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing agricultural facilities contribute to California's zero net energy goals. Once implemented, recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.

- Encourage State/Local Governments and Major Corporations to Commit to Achieve EE Targets

ICSP EA's offerings will seek to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop an actionable plan to achieve these goals; (4)

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guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

• Develop Tools to Reduce Energy in Industrial Facilities.

As part of the the Industrial Sector. General advancement of the goals is presented in the program implementation of plan for the Industrial Energy Efficiency Program. More specific ICSPEA offerings, the IOUs will partner with energy industry peers, industry associations, and DOE/CPUC-sponsored labs and consultants to enhance the use of existing tools and explore new tools to help industrial customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

- o Management Standard for support of the goals in the Industrial Energy SME2000-2008; Audit Program is presented here.
- o LBNLDOE's Superior Energy Performance; and
- o ISO-50001.

• Develop Business Models to Deliver Energy Management Solutions.

ICSPEA's offerings will address the fundamental purpose to influence decision-making practices from Industrial customers to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration

Goal 1: Support California Industry's adoption of energy efficiency in the agricultural market sector.

In addition, ICSPEA's offerings promote acceptable practices of accounting, auditing, and evaluation by:

- Offering integrated and focused audits, benchmarking, savings calculation assistance for retrofit and retrocommissioning opportunities; and simplifying the audit-to-project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action.
- Guiding and supporting customers as they implement technologies, processes and practices to achieve *integrating* energy efficiency savings. *with achievement of GHG goals and other resource goals.*

Long Strategy 1.1: Develop coordinated energy and resource management program for CA's industrial sector, to enhance use of energy efficiency

—Near-term: Establish CARB AB-32 Industry Team

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~~One feature of the energy planning audits performed under this program will be tying greenhouse gas reductions to energy efficiency recommendations and providing this information in the audit report output. This broadly supports the overall goal of better integrating energy efficiency and GHG. More specific integration will be achieved through the establishment of an IOU-CARB-AB 32 Industry Team.~~

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~~Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.~~

~~Strategy 2.2: Implement certification~~

~~Near-term: Plan pilot and recruit host sites (8-10 facilities)
The program will seek out opportunities to recruit host sites for the certification program using the Industrial Energy Audit Program as a gateway to Continuous Energy Improvement.~~

~~Strategy 2.5: Implement ME&O program to educate industry and consumers~~

~~Near-term: Form industrial collaboration mechanisms
The audit program facilitates education by introducing customers to energy efficiency at its most basic level and then encouraging them to take a more active role in managing their energy usage.~~

~~SCE SoCalGas SCG will implement marketing and outreach activities through account representatives, trade associations, mass marketing (e.g. e-mail blasts) and in numerous other ways to stimulate participation in EE and DR programs and pointing them to educational opportunities relevant to their industry.~~

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~~Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.~~

~~Strategy 3.1: Compile technical and resource management regulatory materials into centralized assistance repository.~~

~~Near-term: 1) Identify and incorporate priority energy and other data; 2) Develop clearinghouse or integration system.~~

- ~~• The audit program will give support, by providing information on results and experience in the program, including case studies of innovative projects.~~

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6. Program Implementation

- Assessment and identification of the best way to support the use of the BEARS tool
- Enhancement of current Benchmarking workshops and continuation of Benchmarking and AB1103 technical support through established and new channels
- Emphasis and support of integration in emerging technologies and deeper energy measure opportunities
- In coordination with incentive programs, identification of ways to streamline the end-to-end process for customers wanting to participate in IOU energy saving programs

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Statewide IOU coordination

i. Program name: Industrial Customer Services Energy Advisor Energy Audit Program

ii. Program delivery mechanisms

~~At the local level, program delivery mechanisms for SCE SoCalGas SCG I will include account representatives, technical services personnel, and communications resources on the telephone and the internet. Also important to program delivery will be customer facility owners and managers; energy efficient equipment manufacturers, distributors, and services contractors; industry trade associations; and others in the energy efficiency equipment value chain.~~

~~At the state level, audit program will be coordinated to unify the implementation of program aspects such as program name, program delivery mechanisms, marketing and outreach plans, and utility program interactions. The Industrial Energy Audit Program will coordinate with the core Industrial Energy Efficiency Program to provide mutual support.~~

~~The CSPEA will employ a variety of delivery mechanisms or channels. Most of ICSPEA's offering will use IOU customer energy efficiency staff and contractors, service and sales representatives, website and/or marketing, and outreach efforts. Other delivery channels may also be developed.~~

~~In addition, where applicable, IOU customer high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the three year implementation cycle will be enabled.~~

~~SCE SoCalGas SCG's account representatives or program management staff will support this activity within the statewide industrial sector, as well as third parties, government partnerships, and SCE SoCalGas SCG -local programs.~~

~~-N/A. This is a non-resource program. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms~~

iii. Incentive levels

Not applicable.

iv. Marketing and outreach plans

A comprehensive audit marketing plan for the audit program will be aligned and coordinated with the marketing plans for each of the IOUs, in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs.

Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations

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~~and/or third parties to recruit small businesses and influence them to take actions that result in The IOUs will look to partner with interested public and governmental bodies to proactively promote energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost-effectiveness of reaching customer groups.~~

~~The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, and environmental green actions, in partnership with programs such as the local government partnerships and core IOU programs, green communities.~~

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~~The evaluation studies for the audit program conducted for program cycles 2002, 2003, and 2004 2005 clearly identify energy audits as one of the most powerful tools in creating awareness, enforcing customers' implementation of energy conservation recommendations, and feeding energy efficiency savings realized from retrofit projects.~~

~~California's IOUs have been offering energy efficiency audits and other customer programs and services for more than 20 years. Customers have come to trust the IOUs for comprehensive, unbiased information to guide their energy decisions. The increasingly popular energy audits and information services provide the first no-cost and low-cost recommendations that lead customers to invest further in energy efficiency and other energy management programs. The audits help customers assess energy efficiency opportunities and directly link them to IOUs' energy efficiency incentives.~~

~~Energy audits are often the first step for customers who wish to improve the efficiency of their buildings and/or explore distributed generation options. They can serve as a gateway to other programs in the IOU portfolio, identifying customer options and recommending energy solutions.~~

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v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

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~~The program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with industrial customers. Similar IOU and POU programs CSPEA's energy recommendations will continue to recognize the regulations required by other bodies. For example, information about GHG reductions resulting from AB32 and water conservation efforts may be incorporated into the customer recommendations and factored into the project's cost-effectiveness, as appropriate.~~

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Program offerings will collaborate and support the CEC's AB1103 mandate by assisting customers with technical and awareness activities. ICSPEA will advance the introduction of the BEARS and California Rating Tool where reasonable.

ICSPEA recognizes the efforts of the CEC's Green Building Initiative programs, DOE "ISO plant certification" programs, EPA Energy Star Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs. ICSPEA will leverage such activities to the customer's benefit.

~~Over the next three years, the IOUs will seek to increase their interactions with the POUs to better align IOU and POU Non-Residential Audits programs. This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.~~

a) Program delivery and coordination

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The sub-program will be coordinated with the following activities, as applicable:

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i. Emerging Technologies (ET) program

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The IOU ICSPEA Management Team audit program management team will stay abreast of and incorporate relevant emerging technologies into audit recommendations as appropriate. In addition, IOU field engineers, who deliver IEAs, are active contributors to the Emerging Technology process by their participation in ET Roundtable/Information meetings and continually seek to offer new technologies to customers.

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ii. Codes & Standards program

ICISPEA implementation will include information about pending new codes and standards that may affect planning or prioritization of retrofit or new construction projects. Audit reports will include customer recommendations that are consistent with current governing codes.

i.—

iii. The WE&T efforts

ICISPEA implementation will integrate with program will work with the Codes and Standards Program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected recommended measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost-effective technologies/services (e.g., LEDs) made available as these technologies transition from research and development to mainstream program offerings.

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WE&T efforts, as needed, by providing CSI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

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IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches, as required.

ii. WE&T efforts

Energy audits can support Statewide Workforce Education & Training efforts by including educational information about Certified Energy Manager (CEM) programs and requirements in the audit reports. Such materials could suggest to customers that passing the CEM exam will allow them to conduct facility audits at other facilities that they may have. In addition, increased activities will create opportunities for third party providers who deliver commissioning services such as project scoping, investigations and assessments, air balancing, HVAC quality maintenance, etc.

iv. Program-specific marketing and outreach efforts

A broad range of marketing activities will be used to promote audits and elevate customer engagement. Marketing plans will utilize EM&V studies conducted over the years for Statewide and local utility programs which specify necessary steps

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~~to be taken to enhance program performance. Audits will be promoted via direct communication between customers and account representatives with support of Project Managers from individual programs, as well as through traditional advertising activities, such as internet, bill inserts, brochures, trade shows, etc. Marketing activities will be coordinated between IOUs, Demand Response and Distributed Generation departments within SCE/SCG.~~

~~**Non-energy activities of program** In 2013-2014, SoCalGas/SCG's ICSPEA marketing campaigns will provide a wide range of action-oriented solutions targeting specific segments and sub-segments of business customers. In addition, ICSPEA marketing efforts will be "bundled" as a menu of demand response, energy efficiency and conservation programs providing customers with a full array of EE and DR opportunities. By providing packaged energy management solutions for each industry segment, the IOUs will be better able to communicate with and serve customers.~~

~~Marketing activities will target business customers and select effective channels to reach entities such as trade associations, local business groups, and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support may be utilized.~~

~~Marketing collateral and messages for energy efficiency will be integrated with other IOU programs. Through additional market segmentation and feedback from customers, IOUs will further adjust approaches based on the varied needs of targeted customers. Additional sub-program marketing will be accomplished by leveraging local third-party programs. Specific IOU marketing budgets are provided in Table 1 of the core industrial program.~~

~~Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.~~

~~**v. Non-energy activities of program**~~

~~The IOU ICSPEA team will participate in Statewide and national efforts to develop and enhance audit, benchmarking and retro-commissioning, and continuous energy improvement tools and practices. Such activities will likely occur in conjunction with ongoing industry efforts managed by the California Energy Commission (CEC), Consortium for Energy Efficiency (CEE), ENERGY STAR and the California Commissioning Collaborative (CCC).~~

~~CEI implementation will include non-energy activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy-related~~

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LEED points and definitions, and use of computerized financial analysis tools and cost estimating and forecasting tools

iii.

Integrated energy audits are a key tool for identifying non-energy opportunities for specific customers. The energy audits can identify non-energy benefits associated with recommended measures, such as improved safety, productivity, indoor air quality, comfort and appearance.

vi. Non-IOU programs

ICISPEA reportsThe program will include information on Non-IOU Programseontinue to expose customers to funding, such as from air or water agencies, to support integrated efforts. ICISPEA will partnerengage with programs offered by CEC, ARB, Air Quality Management Districts, ENERGY STAR, CEC, CARB, DOE, water agencies, and other government and quasi-governmental agencies to capitalize on opportunities to develop co-branded program information and marketing collateral targeted to industrial sector customers, as opportunities present themselves. responsible for regulating the various aspects and operations of customer facilities participating in the programs.

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With respect to water conservation, IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release notices for programs with interactive water and energy effects (ESPM, BEARS, California Rating Tool, Water Agencies and others).

vii. CEC work on PIER

Not applicable.

The program will not be implemented with a direct linkage to PIER

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viii. CEC work on C&S codes and standards

ICISPEAThe program will not be implemented with a direct linkage to codes and standards efforts. However, ICISPEA will reflect code and standards regulation in its energy savings calculations, as deemed appropriate.

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ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-IOUutility information and guidance that ICISPEA offering sCESoCalGasSCGI will provide to customers. In addition, the IOUs will participate in state and national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

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b) Best PracticesBest Practices

The IOUs will continue to leverage best practices and lessons learned at regularly scheduled statewide program management meetings. These meetings are forums to discuss program

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design and implementation issues, and as appropriate provide statewide collaborated guidance in RFP solicitations and awareness of program offerings. This will ensure that customers operating multiple facilities across IOU service territories will receive the same customer experience.

Other best practices approaches apply the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the industrial market sectors. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach will continue through the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

c) Innovation

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For 2013-2014, the IOUs are identifying and evaluating program processes to increase effectiveness, simplification and increase the benefits the program delivers. Each IOU's set of lessons learned from these efforts will be shared and implemented to enhance energy savings benefits to all California IOU customers.

ICSPEA will continue to improve as a new standard for packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSMD projects), and reward customers for implementing strategic energy management. Other ICSPEA offerings may also consider specialized incentive approaches based on delivery, target markets and/or other opportunities.

d) Integrated/Coordinated Demand Side Management

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ICSPEA will provide a comprehensive approach for integrated audit services. Its services will have the flexibility of meeting every level of a customer's audits needs from integrated comprehensive audits to targeted or focused audits (which center on specific systems or processes), to assessments or general walk-through audits or online "do-it-yourself" audits (currently for small business customers). When properly applied, these audits can assist in identifying the areas of the customer's greatest energy interest, the customer's financial ability to invest in improving its energy use, and other programs that can be discussed to motivate a customer to move forward with the energy saving plan.

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a) ICSPEA services can coordinate the audit with retrofitting or retrocommissioning opportunities, benchmarking tools, or long-term planning. Audit reports can present a truly integrated analysis to customers, seamlessly providing information and recommendations regarding energy efficiency, distributed-generation, demand response, greenhouse gas emissions and water energy savings. Customers will be referred to other IOU programs that will help them implement the recommendations resulting from the audit report. As a result, they will receive

To maximize customer outreach, the Industrial Energy Audits Program will sponsor training to interested third party personnel to develop a workforce that will implement energy efficiency products and practices. Many third party engineering firms focus a large portion of their business on supplying the technical resources required by existing IDSM programs. To support the substantial ramp-up of goals envisioned by the Strategic Plan, SCE/SCG can increase the workforce available to California by increasing its training efforts.

One focus of the Industrial Energy Audit Program will be to improve the adoption rate of energy efficiency audit recommendations. As such, staff will provide comprehensive support and establish an extended follow-up plan.

Customers who complete an online remote audit will be targeted for follow up. Mailings and call scripts will be personalized for each customer and will reference specific audit recommendations, based on the customer's online audit report. Following on-site audits, assigned account managers, who are either target market experts or assigned account managers, will contact customers to discuss each recommendation and elicit customer feedback or commitments to implement measures.

The RCx program builds upon the initial feedback from the current RCx program and expands its reach into the industrial segment. Additionally, the audit program will improve existing tools and practices for building retrocommissioning to reduce energy consumption in industrial facilities.

b) Innovation

SCE/SCG and the other IOUs will discuss and consider various innovations for customer engagement in energy audits and implementation of energy efficiency, demand response and distributed generation recommendations. Several innovations will be pursued.

Integration with RCx

Energy efficiency measures recommended in large target customer (LTC) reports comprise three categories defined by their relative cost for implementation — no cost, low cost and capital projects. IEA is a primary source of leads for potential RCx projects which assist customers with implementation of no cost and low cost EE measures. RCx contractors also share their findings with the LTC program and can recommend that customers pursue a full Integrated Energy Audit before embarking on RCx efforts. In the 2010 — 2012 IEA program, cross training and coordination

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between the two programs will be increased to encourage optimum effectiveness in achieving an integrated offering of non-residential retrofit (NRR) and RCx projects. To ease implementation of energy audit recommendations, SCESCG will also provide information to customers, such as contractor lists, financial resources and technical assistance, to make it easier for customers to take action in response to audit recommendations.

Integrated Audit Tool

To implement the integrated audits for smaller than 200 kW customers, a web-based audit (do-it-yourself or auditor-performed) will be developed that includes education on various demand side management solutions. The Integrated Audit Tool¹² will enable customers to conduct their own energy audits from the comfort of their home or office by logging onto the website. It will be the primary tool to provide energy conservation, energy efficiency, demand response and solar/self-generation information and analyses to customers with less than 200 kW load.

Customers will supply account information, zip code or a telephone number, which will calibrate the tool for their specific microclimate. The integrated audit tool will specifically address potential measures that qualify for rebates and incentives and provide simple payback information. By implementing such features in the integrated audit tool, the audit will extend integration concept to a broader audience.

Additional questions, presented through the latest online graphic interface, will provide robust customization of their end energy use (e.g., type of business, type of building, hours of operation, number of inhabitants, etc.). Reports will be available to customers through e-mail or U.S. mail delivery, based on the customer's request. The integrated audit tool will provide a portfolio of audits that are easily accessible to utility program managers. It will provide them with unified data resources, a central repository of recommendations and algorithms, and an interface to enable customization of energy audit formats to meet specific customer needs.

Historical data from the integrated audit tool, from previous energy audits and efficiency projects implemented at their own facilities, will be accessible to customers via web-based tools.

All IOUs are discussing developing the integrated audit tool as a joint effort to ensure statewide consistency.

New Technologies

¹² The integrated audit tool is referenced as a general term in the SW PIPs; each IOU has a specific name for its tool. PG&E's tool is the Progressive Energy Audit Tool (PEAT). SoCal Gas, SDG&E and SCE's tool is the California Integrated Customer Energy Audit Tool (CICEAT).

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The utilities will utilize new technologies (i.e., wireless and PDA-based checklists) to better enable more audits while targeting specific customer needs.

Engineering Support

Third party energy engineering firms will be contracted to assist medium and large customers develop IDSM implementation plans. These customer types will benefit from an enterprise-wide plan for staged implementation of IDSM recommendations. Specialized engineering firms will supplement the customer's site and business specific knowledge with IDSM specific know-how. Together the consultant and client will build a successful plan that results in an optimum installation of energy efficient equipment and processes that enhance the customer's productivity and competitiveness.

e) Integrated/coordinated Demand Side Management

The Integrated Energy Audit (IEA) is a core strategy of an overall integrated customer approach. It features a technical and comprehensive survey of energy utilization throughout the customer facility—it provides a system view of equipment and processes that consume energy. In this system view, four discrete components of the Strategic Plan (Energy Conservation, Energy Efficiency, Demand Reduction and Self Generation) are blended and evaluated in various combinations. These combinations will be reviewed for their societal benefits, logical order, and customer benefits, and then presented to the customer in the recommendations section of the IEA final report.

The Integrated Energy Audit blends a site survey, customer input regarding their needs and the guidance provided by the Strategic Plan to produce a final energy audit report. The report's recommendations are designed to achieve reduced energy consumption, reduced environmental impacts and increased productivity and economic viability for the California economy.

Customers will receive a strategic plan that utilizes RCx, NRR, DR, DG and Third Party programs to long-term cost-effective energy management. The plan may lead customers to make sound decisions based on economical (ROI, payback period, etc.) and societal benefits of introduced energy management opportunities along with multiple options to participate in utility incentive programs. Audit process, final report and follow up activities are designated to integrate services and minimize disruption of customer core business activities while maximizing effects of provided recommendations. During the integrated audit process an auditor analyzes and describes multiple energy efficiency, time-of-use management, demand response, self-generation measures and recommendations. Then an auditor will recommend a course of action to craft an integrated solution that is tailored to customer specific business needs and requirements.

The following examples illustrate how the integrated process will be implemented utilizing available programs and services:

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- After an Integrated Energy Audit is completed, no-cost/low-cost energy conservation measures may be transferred to the retrocommissioning program for implementation.
- Capital investment measures selected by a customer will become a subject to a more rigorous calculation of energy savings under Saving Calculation Assistance service. These calculations may accompany the application for a retrofit project filed with incentive program to fulfill technical support requirements.
- Demand response measures can be evaluated for their applicability for daily use (they may eventually become an energy efficiency measure), load shifting and occasional response to demand response events.
- Measures that require retrofit work and are accepted by a customer for implementation would be included in the same application as energy efficiency measure for potential incentive under Technology Incentive program.
- Distributed generation opportunities and benefits will be presented to the customer with particular references to respective incentive programs.

Supporting Market Sectors

The IEA will support the Industrial market segment by developing sector experts among the engineering firms that conduct LTC and by embedding artificial intelligence into the UEAT that translates sector marketing and technical expertise. In Large Integrated Audits, Target Market Project Managers (TMPMs) within the sectors will be an integral part of a team consisting of the TMPM, the assigned customer account representative and the audit firm project lead. This team will translate sector specific market and technical information into a strategic approach to the customer's energy use by incorporating Energy Conservation, Energy Efficiency, Demand Response and Self Generation.

SCESCG will provide training and guidance to third party program vendors to broaden their audit focus beyond their program offering in order to identify potential in other end use systems. In this way SCESCG will minimize inefficient and, to the customer, often annoying multiple visits. Expanding the scope of Third Party program vendor audits will provide customers with additional opportunities through combinations of equipment upgrades in conjunction with other Third Party program vendors.

Both LTC and MM audits will provide leads to appropriate Third Party program vendors based on audit report recommendations. The Integration Desk will provide this service for the LTC and the UEAT will provide potential opportunities via automated selection based on survey input.

d) Integration across resource types (energy, water, air quality, etc)

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the resource programs in order to maximize

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effectiveness, integrate offerings, and refer customers to relevant DSM programs. SCE/SCG will also look to partner with interested public and governmental bodies to proactively promote energy efficiency and environmental green actions, in partnership with programs such as the local government partnerships and green communities.

The IEA program will serve as the foundation for integrated offerings by providing customers with comprehensive information and recommendations around energy efficiency, distributed generation, demand response, green programs, such as ClimateSmart program, and other relevant programs. Customers will be referred to eligible SCE/SCG programs and will be given a complete picture of their energy usage and options for reducing costs and using energy more efficiently.

e) Integration Across Resource Types

ICSPEA will focus on DSM integration.

ICSPEA implementation will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IOU ICSPEA managers will partner with the appropriate programs, when applicable, with government agencies in order to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers.

Conventionally, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote ICSPEA offerings, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, IOU program managers will collaborate with the local water districts to produce marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

Marketing collateral and messages for energy efficiency will be integrated with other SCE/SCG programs. Through additional market segmentation and feedback from customers, SCE/SoCal Gas/SCG will further adjust approaches based on the varied needs of targeted customers.

f) Pilots -N/A

ICSPEA services may consider the development of test markets especially in the introduction of new energy benchmarking or saving tools.

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g) EM&V

~~The IOUs are SoCalGas/SCG is proposing SCE/SCG plans to work with other utilities and the Energy Division to develop and submit a comprehensive a complete plan for 2010-12 studies and budgets EM&V Plan after the program implementation plans are finalized and filed. This will include plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.~~

~~Detailed plans for process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since final plans need to be based on identified program design and implementation issues and questions.~~

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7. Diagram of Program

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Please see the core program diagram presented above.

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8. Program Logic Model

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Please see the ~~Commercial Customer Services Energy Advisor~~ core program logic model presented above.

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Appendix A

Statewide Audit Type Matrix

<u>Audit Type</u>	<u>Detail</u>	<u>SCG</u>	<u>SDG&E</u>	<u>PG&E</u>	<u>SCESCEG</u>
<u>Integrated Comprehensive Customer Energy Audits</u>	<u>Phone</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
	<u>Online (Web-Based)</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
	<u>Onsite</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>

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1. Program Name: Industrial Calculated Incentives - Core Sub- Energy Efficiency Program
Program ID#: SCESCG-371513-SW-003b
Program Type: Statewide Core Program

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2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the overarching program for ~~gross impact details~~savings details

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4. Program Description

a) Describe program

The purpose of the Statewide Industrial Calculated Energy Efficiency Program is to provide services to improve the energy efficiency of industrial facilities in California, including financial incentives based on calculated energy savings. The energy savings are calculated for measures installed as recommended by comprehensive technical and design assistance for customized projects. Integrated projects are encouraged to combine energy efficiency and demand response. Eligible projects include new construction, retrofit, and retrocommissioning.

The Calculated Energy Efficiency Program is part of a suite of programs within the Statewide Industrial Energy Efficiency Program. The Calculated Energy Efficiency Program is utilized for projects where:

- a rebate is not available through the statewide Deemed Energy Savings Program,
- customized calculations provide the most accurate savings estimates, or
- interactive effects between measures are best captured through whole building or whole system modeling.

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Because it presents a calculation method that can consider system and resource interactions, the program will become the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan).

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Key features in the process include:

- Energy audits of facilities and processes with recommendations for energy efficiency, demand response, distributed generation technologies as well as opportunities for ~~and~~ greenhouse gas reductions;
- Calculations/estimates of energy savings for exceeding Title 24 code or industry standard practice baselines;

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- Technical assistance from IOUs through SCE SoCal Gas SCG in energy audits, facility walk-through surveys and calculated savings analyses that consider specific projects;
- Submission of project proposal for IOU SCE SoCal Gas SCG review and approval;
- Pre-inspection by IOU SCE SoCal Gas SCG for the preliminary approval of approved retrofit projects;
- Post-inspections on approved and completed projects to verify performance; and
- Payment of incentives from IOU SCE SoCal Gas SCG.

Energy audits may be completed by customers directly or authorized participants. Authorized participants project sponsors. Sponsors may include contractors, design teams, vendors, and energy service companies. The completed audit may then be submitted for review and approval.

For the energy audit feature, statewide consistent calculators are publicly available. The statewide IOU utility created and maintained SPC Calculator can be used for retrofits and some new construction applications and is available online, and through CDs. For whole building construction projects, IOUs typically utilities accept calculations generated with programs such as both Energy Pro, Trane Trace 700, Carrier HAP (available for license), and the IOU utility sponsored eQuest (EQUEST, available for free on the statewide Energy Design Resources website www.energydesignresources.com), among others. Calculations must be submitted in open, unlocked, native format for review and consideration in the IOU's programs www.energydesignresources.com.

Retrocommissioning (RCx) is also eligible in the program for delivering energy savings. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or operations and maintenance, which deal with routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit.

O&M items with an effective useful life greater than three 3 years can also be identified through this assessment. Additionally, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay.

RCx will be offered as a bundle of products/services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Initial benchmarking;
- Collecting data to quantify the owner's operational requirements;
- Performing detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities, inclusive of improved and enhanced preventive maintenance and repair programs;
- Define measures, quantifying implementation costs and savings;
- Assisting customers with measure implementation;

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- Verifying completion of measures;
- Providing post installation documentation and training as well as other persistence techniques; and
- Posting project benchmark.

b) List measures

A broad range of measures is eligible for the Calculated Energy Savings Program. The current incentives are summarized, as seen in the following table. The incentives for these measures are standard across the IOU utilities participating in the statewide Industrial Calculated Energy Efficiency Program.

The following measure categories are eligible for Calculated Incentives:

- Lighting
- AC & Refrigeration
- Motors and Others
- Gas measures

<u>Measure Type</u>	<u>Incentive Level (kWh/kW)</u>
<u>Lighting</u>	<u>5 cents per kWh + \$100/pk kW</u>
<u>AC & Refrigeration</u>	<u>15 cents per kWh + \$100/ pk kW</u>
<u>Motors and Others</u>	<u>9 cents per kWh + \$100/ pk kW</u>
<u>Gas measures</u>	<u>\$1 per therm</u>

Financial incentives are calculated in several steps:

- Calculations of estimated energy savings above Title 24 or from a baseline energy use
- Calculation of incentives per unit of energy savings times the estimate of energy savings by measure
- Estimate of project costs for retrofit projects or incremental cost for added load projects
- For retrofit projects, incentives are capped at 50% of the total project costs, or the calculated incentive, whichever is less.
- For added load projects, incentives are capped at 50% of the incremental project cost, or the calculated incentive, whichever is less.

c) List non-incentive Industrial customer services Energy Advisor Services

The Industrial Calculated Energy Efficiency Incentives Program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical and calculation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd the project through the process.

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5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Industrial Calculated Energy Efficiency Program includes numerous features designed to overcome these barriers, as identified and discussed below.

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Integrated Demand Side Management Approach

The program offers California's industrial segment a statewide suite of products and services to overcome market barriers to optimize energy management and meet the goals of the Strategic Plan. It overcomes multiple barriers through the implementation of strategies that provide an integrated solution to the customer, offer education and outreach to create awareness and promote continuous energy efficiency improvement. The program also enables a facility to attain resource management levels that exceed industry standards and gain them market and worldwide world-wide recognition.

CEI Program Offering

The Continuous Energy Improvement (CEI) program compliments the Industrial Calculated Energy Efficiency Program by helping customers implement energy efficiency measures that have been identified through energy efficiency audits or in-depth facility/process assessments. Such assessments may be jointly provided by the IOUs and the U.S. Department of Energy (DOE) or ANSL. It focuses on improving production and optimizing energy efficiency and provides integrated resource management solutions including greenhouse gas GHG reduction. This approach overcomes such barriers as lack of awareness of energy efficiency opportunities and provides a highly skilled workforce educated towards energy efficiency, process optimization, and resource management.

Marketing and Outreach

To increase awareness of the program, a statewide centralized clearinghouse will be developed to give customers access to information on operating best practices in energy efficiency, industry relevant technical assistance, baselines, case studies, tools and computer based training. This clearinghouse addresses the issue of availability of information and qualified industry specialists to fully assess a building, system or process and help customers understand how energy efficiency can impact their emissions, resource consumption or waste discharge streams. It helps alleviate the problem often run into by non-residential customers of getting incorrect or out-of-date information from some local networks. It will also enable design engineers to specify energy efficient measures to exceed industry accepted baseline standards when constructing new or retrofitting existing buildings or systems, instead of specifying only what they know or what they are familiar with.

The program's Statewide Program information and services will primarily be delivered primarily through account representatives, IOU-utility call centers hotlines, local government partnerships, third parties, and IOU-utility internet sites. Information will also be made available through industry events, such as the Plant Engineering Expo, through industry organizations, such as the California Manufacturing Association, and the Building Owners and Managers Association (BOMA); and through advertising in industry and trade publications. Other avenues to reach out to customers and identify energy efficiency opportunities include non-resource programs such as that provide Education and Outreach, Workforce Education and Training, or through IOU-Emerging Technologies Programs.

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Education and Training

Highly skilled Energy Management Professionals may conduct technical training and seminars to educate the public as well as develop a highly trained energy efficiency workforce that is accessible to industry.

Emerging Technologies (ET)

In collaboration with ET and the CEC, ET may conduct studies, pilots, and demonstrations to prove the viability of promising emerging technologies and lower the risk of investment which in turn will speed up market penetration.

Financial Assistance

Rebates and incentives properly priced and based on energy savings quantified through technical assessments or basic audits, can help customers overcome internal financial hurdle rates. Skilled energy efficiency personnel may also assist customers and provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives or other local sources of project funding.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	<u>Program Target by 20130</u>	<u>Program Target by 2014+</u>
<u>Projects</u>	<u>TBD+90</u>	<u>TBD230</u>

e) Advancing Strategic Plan goals and objectives

The Statewide Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector. General advancement of the goals is presented in the program implementation plan for the Statewide Industrial Energy Efficiency Program. More specific support of the goals is presented here.

Goal 1: Support California Industry's adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals and other resource goals.

Strategy 1.1: Develop coordinated energy and resource management program for CA's industrial sector, to enhance use of energy efficiency.

Near-term: Establish CARB AB32AB-32 Industry Team

The Calculated sub-program infrastructure is designed to facilitate the customer's implementation of large-scale projects that are supported by detailed energy calculations. There is an opportunity to augment the various tools used for preparing such calculations with GHG emission information that will allow customers to immediately quantify these benefits. This activity will be managed

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through the IOU CARB AB32AB-32 Industry Team, which is proposed as part of the core Industrial Energy Efficiency Program.

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Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

Strategy 2.2: Implement certification

Near-term: Plan pilot and recruit host sites (8-10 facilities)

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The program will seek out opportunities to recruit host sites for the certification program by surveying project submittals for potential candidates.

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Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

Strategy 3.1: Compile technical and resource management regulatory materials into centralized assistance repository.

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Near-term: 1) Identify and incorporate priority energy and other data; 2) Develop clearinghouse or integration system.

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The Calculated Energy Efficiency Program will give support by providing information on results and experience in the program, including case studies of innovative projects.

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5. Program Implementation

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a) Statewide IOU coordination

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i. Program name: Industrial Calculated Energy Efficiency Program

ii. Program delivery mechanisms

Program delivery mechanisms for IOUs, SCE, SoCal Gas, SCG will include account representatives, technical services personnel, incentives processing staff, and inspection officials. Also important to program delivery will be customer facility owners and managers; energy efficient equipment manufacturers, distributors, and service contractors; industry trade associations; and others in the energy efficiency equipment value chain.

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Industrial Calculated Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU utility program interactions. The Industrial Calculated Energy Efficiency Program will coordinate with the core Industrial Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and

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continuous program improvement over the course of the ~~three year~~ implementation cycle will be enabled.

SoCalGasIOUSCESCG's account representatives support this activity within the statewide industrial~~commercial~~ sector, as well as third parties, government partnerships, and IOUSCESoCalGasSCG local programs.

iii. Incentive levels

Incentive levels are based on measure type as detailed below.

#	MeasureName	Per kWh Incentive	Per kW Incentive
1	Air Compressor System Replacement / Upgrade	\$0.09	\$100
2	ASD - HVAC Compressor Motors	\$0.15	\$100
3	ASD - Others	\$0.09	\$100
4	Building Shell Improvements	\$0.09	\$100
5	Carbon Monoxide Sensors	\$0.09	\$100
6	Controls - Non-Lighting	\$0.09	\$100
7	Equipment - Other not specified	\$0.09	\$100
8	Extruder System Replacement / Upgrade	\$0.09	\$100
9	Fan and Pump System Upgrades	\$0.09	\$100
10	Furnace / Energy Efficient	\$0.09	\$100
11	Heat Recovery Equipment (Process)	\$0.09	\$100
12	Heat Recovery Equipment (Space Conditioning)	\$0.15	\$100
13	HVAC - Chiller	\$0.15	\$100
14	HVAC - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
15	HVAC - Heat Pump	\$0.15	\$100
16	HVAC - Other	\$0.09	\$100
17	HVAC - Package Unit	\$0.15	\$100
18	Injection Molding Machine Replacement / Upgrade	\$0.09	\$100
19	Insulation	\$0.09	\$100
20	Lighting	\$0.05	\$100
21	Lighting Controls	\$0.05	\$100
22	Motors Project (HVAC Compressor)	\$0.15	\$100
23	Motors Project (Non-HVAC Compressor)	\$0.09	\$100
24	Precooling Equipment	\$0.15	\$100
25	Process - Chiller	\$0.15	\$100
26	Process - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
27	Professional Wet Cleaning	\$0.09	\$100
28	Pumping System Replacement / Upgrade	\$0.09	\$100
29	Rapid Closing Door	\$0.09	\$100
30	Refrigeration - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
31	Refrigeration - Other	\$0.09	\$100
32	Series to Parallel Street Lighting	\$0.09	\$100
33	Special Window Glazing & Glazing Treatments	\$0.09	\$100
34	Vacuum Systems	\$0.09	\$100
35	Window Replacement	\$0.09	\$100

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Marketing and outreach plans Incentives will be at as follows:

- Lighting, \$0.05/kWh and \$100/kW
- Air Conditioning & Refrigeration I, \$0.15/kWh and \$100/kW
- Air Conditioning & Refrigeration II, \$0.09/kWh and \$100/kW
- Other, \$0.09/kWh and \$100/kW
- Therms, \$1.00/therms, capped at 50% of project cost.

i. The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division and market direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Calculated Incentive sub-program, e.g. research, target audience, collateral, delivery mechanisms

ii.iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The Industrial Calculated Energy Efficiency Program will be marketed through IOU's Account Executives, as well as through trade allies, education, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and e-mail support will be provided.

Marketing campaigns will provide a wide range of action-oriented solutions targeted to "personas" identified through segmentation research. In addition, marketing efforts will be "bundled." That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry, IOUs segment utilities will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness, and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized

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collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Market outreach to raise awareness of available EE programs available will use a number of strategies, as follows including:

- Providing Account representatives will make a regular and consistent customer calling effort to key customers within this sector through account representatives;
- Providing additional expertise from IOU Utility representatives, program management representatives, and field engineers will be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the industrial market sector;
- Attendance at the key trade shows for each high priority sub-segment within the industrial market sector;
- Hosting IOU Utility-sponsored training events at the IOU's utilities Customer Training Centers and other convenient locations within the IOU's utilities service territory;
- Hosting IOU utility-sponsored webinars that provide sub-segment training and program adoption; and
- Linking written Written collateral pieces that give provide an overview of the IOU's utilities Energy Efficiency programs to will be linked into the appropriate IOU utility DSM web page.

The ideal marketing mix will be assessed for maximum awareness and participation. The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above. Furthermore, industrial facilities are recognized as large energy and water consumers. IOUs will develop proposals, as appropriate, to facilitate water-energy nexus projects.

The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Industrial Calculated Energy Efficiency Program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with industrial commercial customers, to the extent possible.- Conventionally, each

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government agency and IOU utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

With respect to water conservation, IOU utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Calculated sub-program incentives for energy efficient equipment that may also reduce water and greenhouse gas GHG emissions.

ii. Similar IOU and POU programs

iii.vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that utilize the Industrial Calculated Energy Efficiency Savings Program infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program delivery and coordination

i. Emerging Technologies (ET) program

The long-term energy efficiency vision of California can only be attained through the long-term and continuous development, verification, and acceptance of emerging new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the sub-program will consider higher initial incentives for emerging is poised to adopt the efficiency potential of new technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions through its programs. In addition, portfolio staff actively works to incorporate promising emerging technologies from the ET program IOU or PIER funded projects.

ii. Codes and Standards program

The program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As cCodes and sStandards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive

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levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost-effective technologies/services (e.g., LEDs) are made available as they transition from research and development to mainstream program offerings.

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iii. WE&T efforts

iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Industrial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings take place through IOU's utilities energy centers and technology centers.

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iv. Program-specific marketing and outreach efforts

Marketing and outreach initiatives will include:

- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the industrial sector, as appropriate;
- Attendance at key trade shows within the industrial sector;
- IOU-utility-sponsored training events at the IOU's utilities Customer Training Centers and other convenient locations within the IOU's utilities service territory;
- Hosting of IOU-utility-sponsored webinars that provide sub-segment training and program adoption; and
- Development of case studies, web pages, and marketing material that provide an overview of the IOU's utilities' energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program provides a significant challenge to integrating DSM initiatives to non-energy activities due to the general industry structure, the nature of market sector resource use, limited resource savings potential with smaller businesses, and limits to small business owner and operator bandwidth. Therefore, integrated audits that look across the various energy efficiency program offerings, as well as complementary options available through other entities (e.g. water agencies), will be used to identify the opportunities to be recommended to the specific industrial/commercial customer.

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The Water Efficiency Pilot Program's will provide potential opportunities to reduce water use and the potential for associated energy efficiency savings.

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~~Since some customers within the program sectors are major water users, this sector is well-positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Programs.~~

~~With respect to water conservation, IOU utility program managers will contact the local water districts to co-brand marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Calculated sub-program incentives for energy efficient equipment that may also reduce water and GHG emissions.~~

~~In addition, the program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.~~

vi. Non-IOU programs

~~The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.~~

vii. CEC work on PIER

~~Not applicable.~~

~~The program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.~~

~~As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.~~

viii. CEC work on C&S

~~Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.~~

ix. Non-utility market initiatives

~~The program will support and educate customers, and/or facilitate enforcement of such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The~~

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IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

The Industrial Calculated Energy Efficiency Programs sub-program builds upon the more than 10 years of experience that IOUs utilities have offered such a program¹⁸⁴⁹. Deeper penetration into industrial process loads will be achieved by closely aligning the sub-program with the Industrial Customer Services Energy Advisor Energy Audits and Industrial Continuous Energy Improvement Programs sub-programs to ensure that there is an avenue for implementing a variety of customer projects. The infrastructure developed by the Industrial Calculated Energy Efficiency Programs sub-program will also be used as the core processing backbone for targeted third-party programs in order to reduce the program administrative and processing costs of those programs.

d) Innovation

Innovative aspects of the program include improving major program performance indicators such as accuracy of energy saving calculation, higher realization rate, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrated energy management.

For the 2013-2014 new program cycle, California IOUs will implement an have implemented a new incentive structure that emphasizes advanced controls that enable peak demand response motivating reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency and demand response incentive programs as well as signing up demand response programs. During the 2010-2012 program cycle, the new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance.

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Changes will (a) target ease of program understanding and participation, (b) measure measures eligibility, (c) increase of customer's economic customer economical benefits, and (d) identify policy restrictions that are will be identified as barriers to participation. IOUs are implementing such process based on market studies conducted on the subject and preceding discussion of the policy change. Among other modifications that would be potentially discussed and implemented are incentive caps and, redesign of measure/equipment early retirement according to the CPUC concept and other.

¹⁸ Before 2009-2011, the Calculated Energy Efficiency Program was commonly referred to as the Standard Performance Program or "SPC."

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IOUs are planning to elaborate and utilize positive experience obtained using SBD Simplified tool and extend it to energy efficiency retrofit projects. Such tools substantially reduce application processing and review time, and minimize the number of hand-offs, without sacrificing accuracy of energy saving calculations.

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Where possible, IOUs will use an integrated approach to addressing DSM opportunities. Innovative approaches will be used, such as merging energy efficiency and demand response analysis and converting recommendations to projects. -In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions, will maximize customer adoption rates for most cost-effective energy management opportunities.

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IOUs are planning to consolidate various calculating software such as SPC Software, Engage and other measure specific calculating tools to standardize our calculating methodology. This will ensure that calculations will be more uniformed and consistent amongst all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures.

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IOUs are planning to continue and expand their core RCx program in multiple target markets. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments to correct the system. Measures may involve resetting, repair or replacement of existing system controls and components, and in general are low-cost projects with simple payback periods of less than four4 years.

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After an energy audit is complete and applicable no-cost/low-cost measures are identified, the scope of work will be handed -off to a RCx implementer who, in-tum, will follow RCx program protocols, execute the scope of work (measure implementation, EMM&V plan, incentive payment for energy savings, etc.) and report final results to the core program office.

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The IOUs are exploring innovative means of improving the Industrial Calculated Energy Efficiency Program based on Energy Division direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" and to "raise incentive levels for Emerging Technologies" is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Industrial Calculated Energy Efficiency Incentive Program.

e) Integrated/coordinated Demand Side Management

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Energy audits will include recommendations for not only energy efficiency, but also for demand response and other demand-side management opportunities. Participating customers will be encouraged to participate in other demand-side management opportunities, including demand response and distributed generation. Participating customers will also be encouraged to take a more comprehensive approach to demand-side management and strive for continuous improvement.

f) Integration across resource types (energy, water, air quality, etc)

California's industrial sector faces a multitude of environmental and regulatory challenges that affect their competitiveness and, in some cases, survival. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

To help deal with these challenges, the industrial program will coordinate with the regulating agencies and the programs they are operating to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. IOUs/Utilities will continue to offer targeted trainings to customers who share common regulatory challenges in an effort to educate customers on impending regulatory requirements for their business operation, and the most efficient solution options to consider for compliance. Future workshops may look at small and medium sized water and wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 industrial targets.

IOUs/Utilities will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other utilities will help reduce administrative cost and has a greater impact on societal benefits. Currently the utilities are participating in the CPUC water/energy pilots with several water agencies. The results from this pilot may spur more partnerships between the utilities.

Where applicable, the Program will integrate topics such as GHG reduction and water conservation into targeted customer workshops, and marketing and communications, building on a strong track record from the past program cycle. Marketing and communications material will include savings opportunities and messaging.

Water/Energy Nexus Strategy

SoCalGas supports improving the efficiency of water systems as one of the most critical strategies to capture water/energy nexus benefits in the energy efficiency programs. SoCalGas plans to focus its efforts in areas that use gas engines as the energy source to deliver and treat water. For water agencies within SoCalGas' territory, we plan to issue an RFP to utilize a contractor to implement leak-loss detection and remediation and pressure

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management services applicable to storage, pumping and distribution through SoCalGas' core or Third Party Program. SoCalGas will explore new project ideas for the water/energy nexus, as well as the calculation of ancillary water benefits (e.g. "embedded" energy savings). SoCalGas will accelerate the expansion of cost-effective water-energy nexus programs by coordinating with the other utilities, water agencies, and municipalities to study the cost effectiveness and the embedded energy savings for water/energy efforts. Our intent is to continue to offer measures and services to the water sector through the "calculated" and audit programs. SoCalGas will also explore for new direct energy measures that can be incented under the calculated program. Additionally, we will increase our efforts to capture the water-energy nexus and sustainability in the agriculture, industrial, and commercial segments.

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g) Local Element (Negotiated Incentive Option)

SoCalGas will provide a local component which will include incentives for energy-efficient retrofits, systems new construction, or replacements of existing equipment at SoCalGas customer sites. Participants may be either customers or energy-efficiency service providers (EESP's) acting as project sponsors for activities at customer sites. To qualify, a project must save a minimum of 1,000,000 therms per year. Associated energy, resource such as water, sewerage and emissions, and Greenhouse gas (GHG) emissions savings will be considered when evaluating a project for funding. A project may consist of a single project at a single site, or may be aggregated from multiple projects belonging to a single customer, and may include a variety of measures.

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This local element is designed to serve the largest non-residential customers within the SoCalGas service territory. Non-residential customers in this group are comprised of but not limited to the following industry sub-segments: Government/Utilities, Manufacturing/Processing Industries and Institutional. Each sub-segment has distinct energy use patterns, differences in equipment and facility design, and various management structures and decision-making processes. Because each industry sub-segment is unique, this option will use a customized, customer-focused approach. Participating customers, taking into account their individual energy and resource conservation opportunities as well as internal hurdle rates, will propose or "bid" to SoCalGas the incentive level needed to enable large EE and Resource savings projects. This ensures that this option will be adaptable to the unique needs of each market segment.

The program is designed to be flexible and cost effective: The project sponsor proposes a project and desired incentives. Incentives may cover up to 50% of the incremental project costs less any additional funding received from other sources. Measurement and verification (M&V) is required for all projects. As a performance-based incentive program, the approved M&V report will ultimately determine the energy savings for each project. The total sum of incentives paid for a project may not exceed the amount "bid" by the customer and agreed to by SoCalGas.

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h) Pilots

Not applicable.

b) EM&V

~~The IOUs are proposing IDSM (Integrated Demand Side Management) for Food Processing Program partners with industry, trade allies and others to promote integrated energy management solutions to end use customers in the food processing and refrigerated warehouse segments. The integrated approach combines traditional measures (energy efficiency retrofits/upgrades) along with strategies to help customers manage/reduce their energy demand during peak periods (example: 2:00PM-5:00PM), especially during hot summer days. By combining these two approaches, the customer is provided a comprehensive solution to manage day to day energy costs as well as position their facility to respond to days of high energy use (peak periods) when energy is at it's greatest demand and can be very expensive. While the primary program focus is energy efficiency, the program emphasizes integrated solutions in proper sequence (energy efficiency → demand response) to support the most cost effective and satisfactory energy and financial solutions for these stakeholders. SoCalGasSCG is proposing to~~

~~The concepts of *Continuous Improvement* and *Best Practices* will be woven into the long term solutions provided by the program. The program will deliver an integrated solutions driven approach while leveraging the offerings of IOU's portfolio of incentive based programs. Targeted customers include agricultural: post harvest processors (ginners, nut hullers, and associated refrigerated warehouses) and food processing: fruit and vegetable processors (canners, dryers and freezers), prepared food manufacturers, wineries and other beverage manufacturers.~~

b) EM&V

~~SCESCG plans to work with other utilities and the Energy Division to develop and submit a comprehensive EM&V Plan a complete plan for 2010-12 studies and budgets after the program implementation plans are finalized and filed. This plan will include be submitted to the CPUC in time for approval along with the Program Implementation Plans.~~

~~Detailed plans for process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts specific to this program will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the final plans need to will be based on identified program design and implementation issues, and questions.~~

7. Diagram of Program

~~Please see the core program diagram presented above.~~

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[8. Program Logic Model](#)

[Please see the Commercial Calculated Core Energy Efficiency Program logic model presented above.](#)

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2013-2014 Energy Efficiency Programs
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1. Program Name: Industrial Deemed Incentives, Core Sub Energy Efficiency Program

Program ID#: SCE SCG-371513-SW-003e

Program Type: Statwide Core Program

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2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the overarching program for gross impacts savings details

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4. Program Description

a) Describe program

The purpose of the Statewide Industrial Deemed Energy Efficiency Program is to provide services to improve the energy efficiency of industrial facilities in California, including financial incentives based on deemed energy savings. The energy savings are deemed for measures installed. Integrated projects are encouraged to combine energy efficiency and demand response.

The Industrial Deemed Energy Efficiency Program is part of a suite of programs within the Statewide Industrial Energy Efficiency Program.

Key features of the program include:

- Information and technical assistance from SCE SoCal Gas SCG on energy efficiency measures and savings potential;
- Application via mail, fax, internet and phone by customer for eligible measures;
- Reservation of financial incentives by SCE SoCal Gas SCG, if requested by customer;
- Pre- and post-installation inspection by SCE SoCal Gas SCG, as determined by SCE SoCal Gas SCG based on prior participation and other factors; and
- Payment of incentives from SCE SoCal Gas SCG.

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b) List measures

Itemized retrofit measures have prescribed energy savings and incentive amounts. These measures are categorized under the following end uses:

- Lighting
- Air conditioning
- Food service
- Refrigeration
- Industrial Process
- Motors

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- Plug loads.
- Gas Measures

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c) List non-incentive Industrial customer services Energy Advisor Services —Not applicable

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The Industrial Deemed Incentives sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical consultation and application preparation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

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5. Program Rationale and Expected Outcome

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a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Industrial Deemed Energy Efficiency Program is designed to overcome several barriers. The program directly addresses key market factors that lead to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This element makes it attractive for customers to spend money in the short run in order to achieve lower energy costs in the long run.

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Using itemized energy efficiency measures is intended to overcome barriers that prevent many business customers from adopting energy efficiency alternatives. The barriers are addressed by itemizing common energy efficiency measures and rebates, stimulating the supply of high efficiency equipment and products (through higher demand), and offering rebates that help offset higher start-up and down payment expenses for energy efficient retrofits.

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Furthermore, to ensure equity to all business customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>Projects</u>	<u>TBD315</u>	<u>TBD390</u>

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e) Advancing Strategic Plan goals and objectives

The Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector. The Industrial Deemed Energy Efficiency Program supports at least two goals.

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Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

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Strategy 2.5: Implement ME&O program to educate industry and consumers

Near-term: Form industrial collaboration mechanisms

The Deemed Energy Efficiency Program facilitates participation by allowing customers to apply for program participation in many ways, including mail, fax, internet and phone. ~~SCE~~ SoCalGas ~~SCG~~ will implement marketing and outreach activities through account executives, trade associations, and in numerous other ways to stimulate participation. It will encourage participants to adopt a policy of continuous improvement.

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Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

Strategy 3.2: Conduct statewide marketing and education effort to create demand for industrial information clearinghouse.

Near-term: 1) Develop ME&O Plan; 2) Implement Plan

~~SCE~~ SoCalGas ~~SCG~~ will participate in the development of the plan and then encourage industrial customers to use the clearinghouse as part of the implementation of the plan.

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6. Program Implementation

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a) Statewide IOU coordination

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i. Program name: Industrial Deemed Energy Efficiency Program

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ii. Program delivery mechanisms

Program delivery mechanisms for SCE SoCal Gas SCG will include account representatives, technical services personnel, incentives processing staff, and inspection officials. Also important to program delivery will be customer facility owners and managers; energy efficient equipment manufacturers, distributors, and services contractors; industry trade associations; and others in the energy efficiency equipment value chain.

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At the statewide level, the Industrial Deemed Energy Efficiency Program will be coordinated to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU utility program interactions. The Industrial Deemed Energy Efficiency Program will coordinate with the core Industrial Energy Efficiency Program to provide mutual support.

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The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correcting program weaknesses that reveal themselves during implementation, and ensuring achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the two-three-year implementation cycle will be enabled.

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iii. Incentive levels

Incentive levels are based on measure type and will be set at uniform amounts across the state. Higher incentive levels will be provided for Emerging Technologies (ET) to spur traction in the market as feasible. The scale of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, therms, equipment cost, other market factors and cost effectiveness.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The Industrial Deemed Energy Efficiency Program will be marketed through IOUs, account executives, as well as through trade allies, education educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support will be provided.

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Marketing efforts will incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness, and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not

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limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Market outreach to raise awareness of energy efficiency programs available will use a number of strategies, as follows including:

- Providing Account representatives will make a regular and consistent customer calling effort to key customers within this sector through account representatives;
- Providing additional expertise from IOU Utility representatives, program management representatives, and field engineers will be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the industrial market sector;
- Attendance at the key trade shows for each high priority sub-segment within the industrial market sector;
- Hosting IOU Utility-sponsored training events at the IOU's utilities Customer Training Centers and other convenient locations within the IOU's utilities service territory;
- Hosting of IOU utility-sponsored webinars that provide sub-segment training and program adoption; and
- Linking written Written collateral pieces that give provide an overview of the IOU's utilities Energy Efficiency programs to will be linked into the appropriate IOU's IDSM utility DSM web page.

The ideal marketing mix will be assessed for maximum awareness and participation. The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above.

The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable
The Industrial Deemed Energy Efficiency Program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to

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capitalize on opportunities to share program information and marketing collateral with industrial/commercial customers to the extent possible. Conventionally, each government agency and IOU/utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

With respect to water conservation, IOU/utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers program incentives for energy efficient equipment that may also reduce water and greenhouse gas GHG emissions.

vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that are permitted to use the Industrial Deemed Energy Savings Program infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program delivery and coordination

i. Emerging Technologies (ET) program

The long-term energy efficiency vision of California may be attained through the long-term and continuous development, verification, and acceptance of emerging/new technologies (ET) into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting-edge technologies. In recognition of the importance of emerging technologies, the program is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff actively works to incorporate promising emerging technologies from IOU or PIER funded projects.

ii. Codes and Standards program

The program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As cCodes and sStandards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program Programs will coordinate with the Codes and Standards Planning & Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to

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each element of the bundling will be made to ensure the latest cost-effective technologies/services (e.g., LEDs) are made available as they/these technologies transition from research and development to mainstream program offerings.

iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Industrial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings take place through IOU's utilities energy centers and technology centers.

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iv. Program-specific marketing and outreach efforts (provide budget)

Marketing and outreach initiatives will include:

- Participation and membership in key trade associations affiliated with each high-priority sub-segment within the industrial sector, as appropriate;
- Attendance at key trade shows within the industrial sector;
- Building awareness and training of vendors of energy equipment and systems about the program eligibility requirements and participation procedures;
- Educating community based organizations (CBOs), faith based organizations (FBOs), other non-profit organizations, and other non-government organizations (NGOs) with unique access to certain industry segments;
- Informing enabling partners, such as financial institutions, law firms, and environmental organizations;
- Approaching other organizations with complementary value propositions from the customers' perspective, such as energy, water, materials management, recyclables, and corporate social responsibility; citizenry
- IOU Utility-sponsored training events at the IOU's utilities customer training centers and other convenient locations within the IOU's utilities service territory;
- Hosting of IOU utility-sponsored webinars that provide sub-segment training and program adoption; and
- Development of case studies, web pages, and marketing materials that provide an overview of the IOU's utilities' energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

—CEC work on PIER

vii. Not applicable.

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~~The program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects. As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.~~

viii. CEC work on codes and standards

~~Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.~~

~~i.~~

Non-utility market initiatives

~~The program will support, educate customers, and/or facilitate enforce such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.~~

c) Best Practices

~~To maximize program effectiveness, best practices in program design and implementation will be employed and shared amongst IOUs.~~

~~Best practices in Program Design include:~~

- ~~● Regular communication amongst IOUs, which is critical to effective program design.~~
- ~~● Identification of Identify qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, FSTC website).~~
- ~~● Seeking input from industry in the development of new programs. The IOU programs are trying to change how an industry operates from manufacturer design to the customers' purchasing and maintenance practices.~~
- ~~● Industry participation that increases program volume and speeds market transformation.~~

~~Best practices in Program Implementation include:~~

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- Striving to simplify messaging and participation for the customer. (Look for the ENERGY STAR label, purchase from a qualifying products list, etc.)
- Understanding the key motivators that drive an industry and using that information to market your program. Formulating Make certain outreach efforts that make your program visible to your customers and the market that is catering to your customers.
- Continuously communicating Always communicate program marketing and advertising plans in advance to appropriate industry channels. Advanced notice allows industry partners an opportunity to leverage off of IOU utility marketing efforts and reinforce the messaging we are trying to deliver to our customers get across.

d) Innovation

Innovative aspects of the program include improving major program performance indicators, such as accuracy of energy saving calculation, higher realization rate, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrated energy management.

For the new program cycle, California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During the 2013-2014 2010-2012 program cycle, the new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance, including measure bundling incentives. The IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper savings.

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Changes will (a) target ease of program understanding and participation, (b) measure measures eligibility, (c) increase of customer's economic customer economical benefits, and (d) identify policy restrictions that are will be identified as barriers to participation. IOUs are implementing such process based on market studies conducted on the subject and preceding discussion of the policy change. Among other modifications that would be potentially discussed and implemented are incentive caps and, redesign of measure/equipment early retirement according to the CPUC concept. ~~and other.~~

Where possible, IOUs will use an integrated approach to addressing DSM opportunities. Innovative approaches will be used, such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retrocommissioning and/or Calculated program. In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions, will maximize customer adoption rates for most cost-effective energy management opportunities.

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e) Integrated/coordinated Demand Side Management

Once enrolled, participating customers will be encouraged to participate in other demand-side management opportunities, including demand response and distributed generation. Participating customers will also be encouraged to take a more comprehensive approach to demand-side management and strive for continuous improvement.

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Integration across resource types (energy, water, air quality, etc)

California's industrial sector faces a multitude of environmental and regulatory challenges that affect their competitiveness and, in some cases, survival. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

To help deal with these challenges, the industrial program will coordinate with the regulating agencies and the programs they are operating to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. IOUs/Utilities will continue to offer targeted trainings to customers who share common regulatory challenges in an effort to educate customers on impending regulatory requirements for their business operation, and the most efficient solution options to consider for compliance. Future workshops may look at small and medium sized water and wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 industrial targets.

IOUs/Utilities will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other utilities will help reduce administrative cost and has a greater impact on societal benefits. Currently the utilities are participating in the CPUC water/energy pilots with several water agencies. The results from this pilot may spur more partnerships between the utilities.

Where applicable, the Program will integrate topics such as GHG reduction and water conservation into targeted customer workshops, and marketing and communications, building on a strong track record from the past program cycle. Marketing and communications material will include savings opportunities and messaging.

f) Pilots N/AEM&V

Not applicable.

g) EM&V

The IOUs are proposing SCE plans to work with other utilities and the Energy Division to develop and submit a comprehensive EM&V Plan a complete plan for 2013-2014 2010-12 studies and budgets after the program implementation plans are finalized and filed. This plan will include be submitted to the CPUC in time for approval along with the Program Implementation Plans.

Detailed plans for process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts specific to this program will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur

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2013-2014 Energy Efficiency Programs
Statewide Industrial Energy Efficiency Program
Program Implementation Plan

after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the final plans need to will be based on identified program design and implementation issues, and questions.

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2013-2014 Energy Efficiency Programs
Statewide Industrial Energy Efficiency Program
Program Implementation Plan

7. Diagram of Program

Please see the core program diagram presented above.

8. Program Logic Model

Please see the Commercial Deemed core Energy Efficiency Program logic model presented above.

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1. Program Name: Industrial Continuous Energy Improvement – Core Sub-Program
Program ID#: SCE SCG-3714-13-SW-003d
Program Type: Statewide Core Program

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2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the overarching program for gross impacts savings details

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4. Program Description

a) Describe program

Continuous Energy Improvement (CEI) is a consultative service that is aimed at helping large industrial customers engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of IOU utility customers and with current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; and (5) Evaluation and Modification. At each stage of customer engagement, there are a variety of complementary IOU utility and non-IOU utility products and services that can be customized to fit different customer profiles and optimize the cost effectiveness of the delivered energy management solution.

In 2013-14, CEI will be expanded to include select group of mid-sized non-residential customers. Available options to help target these customers may include an individualized, small group, or mass-market remote deployment approach.

CEI will coordinate its services with the Industrial Customer Services Energy Advisor subprogram offerings. CEI offers customers what can be considered the pinnacle of audit offerings, guiding senior management to instill energy considerations in all management/business operational decisions and in long-term energy planning.

The CEI program implements the following steps:

1. Commitment

CEI begins with a high-level management commitment to improving energy performance, which increasingly can be combined with other environmental and

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regulatory commitments that large energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy—like safety—is a priority issue requiring attention. Corporate commitment—like safety—and also paves the way for establishing the required company resources required to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, or technical systems and software required for energy management.

Gaining true customer commitment can take time, but it is critical. In implementation, IOU utilities will formalize the Commitment phase with larger or more intensive customers through a CEI participation agreement This agreement, which outlines the IOU utility CEI services being offered as well as minimum customer expectations.

2. Assessment

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities, but also systemic energy management practices and cultural shifts. These that can improve overall facility management practices and sustain continuous improvements towards long-term company targets. A component to the assessment will also include tools to help identify Energy Efficiency (EE), Distributed Generation (DG), and Demand Response (DR) opportunities.

There are many tools and resources – IOU utility and non-IOU utility, free and licensed – available to support comprehensive customer energy assessment. They include ENERGY STAR’s Guidelines for Energy Management; customer energy management assessment software products like those developed by Envinta; benchmarking tools; Integrated Comprehensive Energy Audits; through the Industrial Customer Services Energy Advisor sub-program, or, and local and third-party programs that who can offer specialized technical expertise and assessment.

Based on screening criteria, IOU utilities will offer comprehensive energy assessment services utilizing, but not limited to, vetted sources like those described below, to develop a customer specific strategic energy plan.

- ENERGY STAR’s Guidelines for Energy Management is housed on the ENERGY STAR website and provides step-by-step guidelines to customers to support CEI in general. It, and also guides customers to ENERGY STAR’s numerous assessment tools. This option is a low-cost resource for smaller and medium customers interested in CEI.

- Energy Management Assessment Tools such as Envinta’s One-To-Five, Achiever, and Challenger software products offer professionally facilitated energy management assessment with company decision makers. They also explore and explores management practices and company priorities to develop a CEI roadmap for energy goals and actions.

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- Integrated Comprehensive Energy Audits provide an inventory of technical facility end-uses and energy efficiency, demand response and self-generation investment opportunities. For a full description, see the Industrial Customer Services Energy Advisor Statewide Non-Residential Audits sub-program plan.
- Benchmarking can measure the energy performance of a company, building, process, or piece of equipment to industry standards or comparable groupings. Benchmarking is a natural first step for the CEI process. Customers with multiple facilities find benchmarking useful to prioritize efficiency projects, track progress toward energy or greenhouse gas (GHG) improvement goals, or drive competition among similar benchmarked facilities. Units of measurement vary widely. For industrial—~~for commercial~~ buildings, the unit is energy used/square foot for a unit of time. Benchmarking can also be applied to other resources and environmental issues such as water use, CO₂, and emissions.

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3. Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation, as appropriate. Implementation of the Planning stage of CEI can be undertaken independently by the customer, or with utility support. Planning for larger complex customers will typically involve Account Representatives and/or consultants. As is discussed in the Strategic Plan and in the Section 6.e below, strategic planning can also include complementary non-energy considerations as well, such as greenhouse gas (GHG) reductions, water efficiency, and waste-stream minimization, all of which have embedded energy components.

Data and findings from a comprehensive customer Assessment are critical in developing any comprehensive energy plan. These include, including the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information is analyzed and used to develop realistic and achievable company goals and the prioritized shorter-term tactics that are needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (“Company X will reduce its overall energy intensity by 3% over the next 3 years”), carbon reduction goals (“Company X will be carbon neutral by 20142”), or management-oriented goals (“Company X will implement energy teams by 20130”). Goals can be internal documents or can be made public through press releases as part of larger sustainability plans. Publicized goals are, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as the resources, staff and schedule for tracking. Action plans typically includes activities such as (a) prioritizing process systems or facilities based on benchmarking or company drivers, (b) identifying internal resources required for plan implementation, and (c)

developing to implement plans, develop project justification and incentive application documentation lists and detailed schedules.

4. Implementation

In the implementation stage, IOU utilities partner with customers to identify technical support and IOU utility and non-IOU utility resources available to support implementation of projects, such as rebates, incentives, third-party and government partnership programs, and state and national resources. These may include, including:

- Statewide Deemed rebates;
- Statewide Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning/repair;
- Third-Party and Government Partnership programs (described in the statewide and local third party filings);
- IOU and non-IOU Non-utility financing options; and
- External and internal Owners engineer support.

5. Evaluation and Modification

Like in any continuous improvement program, evaluation is an ongoing process of comparing actual performance against company goals, targets and action plans. It may include repeating the benchmarking and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward.

b) List measures

CEI does not provide incentives to customers, but ultimately facilitates the customer's implementation of energy efficiency projects through statewide incentive programs. However, depending on the outcome of the 2012 process evaluation, customer incentives may be offered.

c) List non-incentive Industrial customer services Energy Advisor

CEI is a non-resource program that provides comprehensive strategic energy planning and consulting services for industrial/commercial customers. These services include: energy management assessments, energy planning, baselining and benchmarking, project implementation support, customer recognition (e.g. "corporate sustainability awards"), and web-based energy resources.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

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Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers include:

- **Lack of information:**— The CEI evaluation and modification process provides data that customers can use to reevaluate their commitment and/or modify their energy goals.
- **Performance uncertainties:**— Through CEI’s comprehensive baselining and benchmarking assistance, customers will have access to real-time data that demonstrates how their facility is performing relative to their established goals.
- **Organizational customs:**— The high-level customer commitment that is at the core of CEI increases the likelihood that corporate cultures that prevent successful implementation of comprehensive energy policies will be changed.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>
<u>Number of Engagements Square Footage Benchmarked</u>	<u>TBD 1,291,000</u>	<u>TBD 1,780,000</u>

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e) Advancing Strategic Plan goals and objectives

The Industrial Energy Efficiency Program supports all three goals in the Strategic Plan for the Industrial Sector. General advancement of the goals is presented in the program implementation plan for the Industrial Energy Efficiency Program. More specific support of the goals in the Industrial CEI Program is presented here.

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Goal 1: Support California Industry’s adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals and other resource goals.

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Strategy 1.1: Develop coordinated energy and resource management program for CA’s industrial sector, to enhance use of energy efficiency

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The core deliverable through CEI is the development of a comprehensive energy management plan that customers can adopt as an operating strategy. This plan

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will allow customers to quantify and manage their GHG emissions in a responsible manner.

Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.

Strategy 2.2: Implement certification

Near-term: Plan pilot and recruit host sites (8-10 facilities)

The Continuous Energy Improvement sub-program will manage the statewide participation in the development of an industrial certification program. This certification program will be piloted in 2013-2014. It will ~~2010-2012~~ and leverage the various industrial sub-program tactics described throughout this program implementation plan to identify the best potential host sites. The lessons learned from this pilot will be used to expand the certification in the next program cycle.

Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.

Strategy 3.1: Compile technical and resource management regulatory materials into centralized assistance repository.

Near-term: 1) Identify and incorporate priority energy and other data; 2) Develop clearinghouse or integration system.

The Continuous Energy Improvement sub-program will support the development of an industrial clearinghouse by providing information on results and experience in the program, including case studies of innovative projects and best practices about implementing comprehensive energy management plans at industrial facilities.

6. Program Implementation

a) Statewide IOU coordination

i. Program name: Industrial Continuous Energy Improvement Program

ii. Program delivery mechanisms

CEI will be coordinated to unify the implementation of program aspects such as program name, program delivery mechanisms, marketing and outreach plans, and IOU utility program interactions. The Industrial CEI Program will coordinate with the core Industrial Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the two ~~three~~-year implementation cycle will be enabled.

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Where applicable, the IOUs, SCE, SoCalGas, SCG's account representatives will support this activity within the statewide industrial/commercial sector, as well as third parties, government partnerships, and IOU, SCE, SoCalGas, SCG local programs.

iii. Incentive levels –N/A. ~~This is a non-resource program.~~

Not applicable. (CEI is a non-resource program).

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iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

As with other information and education programs, CEI will be primarily delivered primarily by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other channels of delivery may be developed.

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The IOUs will continue to develop an in-depth segmentation of the industrial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

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v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The program will leverage the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with industrial customers.

vi. Similar IOU and POU programs

Over the next two ~~three~~ years, the IOUs will seek to increase their interactions with the POU's, as applicable, to promote the CEI concept throughout the state. ~~This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.~~

~~Emerging Technolog~~ie–This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

e)b) Program delivery and coordination

i. Emerging Technologies program

The CEI program management team will stay abreast of and incorporate relevant emerging technologies into audit recommendations. In addition, IOU field engineers, who play a large role in the delivery of CEI to industrial customers, are active contributors to the Emerging Technology (ET) process by their participation in ET Roundtable/Information meetings and continually seek to offer new technologies to customers.

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ii. Codes and Standards program

CEI implementation will include information about pending new code that may affect planning or prioritization of retrofit or new construction projects. The program will work with the Codes and Standards Program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. Planned enhancements to Title 24 will be reflected recommended measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) made available as these technologies transition from research and development to mainstream program offerings.

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iii. WE&T efforts

CEI implementation will integrate with WE&T efforts by providing CEI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs SoCalGas will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs SoCalGas will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches. Program costs will be shared with WE&T.

CEI's interaction with Statewide Workforce Education & Training efforts will be centered on the offering of a national certification curriculum that supports the pilot program described in Section 5.e. Development of this curriculum will be conducted in partnership with established industry efforts currently sponsored by the Department of Energy and others and will ultimately be offered to customers in order to provide them with knowledge and tools required to implement and validate energy efficiency improvements.

iv. Program-specific marketing and outreach efforts (provide budget)

A broad range of marketing activities will be used to promote audits and elevate customer engagement. The Industrial CEI program will be promoted via direct communication between customers and Account Executives with the support of Project Managers from individual programs, as well as through traditional advertising activities, such as internet, bill inserts, brochures, trade shows, etc. Marketing activities will be coordinated between IOUs, Demand Response and Distributed Generation departments within each IOU SCE SoCalGas SGG.

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Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among

nonresidential customers. The statewide effort will provide the first level with IOU-specific programs providing reinforcement at a local level.

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v. Non-energy activities of program

Integrated energy audits are a key tool for identifying non-energy opportunities for specific customers. The energy audits can identify non-energy benefits associated with recommended measures, such as improved safety, productivity, indoor air quality, comfort and appearance.

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vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

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vii. CEC work on PIER

Not applicable.

CEI will include the CEC's PIER and Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA Energy Star Portfolio Manager benchmarking and other programs, USGBC LEED certification, local and other government incentive programs as applicable.

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viii. CEC work on C&S

See Section 6.b.ii.

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-IOU utility information and guidance that CEI will provide customers. In addition, the IOUs will participate in national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

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c) Best Practices

The CEI approach applies the principals of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management: Commitment, Assessment, Planning, Implementation, Evaluation and Modification in order to achieve widespread adoption of long-lasting sustainable energy management practices in the industrial-commercial market sector. This approach can now be successfully implemented given the two-three-year programs cycle allowing longer term and deeper project development engagements with customers. In addition, PG&E will continue to lead the utility's efforts in the industrial customer area by participating in a national effort to develop an ANSI recognized standard for industrial energy efficiency. By participating in the development of such a standard, the utilities are in a unique position to integrate aspects of the standard into current programs prior to ANSI recognition.

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d) Innovation

CEI is a new way of packaging energy efficiency, demand response and self-generation products and services aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

e) Integrated/coordinated Demand Side Management

CEI includes project analysis and implementation support of recommendations of the Statewide Integrated Comprehensive Energy Audits, which provide customers with an inventory of facility end-use breakdown and energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related types of programs. While a successful program experience leads to repeat participation, there has been difficulty in cross-pollinating similarly related types of programs with these candidates due to program-specific silos. To overcome the historic siloing of DSM, the CEI sub-program will leverage lessons learned from IDSM efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other's financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program's incentives are based upon. Since benefits from long-term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the CEI sub-program will offer additional support and services incentives for energy efficiency measures that enable demand response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM programs are often non-coordinated, since energy efficiency is typically technology-based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable.

Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.

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To support the integration of energy efficiency and demand response programs, the sub-program will focus on several tactics:

- Offering promotions and incentives for demand response in such a way as to stimulate energy efficiency first;
- Providing integrated and coordinated year-round marketing (e.g. applications, collateral, web sites, and events);
- Linking of program eligibility requirements (e.g. customer size);
- Providing unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities;
- Providing integrated presence on IOU utility websites; and
- Regular coordination of meetings between energy efficiency and demand response program management.

CEI is recognized as a strategy to advance Statewide IDSM program's goals and objectives. IOUs SoCalGas will increase IDSM messaging and coordination within CEI. During the 2010-12 program cycle, funding for energy efficiency and demand response must not be commingled; therefore payments will be split between the two programs as appropriate.

f) Integration across resource types (energy, water, air quality, etc)

CEI implementation will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support efforts. IOU CEI sub-program managers will partner, as appropriate, with CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers. Conventionally, each government agency and IOU utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will inform the customer about the mutual benefit of combining complementary resource programs.

In the effort to promote CEI, IOUs SoCalGas will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, IOU utility program managers will partner with the local water districts to produce co-branded marketing collateral, attend trade shows and release joint notices for programs with interactive water and energy effects.

g) Pilots

Based on Energy Division feedback, a potential pilot that will be explored in the 2010-12 program cycle is that of a "Resource Energy Manager" (REM). REMs are essentially energy managers who are placed at the customer's facility to be a project champion and shepherd energy efficiency projects through to completion. Their salary is typically paid for through the energy savings they generate. REMs have been successfully used by IOUs in the government sector (typically military bases) in past program cycles and a similar program has been available for commercial customers in the Pacific Northwest. The concept of using REMs in the commercial

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~~segment will be explored to determine the viability and cost effectiveness of such an approach. An appropriate EM&V plan will also be required prior to launching an REM pilot such that the affects of the pilot on achieving higher levels of energy efficiency can easily be determined. EM&VNot applicable.~~

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h) EM&V

~~The IOUs are proposing SCESCG plans to work with other utilities and the Energy Division to develop and submit a comprehensive EM&V a complete plan for 2010-12 studies and budgets after the program implementation plans are finalized and filed. This may include plan will be submitted to the CPUC in time for approval along with the Program Implementation Plans.~~

~~Detailed plans for process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies.~~

~~More detailed plans for process evaluation and other program-specific evaluation efforts cannot specific to this program will be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since final plans need to will be based on identified program design and implementation issues, and questions.~~

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~~Once results of the 2010-2012 evaluations are ready, recommendations will be reviewed for modifying the CEI PIP accordingly.~~

7. Diagram of Program

~~Please see the core program diagram presented above.~~

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8. Program Logic Model

~~Please see the Commercial CEI core program logic model presented above.~~

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2010-2012 PIP Addendum

Program Name	Statewide Agricultural Energy Efficiency Program	Date Submitted	7/2/2012
Subprogram Name	Statwide Agricultural Energy Advisor Statewide Agricultural CEI Statewide Agricultural Calculated Statewide Agricultural Deemed	Utility Name	SoCalGas
Program ID	SCG3717 SCG3718 SCG3719 SCG3720	IOU Program Contact	Andrew Ytuarte
		Program Cycle	2013-2014

This form is to be used to document any required changes to the Program Implementation Plans (PIPs). The following are triggers that will require a PIP change:

1. Changes to eligibiity rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission-Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

4. Portfolio Budget and Other Commission-Directed Changes

Driver of Change:

Aim to reduce the complexity in IOUs’ portfolios while increasing customer participation.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

<p>The 2010-2012 Agricultural Energy Efficiency Program Program Implementation Plan (PIP) reflects the following sub-programs:</p> <ol style="list-style-type: none"> 1. Nonresidential Audits Program 2. Calculated Incentives Program 3. Deemed Incentives Program 4. Continuous Energy Improvement (CEI) <p>The new 2013-2014 Agricultural Energy Efficiency Program will be simplified and consist of the following sub-programs:</p> <ol style="list-style-type: none"> 1. Energy Advisor Program 2. Commercial Calculated Incentives Program 3. Commercial Deemed Incentives Program 4. Continuous Energy Improvement (CEI)

Revision Date: 11/22/2011

PIP Section and/or Wording to be Changed or replaced:

Changes are throughout the 2013-2014 Statewide Agricultural Energy Efficiency Program.

Replacement Language or Information

Refer to Description of Program of 2013-2014 Statewide Agricultural Energy Efficiency Program PIP for details on changes.

Revised Energy Savings (If Any):

Refer to 2013-2014 Statewide Agricultural Energy Efficiency Program PIP for details.

Other PIP Changes Required:

Refer to 2013-2014 Statewide Agricultural Energy Efficiency Program PIP for details of other changes.

2013-2014 PIP Addendum

Program Name	Statewide Agriculture Energy Efficiency Program	Date Submitted	July 2, 2012
Subprogram Name	SW – AG - Calculated	Utility Name	SoCalGas
Program ID	SCG – 3719	IOU Program Contact	Deborah Eggers
		Program Cycle	2012-2013

This form is to be used to document any required changes to the Program Implementation Plans (PIPs). The following are triggers that will require a PIP change:

1. Changes to eligibility rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission-Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

4. Portfolio Budget and Other Commission-Directed Changes

Driver of Change:

Streamling of program to reflect a local element for a negotiated incentive option rather than an independent local program.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

See Red-lined Version of the Agriculture PIP – Agriculture Calculated sub-program

PIP Section and/or Wording to be Changed or replaced:

See Red-lined Version of the Agriculture PIP – Agriculture Calculated sub-program

Replacement Language or Information

See Red-lined Version of the Agriculture PIP – Agriculture Calculated sub-program

Revised Energy Savings (If Any):

N/A

Other PIP Changes Required:

N/A

Revision Date: 05/11/2012

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- 1. Program Name:** Statewide Agricultural Energy Efficiency Program
Program ID#: SCG - 3717 – SW-AG-Energy Advisor
 SCG - 3718 – SW-AG-CEI
 SCG - 3719 – SW-AG-Calculated Incentives
 SCG - 3720 – SW- AG–Deemed Incentives
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Agricultural Energy Efficiency Program					
3717	SW-AG-Energy Advisor	\$6,779	\$0	\$71,234	\$0	\$78,013
3718	SW-AG-CEI	\$3,453	\$0	\$60,768	\$0	\$64,221
3719	SW-AG-Calculated Incentives	\$436,521	\$245,389	\$2,248,748	\$1,114,574	\$4,045,232
3720	SW-AG-Deemed Incentives	\$143,746	\$56,503	\$537,544	\$329,373	\$1,067,167
	TOTAL:	\$590,499	\$301,893	\$2,918,294	\$1,443,947	\$5,254,633

3. Projected Program Gross Impacts Table

Table 2

Program #	Main/Sub Program Name	2013-2014 Gross kW Savings	2013-2014 Gross kWh Savings	2013-2014 Gross Therm Savings
	SW Agricultural Energy Efficiency Program			
3717	SW-AG-Energy Advisor	0	0	0
3718	SW-AG-CEI	0	0	0
3719	SW-AG-Calculated Incentives	0	0	1,496,799
3720	SW-AG-Deemed Incentives	0	0	487,026
	TOTAL:	0	0	1,983,825

4. Program Description

a) Describe program

The Statewide Agricultural Energy Efficiency Program facilitates the delivery of integrated energy management solutions—including energy efficiency, demand response, and distributed generation—to California’s agricultural customers. The Program offers a suite of products and services (for example, through strategic energy planning support, technical support services, facility audits, pump tests, calculation/design assistance, financing options, and financial support through rebates and incentives). In addition, the program adopts and supports the strategies and actions of the Agricultural and Industrial chapters of the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan).

The Statewide Agricultural Energy Efficiency Program targets end-users such as irrigated Agricultural growers (crops, fruits, vegetable, and nuts), greenhouses, post-harvest processors (ginners, nut hullers, and associated refrigerated warehouses), and dairies. Traditionally food processors, due to NAICS designation, have received IOU services

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through the Industrial program offering. However, there are those facilities with on-site processing that are integrated with a growers and their products, as is the case with some fruit and vegetable processors (canners, dryers, and freezers), prepared food manufacturers, wineries, and water distribution customers that may be addressed by this program's offerings.

To address the potential in these markets, the Statewide Agricultural Energy Efficiency Program offers four sub-programs. A brief description is provided below. For a detailed accounting of the sub-programs' activity refer to the sub-program's specific program implementation plan:

1. **Agricultural Energy Advisor** provides online and onsite audits, including benchmarking (offices and other "commercial" building areas), focused and integrated comprehensive energy audits, pump tests and may include Continuous Energy Improvement (CEI) audits/services across the agricultural segment depending on the IOU's market segment potentials and available resources. The Program provides an inventory of technical project opportunities and financial analysis information for a customer's short- or long-term energy plan, and overcomes both informational and technical customer barriers.
2. **Agricultural Calculated Energy Efficiency Program** offers customers a standardized incentive approach for customized and integrated energy efficiency, and CEI projects, which may include comprehensive technical and design assistance. It overcomes information, technical, and financial barriers across the agricultural segment. As a more customized calculation method that can consider system and resource interactions, it will also be the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan.
3. **Agricultural Deemed Energy Efficiency Program** provides IOU representatives, equipment vendors, and customers with an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit.
4. **Agricultural Continuous Energy Improvement (CEI)** is a non-resource sub-program that includes a collection of strategic planning tools and resources for long-term integrated energy planning. CEI serves as a launching platform for other IOU and non-IOU programs and services. CEI offers analysis, benchmarking, long-term goal setting, project implementation support, performance monitoring, and potential energy management certification offered through evolving Department of Energy (DOE) and International Organization for Standardization (ISO) efforts. CEI aims to transform the market from a "project-to-project" approach toward a continuous improvement pathway. In support of the Strategic Plan, the CEI approach also sets the stage for non-energy resource integration, such as greenhouse gas (GHG) reduction, water conservation strategies, and regulatory compliance. CEI will be offered by the IOUs, based on their

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market segment potential and resource availability. CEI services will be offered in the Agricultural Energy Advisor sub-program as applicable.

The New Construction Whole Building Approach (WBA) will be extended to existing buildings as one example of the customized bundling outlined in the Strategic Plan. This approach will make available the tools and resources necessary for customers to adopt a comprehensive approach to energy efficiency. This approach may include the deployment of energy management and information systems in demonstration projects that can be used to quantify and analyze energy savings based on various forms of data, including interval meter data.

In addition to these four sub-programs, each of the four investor-owned utilities (IOUs) in the state also offers local programs that complement and enhance the core offerings in their region. The IOU local portfolio mix is designed to enhance energy efficiency and DSM opportunities for Agricultural customers. Additional information regarding the local efforts can be found in the sub-program descriptions and in section 6.g of this program implementation plan. The portfolio mix includes water conservation education information.

Market Characterization

California's agricultural customer base consists primarily of a broad mix of smaller accounts and consumes approximately 7%¹ of total statewide electricity. The business models and energy efficiency needs for these market segments vary widely and thus require targeted marketing and program delivery strategies. A review of the primary segments addressed by this Program is included below.

Irrigated Agriculture

Irrigated agriculture represents an estimated 80% of the total electricity and 73% of total natural gas used by the agricultural segment. This energy is predominately used to lift, move, and pressurize irrigation water. Increased reliance on ground water is increasing energy intensity, giving high priority to improving the current average pumping efficiency from 53% towards the technical potential for 68-70% through optimizing pump operation. Increasing pressures from international competition, land and water use policy decisions, labor force uncertainties, and consolidation of smaller family farms into larger agribusiness enterprises make this segment increasingly receptive to new technologies and practices balanced by financial concerns from risks of crop failure.

Greenhouses

This specialty segment is in transition from the cut flowers industry to ornamental plants and vegetable transplants. Increased mechanization and consolidation in this segment presents opportunities for energy efficiency. Top opportunities for energy savings are in boiler improvements, building envelope improvements, and temperature control enhancements (for example, heat curtains).

¹ 1980-2005 California Electricity Consumption by Sector - California Energy Commission, http://www.energy.ca.gov/electricity/consumption_by_sector.html.

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Post-Harvest Processing Facilities

Post-harvest facilities associated with or near agricultural growing facilities, process, package and store agricultural commodities, such as cotton ginneries, nut harvesters and bag-houses, and fruit and vegetable packing plants. Their operations are typically seasonal and driven by harvest schedules. Nut hullers are a growing market due to new more productive strains of almonds. Key technical opportunities in this segment include industrial refrigeration improvements and process improvements.

Dairies and Confined Animal Feeding Operations

California's more than 1,900 dairies are primarily located in Tulare, Fresno, Kern, Merced, Stanislaus, and San Joaquin counties. Dairy farms are consolidating, with larger farms facing increased regulatory challenges related to air and water quality, creating opportunities for the adoption of new technologies and practices. Energy efficiency opportunities are focused in refrigeration, ventilation, and waste handling. Benchmarking will be developed as a key foundational activity to drive customer awareness and continuous energy improvement. Improved dairy waste management offers significant potential for distributed generation, as well as potential reduction of air and water quality problems and the capture and sale of greenhouse gas credits. Like dairies, feedlots and poultry operations for meat and egg production have drawn recent food safety and regulatory attention that may make them more receptive to new technologies and practices for improved efficiencies and waste to energy opportunities. Animal waste streams within this segment offer biogas development potential.

Food Processing, General

Off site Food Processing may include breweries, meat and poultry processing, dairy processors (e.g., creameries), canned, dried or frozen fruits and vegetables, grain products, baked goods, sugar and confectionary products, oils, snack manufacturing, soft drink manufacturers and seafood processing. The market is characterized by a small number of large users representing a disproportionate percentage of the energy consumed, offering an ideal opportunity for delivering a large customer strategy. The segment has high energy-intensity in relation to profit margins and is highly seasonal, with the majority of natural gas and over half of the electricity used during the peak summer season. Increased global competition and environmental regulations like AB 32 position this market for reductions in energy, water, emissions, greenhouse gasses and raw materials. An integrated resource management strategy, focusing on long-term continuous improvements, is expected to improve energy efficiency performance in the segment. The majority of the energy savings potential comes from process system improvements such as in refrigeration, boilers and steam systems, compressed air and motors. Distributed generation and demand response opportunities include using waste heat/steam for production processes such as pasteurization, cooking and heating.

Food Processing, Wineries

California's more than 2000 wineries produce 90% of all US wine. The segment is comprised of a small number of very large wineries and conglomerates, and a large number of small and medium facilities. This environmentally progressive segment of tightly knit and organized peer-to-peer networks has established environmental programs and web-based

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environmental benchmarking tools, and has launched a winery carbon calculator to support energy efficiency. The wine segment offers a model for other agricultural segments to follow. These efforts have been led by the California Sustainable Winegrowing Alliance (CSWA), which is eager to continue working with interested IOUs on outreach, education, training, and benchmarking. These efforts will promote best practices in resource management including energy, water, air and GHGs. Energy savings potential is predominantly in refrigeration, pumping, and water heating and treatment. The wine segment's demand peaks in summer and fall, related to refrigeration during crush, making refrigeration improvements especially attractive. Interest in emerging technologies has been strong.

Food Processing, Refrigerated Warehouses

Off-site refrigerated warehouses are highly specialized, energy-intensive, technology-oriented facilities focused on staying competitive with operators in nearby markets. They are comprised of, or associated with, wholesale facilities, public and private refrigerated warehouses, food and beverage processors, and perishable product cooling and packaging operations. As they handle a wide variety of seasonal products, loads can vary dramatically between facilities. Significant energy savings opportunities exist in facility retrofits and improved new facility design, as captured in the Agricultural Strategic Plan. Activities identified in the Agricultural Strategic Plan include expanded education and training and best practices dissemination directed at facilities designers and operators, the refinement of the DOE-2.2R energy modeling tool utilizing national funding and support, and incorporating codes and standards. The ability to float refrigeration loads through peak periods with controls software has shown great initial success in the 2006-2008 program cycle for demand response.

Water Irrigation Districts and Agencies

The water and wastewater industry (North American Industry Classification System prefix 221) collects surface water or groundwater, treats water to agricultural or potable standards, transports water to local distribution networks, delivers water to end users, and finally, collects and treats wastewater for discharge into the environment. IOU customers in this sector include large public agencies and private water supply utilities, can include wastewater treatment districts, and integrated water and wastewater utilities. IOUs may address the last two sub-segments in Commercial or Industrial segments. Irrigation and power districts located in California's Central Valley are also large users of electricity and natural gas.

b) List measures

Technologies addressed through this program effort include pumping, refrigeration, process loads, process heating, lighting, and plug loads. Incentive levels will be offered through the Agricultural Calculated Energy Efficiency Program and the Agricultural Deemed Energy Efficiency Program, described in full in their respective Program Implementation Plans.

c) List of non-incentive Agricultural Energy Advisor Services

The Statewide Agricultural Energy Efficiency Program includes a wide variety of non-incentive program services. These services are intended to support customer strategic

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planning, educate and train customers and the workforce about energy efficiency, and provide customized technical and project support. The service list may include and is not limited to:

- Energy Audits
 - Remote energy audits;
 - Integrated energy audits;

 - Benchmarking (currently limited to portions of an agricultural facility with commercial spaces);
 - Pump tests and pumping systems technical support; and
 - Water leak detection services (new service).

- Continuous Energy Improvement (CEI)
 - Energy management assessments;
 - Energy planning;
 - Baselineing and benchmarking;
 - Project implementation support; and
 - Customer recognition.

- Customer Education and Training
 - DOE basic, intermediate and specialist training on agricultural and industrial pumps, motors, compressed air, and steam;
 - Other industrial process systems training;
 - Agricultural pumping efficiency seminars;
 - Workshops merging regulatory compliance with energy efficiency opportunities (such as with NO_x compliance and boiler retrofits); and
 - Integrated industry-focused workshops, such as for wineries, dairies, greenhouses, and food processors.

- Workforce Education and Training
 - The Statewide WE&T crosscutting program effort will be leveraged to deliver targeted training to the agricultural sector to support Superior Energy Performance (SEP), ANSI and ISO energy management certification;
 - Title 24 training, such as for refrigerated warehouses; and
 - Industrial refrigeration best practices (for designers), in support of the Strategic Plan focus on refrigeration.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by

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reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies³.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical, 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴. Markets are social institutions⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁷. According to York⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

Market transformation draws heavily upon diffusion of innovation theory¹⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹². The ability to make causal connections between these market transformation effects and any particular program’s activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for

² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>.

⁴ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>.

⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.ecee.org/conference_proceedings/ecee/2001/Panel_2/p2_7/Paper/.

⁶ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

¹⁰ Rogers (1995) *Diffusion of Innovations*, 5th Ed.

¹¹ Example in bottom chart of this graphic from the New York Times: http://www.nytimes.com/imagepages/2008/02/10/opinion/10op_graphic.ready.html.

¹² Sebold et al (2001) p. 6-5.

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programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are.

First and foremost, they need to be designed specifically to address market transformation. “The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)”¹³ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁴, but also reflects the CPUC’s directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the IOUs look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin’s guide for MT program developers¹⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The baseline response pattern to the AKA scale

¹³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume I.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

¹⁴ CPUC (2008) Strategic Plan, p. 5.

¹⁵ Nadel, Thorne, Saches, Prindle & Elliot (2003).

¹⁶ Pelosa & York, (1999).

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would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a behavioral-based metric for this sector, a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies, to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

Therefore, for the Agricultural sector, the following approach to quantitative baseline and market transformation information is as follows:

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Statewide Agricultural Energy Efficiency Program (Resolution E-4385, Appendix A, pp. 32-34).

SW PROGRAM / Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED * Data to be reported in disaggregate form by SW program (commercial, industrial, and agricultural)		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub-programs (NRA, Deemed, Calculated, and CEI) by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and	2a

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	by Hard to Reach (HTR)**	
	** “HTR” is as defined in the EE Policy Manual	
<i>Continuous Energy Improvement (CEI)</i>	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short-term (2010-2012) milestones as identified by their long term energy plans.	2a
	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N)	2b
	*3. Number and percent of commercial, industrial and agricultural customers that created an energy plan via CEI will be tracked by program.	2a
<i>Energy Advisor (EA)</i>	*1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.	2b
	*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices. (Report disaggregated data by type of audit – Basic and Integrated,) **(1) **Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates. (1) – An audit completed in one portfolio may have measures implemented over several years and portfolios.	2b
<i>Deemed Incentives</i>	*1. Number and percent of new, improved, or ETP measures** installed in the commercial, industrial and agricultural programs. ** “ETP measure” defined as ET measures first introduced into the EE portfolio since January 1, 2006.	2a
<i>Calculated Incentives</i>	*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.	2a
AGRICULTURAL		
	1. Number and percent of first-time** participants in energy efficiency programs. (Report disaggregate data by sub-program.) ***“First time” means customer has not participated in energy efficiency programs since December 31, 2005.	2b
<i>Pump and Test Repair</i>	1. Percent of agricultural pump tests that lead to a repair or replacement.	2b

b) Market Transformation Indicators (MTIs)

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Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in “Attachment H” are approved for this sub-program as applicable.

c) Program Design to Overcome Barriers

The Statewide Agricultural Energy Efficiency Program builds on past program successes and best practices to overcome both market wide and segment specific barriers to efficiency, including:

- Market-wide barriers:
 - Agriculture is a diverse and geographically widespread sector, dependent on regional resources for information, and traditionally needs significant experiences to warrant changing practices that has served them well for years.
 - Capital constraints, combined with variable commodity pricing, limit the availability of funds for investing in projects.
 - The Statewide Finance PIP includes plans to explore and develop additional finance tools to facilitate the adoption of integrated projects.
 - Low energy costs relative to other operating expenses reduces the motivation to invest in energy efficiency.
 - Lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings hinder investment.
 - As in many industries, cyclical budgeting processes makes it difficult for customers to commit to a plan of action if their decision making occurs out of sync with budget planning.
- Food processing and industrial refrigeration barriers:
 - Few firms maintain facility level energy managers, and finding technically qualified staff is an ongoing challenge.
 - Regulatory compliance issues further strain limited internal resources.
 - International competition drives short-term survival attitudes versus a long-term continuous improvement approach.
 - The industrial refrigeration industry lacks design standards and best practices, resulting in substandard design and maintenance.
 - Huge capital outlay requirements in industrial refrigeration can delay or offset efficiency projects.
 - Efficient design alternatives can be lost in low-cost bidding scenarios.
 - Whole system opportunities are missed by individual equipment vendors.
 - Customers are often not aware of systems operating sub-optimally.

The Statewide Agricultural Energy Efficiency Program takes these barriers into account with the features described below for continuous improvement, trade ally workforce education and training, and technical support.

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Continuous Energy Improvement

The long-term strategic energy planning approach of CEI, especially the emphasis on benchmarking, goal setting, and performance tracking, will help customers overcome short-term attitudes. CEI also fosters integration of non-energy business objectives into energy planning and leveraging of the co-benefits of water conservation, GHG reduction, and other relevant issues. This integration elevates the importance of energy efficiency and improves uptake and market penetration. In addition, top-down corporate attention and tracking of energy performance will positively affect facility staff performance.

Trade Allies/Workforce Education and Training

Customers in the agricultural and food processing markets often treat vendors, designers, and engineers as ad hoc outsourced technical resources. These customers ask for everything from new equipment design to emergency equipment repair or replacement. Because these transactions often happen without IOU knowledge, it becomes critical to continually inform and equip these vendors about efficiency technologies, practices, programs, and rebates. Vendor Participation Agreements, training, and outreach collaboration allow participating vendors to up-sell customers to efficient options and differentiate themselves on energy efficiency. IOUs gain an additional sales force in the field with customers, minimizing lost opportunities.

Technical Support Services

The role of the IOU as an unbiased, trusted energy advisor cannot be overstated, both in evaluating proposed vendor projects and in identifying new technical opportunities in retrofit and new construction projects. The combination of technical support and the availability and commitment of approved IOU incentive funds – based on a rigorous technical review and followed by an EM&V process – are essential drivers to overcome key customer barriers, including the lack of in-house technical resources and the tendency for efficiency options to get eliminated in low-cost vendor bidding scenarios.

Agricultural Energy Advisor (AEA)

AEA is designed to deliver a coordinated and customer-specific audit service. AEA features a statewide integrated demand-side management customer-specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies, as appropriate, to the customer's need(s).

The AEA is designed to support the goals of the Strategic Plan by providing customers with comprehensive building-specific information on cost-effective DSM opportunities. The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

d) Quantitative Program Targets

Table 5 - Program targets are provided at the sub-program level.

e) Advancing Strategic Plan Goals and Objectives

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The teams of statewide agricultural program supported the development of the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan), and the 2013-2014 program design integrates the goals and strategies of the Strategic Plan. Specifically, the following actions will be advanced during the 2013-2014 program cycle.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

Strategy 1.1: Develop knowledge base of efficiency solutions.

Near term: Conduct an energy use characterization and efficiency potential study for the statewide agricultural market. Include potential for waste streams to offset energy consumption. Study plan (6/2009) and study completed (12/2010).

Near term: Collect data on key programs and measures best practices for energy efficiency in the agricultural sector. Study completed (6/10).

IOUs will continue to coordinate with the California Energy Commission (CEC) and other resources to identify a study plan, scope, and deliverables for a statewide agricultural market characterization that considers integrated energy opportunities in the segment. If possible, the plan will be coordinated with other agricultural characterization plans planned or underway in the state focusing on renewable energy potentials, such as the California Department of Food and Agricultural's strategic plan for agriculture. The IOUs will defer to the Commission and the CEC to determine the best method and timeline for this study, and will ensure coordination between each IOU's EM&V groups towards study objectives.

Such a marketing characterization will support the development of future program baseline data and metrics to help set targets and show market progress. The resulting study will be posted on appropriate websites, including the IOU websites and the statewide websites.

To develop a "one stop shopping" clearinghouse of energy management and related information for the agricultural segment, the IOUs will organize and post all relevant existing technical information on the IOU and statewide websites, as needed. This information includes best practices, continuous energy improvement resources, emerging technologies data, tools, programs, and other information.

Strategy 1.2: Ensure workforce has information and training necessary to apply efficiency solutions.

Near term: Conduct workforce training needs assessment and next steps (12/2010).

Near term: Develop training curricula and modules identified by needs assessment. (12/2011)

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IOUs will assemble technical sub-groups, including IOU and industry experts, to focus on the key technical areas identified in the Strategic Plan, such as pumping, refrigeration and process heating. Coordinating with Statewide WE&T Program, the Statewide Agricultural Energy Efficiency Program will develop a scoping document that outlines training objectives and partners. The group will identify priority topics, resource needs and industry partners for key workforce education and training, and will closely coordinate with the national ANSI Superior Energy Performance standards development work towards workforce certification. Additionally, IOUs will offer prerequisite training to support future Department of Energy certification classes.

Workforce training needs assessment will be included in the agricultural market characterization study, and results communicated to the Statewide WE&T team for coordination and development of a detailed WE&T plan and associated curricula. Furthermore, marketing for WE&T will be incorporated into program specific marketing and outreach efforts. Such efforts, pending timely completion of the characterization study, are targeted for completion by the close of the 2010-2012 program cycle.

Strategy 1.3: Conduct research & development of new technologies and practices for agricultural efficiency.

Near term: Conduct an Energy Technologies/RD&D gap analysis. Identify and prioritize needed RD&D/ET projects. (12/2011).

Near term: Coordinate research activities across government, IOUs, agricultural extension and university programs, and equipment manufacturer proprietary efforts.

The IOU's ET teams will continue to closely coordinate with the CEC, universities and industry associations to identify key potential areas for emerging technologies development and research needs, such as, for agriculture, in irrigation pumping, refrigeration, and process heating applications. IOUs will identify the most promising technologies that can play a role of providing multiple solutions, both for energy efficiency and greenhouse gas mitigation, as well as water efficiency purposes.

Goal 2: California regulations, financing mechanisms, and incentive programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

Strategy 2.1: Set objectives and framework for agriculture to attain multi-resource management goals.

Near term: Establish a task force to coordinate resource management policies, action goals, and program designs targeting California's agricultural sector.

Near term: Identify where goal conflicts arise and resolve these conflicts.

Near term: Assess potential for integrated approaches.

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In support of statewide regulatory coordination, the IOUs will establish a task force with the California Department of Food and Agriculture (CDFA), CEC, Environmental Protection Agency (EPA), and the California Air Resources Board (CARB). The task force will be empowered to coordinate strategies and goals, and also assess the potential for integrated approaches, on behalf of their agencies. In order to facilitate this complex, multi-agency coordination, intervention at the governor's level is likely to be required.

Strategy 2.2: Coordinate technical assistance, funding, and incentive mechanisms.

Near term: Identify the programs and major funding sources affecting the management of energy, air and water resources, and climate change.

Near term: Create a collaborative forum to facilitate sharing of information and coordination of programs.

As challenges to the national and state economies arise, deploying financial resources in support of energy efficiency and other resource efficiency will be increasingly important. In support of financial coordination, IOUs will work with appropriate agencies, utilities, industry and private banking to assemble a comprehensive list of incentives, resources, funds, grants, loan products, and federal economic stimulus monies. This list will support energy and other resource management objectives, made available to customers through the planned Information Clearinghouse on Energy Design Resources.

In addition, financial resources will be integrated into marketing and outreach, education and training, and other program efforts, as appropriate.

Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

Strategy 3.1: Make information on efficiency solutions readily available to motivate efficiency improvements.

Near term: Develop benchmarking resources, tools and methods for the agricultural sub-sectors.

Near term: Design and launch focused program for irrigation efficiency, refrigeration, and process heating.

The IOUs will post relevant market data, technical information, education and training resources, and benchmarking tools, other than proprietary material or information, on the planned Energy Design Resources or other statewide clearinghouse websites. This information will cover relevant technologies in agricultural and food processing segments, but will have a focus on irrigation efficiency, refrigeration, and process heating. The Continuous Energy Improvement Program will also support this strategy. On benchmarking, the IOUs will continue to work with industry associations (for example, the Wine Institute, Almond Board, and Farm Bureau) to prioritize benchmarking needs and to

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develop tools and methods, as well as to market benchmarking once resources are available.

Strategy 3.2: Conduct marketing & outreach to stimulate efficiency actions.

Near term: Develop ME&O strategy, addressing communication channels, partners, and effective messaging.

Near term: Begin pilot implementation.

For details on marketing and outreach planned to stimulate energy efficiency actions, please refer to Section 6.b.iv.

Strategy 3.3: Resolve metrics for embedded energy in water savings.

Near term: Update evaluation measurement & verification protocols to define energy impacts of water efficiency actions.

Near term: Design and conduct appropriate water/energy efficiency pilots for agriculture.

In support of the significant efforts underway in California to conserve water resources and to optimize public funds where energy and water converge, the IOUs will work with the Commission, water resources boards, and others to resolve metrics around embedded energy in water conveyance and treatment. Furthermore, IOUs will explore opportunities for saving energy on-site related to water, such as that in heating, cooling, pumping, and treating water. Lessons learned from current water-energy pilots, underway in one IOU's territory, will be shared with the other IOUs. The IOUs are willing and available to work with the Commission to advance these important multi-resource efforts through studies, pilots and partnerships with water agencies as appropriate.

6. Program Implementation

a) Statewide IOU Coordination

i. Program name: Statewide Agricultural Energy Efficiency Program

ii. Program delivery mechanisms

The SoCalGas Agricultural Energy Efficiency Program will ensure the program is continuously updated and enhanced throughout the two-year implementation cycle. This also includes coordination with crosscutting program elements, including Emerging Technologies, Codes and Standards, Workforce Education and Training, Marketing and Outreach, and Non-IOU programs and market initiatives. Each designated IOU program lead will be responsible for representing key updates from each crosscutting program element in order to discuss opportunities for statewide program enhancements, modifications and further coordination as needed. IOU leads will then be responsible for incorporating program modifications at the IOU level to support statewide consistency when appropriate. Such items will be tracked in the meeting minutes to facilitate a record of statewide initiatives.

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In addition, the four agricultural sub-programs will be coordinated statewide to unify program implementation including delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The two coordination systems (one for the broad core program and one designed for the five sub-programs) will interact with and support one another. The broad, high-level coordination effort is described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Agricultural Energy Efficiency Program.

The Statewide IOU Coordination process for the SoCalGas Agricultural Energy Efficiency Program will be as follows:

- **Designate an IOU Program Lead** – The coordination process will begin with each IOU designating a Statewide Agricultural Energy Efficiency Program lead. The IOU lead will represent one agricultural sub-program and liaise with the crosscutting program element managers, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges may impact the Statewide Agricultural Energy Efficiency Program across multiple sub-programs or the statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.
- **Establish protocols for Steering Committee Meetings** – The IOUs will coordinate to establish protocols around scheduling meetings, agenda setting, interstate travel, meeting minutes and tracking of action items identified.
- **Hold Quarterly Steering Committee Meetings** – The Agricultural Steering Committee will be comprised of all designated IOU leads (including at least one lead for each of the five sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the quarterly Steering Committee meeting, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be shared with all IOUs. The Steering Committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the agricultural program's progress against statewide metrics and goals.
- **Adopt Program Enhancements** – After the Steering Committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide Steering Committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.
- **Evaluate Program Enhancements Against Statewide Targets** – To complete the adaptive management loop, the Steering Committee will track the program's accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Steering Committee will

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determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and help ensure achievement of statewide targets across IOU service territories.

iii. Incentive levels

Details on the incentive levels are discussed with each of the four sub-programs.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The IOUs will continue to develop in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the agricultural sub-program plans.

To specifically address this highly diverse and dispersed group of agriculture, food processing and related water customers, IOUs will continue to foster strategic partnerships with industry and commodity groups, as well as with regional farm and food associations. These partnerships engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. These strategies leverage both past program successes as well as best practices studies that have confirmed that the targeted market segments rely substantially on local and industry-specific organizations for information and support.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The SoCalGas Agricultural Energy Efficiency Program will support integrated marketing opportunities for distributed generation from biogas, biomass, solar, fuel cells, and wind, as well as agricultural-based community-scale generation projects. These efforts support customer needs and wants, state renewable energy targets (through newly available small generator Power Purchase Agreement contracts), AB 32 greenhouse gas reduction targets, and emerging carbon markets and offset programs (such as the Chicago Climate Exchange or through the California Climate Action Registry). Consistent with California's preferred loading order, however, the IOUs will continue to aggressively market and support energy efficiency first, as California's most cost-effective energy resource, while also being mindful of the customer's ultimate interests and goals.

vi. Similar IOU and POU programs

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IOU program activities will be coordinated with other agencies' and organizations' territories containing a substantial agricultural base, as opportunities present themselves. This will ensure that California's agricultural customers receive consistent messages.

b) Program delivery and coordination

i. Emerging Technologies program (ET)

The long-term energy efficiency vision of California can be attained through the continuous development, verification, and acceptance of new technologies into the market. IOU portfolio staff actively works with statewide emerging technologies staff to identify new emerging technologies, support evaluation and demonstration, develop and promote case studies, and market results to applicable customers towards total market penetration. The programs coordinate specifically with universities to supply market-ready and viable technologies into the ET portfolio.

The IOUs will use a formal technology integration process for incorporating emerging technologies into the program. This process will be designed to track technologies/tools to be assessed, timeline to deployment, integration, codes and standards actions, expected actions of other players (such as manufacturers and ENERGY STAR) and other related information. The statewide program management team will work with other partners to update and execute the technology integration process, based on developments in technology, the program, and the market context. This process will be updated regularly to reflect current conditions.

ii. Codes and Standards program

The SoCalGas Agricultural Energy Efficiency Program relies on the Codes and Standards Program to help maintain an updated and relevant list of measures that will support agricultural savings. As codes and standards evolve, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning and Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. In the Statewide Agricultural Energy Efficiency Program, current work focuses on transitioning the market to accept new refrigerated warehouse code changes, and incorporating best practices and advanced refrigeration practices into that marketing and outreach effort. Towards that end, the Statewide Agricultural Energy Efficiency Program will continue to coordinate closely with crosscutting Codes and Standards, Workforce Education and Training, and industry partners and associations, and will utilize the Statewide Agricultural Steering Committee to enhance the coordination effort.

iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others supporting the market transformation strategies of the Strategic Plan. In general, the

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SoCalGas Agricultural Energy Efficiency Program will interface with the WE&T Program Implementation Plan to serve the goals of the Strategic Plan.

WE&T efforts will include specific activities to support the various sub-programs. In addition, training on Title 24 code changes, industrial refrigeration best practices, and ANSI Superior Energy Performance certification will also be provided. The latter will be contingent on program developments occurring at the national level.

In the interim, the statewide agricultural program will support the same superior energy performance concepts and principals through Continuous Energy Improvement workshops available for customers and trade allies. Additionally, DOE process system trainings (pumps, motors, steam, and compressed air) will be offered by IOUs statewide to lay the groundwork for certification level classes, once they have been developed nationally and are ready for rollout. The IOUs will be coordinating closely with national efforts and have expressed openness to discuss piloting certification classes. As a result, California will be poised to adopt this national standard and be a leader in this effort.

The education and training generally takes place through IOU energy centers, technology test centers, and education and training program offerings. Working with the Statewide WE&T team, the agricultural program managers will also expand training opportunities to local universities and academic institutions that have agricultural-based programs (e.g. Cal Poly Pomona and San Luis Obispo).

iv. Program-specific marketing and outreach efforts

The IOUs are currently engaged in in-depth market segmentation analyses. The results of this work will be shared among the IOUs and incorporated into detailed marketing and sales strategies to ensure the IOUs are targeting the right products to the right customer at the right time, and utilizing the preferred method of communication.

This foundational segmentation and integration of programs and services will provide insight into customer mindsets, behaviors, responses and motivations to achieve the most effective level of energy use. Based on this in-process segmentation analysis, the IOUs will be able to focus on providing consistent marketing and overall messaging focused on customers' business and personal goals, unique needs, and specific environmental considerations.

The results of this strategic planning effort will help define successful program outreach efforts to address the diverse agricultural, food processing and related water customers segments. Such efforts are customized to suit the unique needs of each segment and customer profile. See the marketing section of 5.c, Program Design to Overcome Market Barriers.

For example, IOUs will continue to foster strategic partnerships with industry and commodity groups, and regional farm and food associations to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users.

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Specific efforts may include:

- Attending Farm Bureau meetings and providing information in monthly newsletters;
- Close partnerships with key industry associations and participation in their annual conferences, with an effort to develop conference speaking engagements;
- Presence at technical conferences, targeting customers and trade allies;
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement;
- Media campaigns focusing on trade magazine ads and articles, discussing IOU program information and case studies;
- Targeted customer efforts through assigned IOU account representatives and program engineers, third parties, and government partnerships;
- Phone and web-based customer support and outreach;
- Development of coordinated statewide agricultural and food processing resources into a centralized “one stop shopping” clearinghouse, on Energy Design Resources; and
- Market sector specific collateral that drives customers to account representatives and/or Web sites for additional support.

Such efforts have already shown success in California’s IOU programs and are identified as best practices in the American Council for an Energy Efficient Economy (ACEEE) comparative analysis of national agricultural energy efficiency programs.

Where possible and applicable, the IOUs will coordinate statewide in these targeted marketing efforts and partnerships to ensure cost-effectiveness and a consistent approach to customer-facing activities. Cost-sharing at industry conferences, co-sponsoring workshops, and identifying opportunities for statewide media campaigns as well as co-development of web-based tools and resources will be pursued.

The Energy Design Resources website will be used as a statewide clearinghouse of best practices, technology information, case studies, updates on upcoming education and training, and to promote new tools and resources available to support the Continuous Energy Improvement approach, such as benchmarking and performance tracking tools.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

Refer to Section 6.f on “integration across resource types.”

vi. Non-IOU programs

There are a variety of programs that will be coordinated with and leveraged in support of the program objectives. These include:

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- Connecting customers with the CA Climate Action Registry;
- AB 32 support through CO2 tracking in program resources;
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations;
- Non-IOU financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives;
- Water/Energy efforts within California;
- ANSI, for the Superior Energy Performance Standard; and
- ISO international energy management standards.

The program will continue to engage with Air Quality Management Districts, the California Energy Commission, the California Air Resources Board, the Department of Energy, water agencies, and other government agencies on programs impacting regulatory compliance and resource management.

vi. CEC

As of June 2012, PIER no longer exists. However, the program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies.

viii. CEC Work on Codes and Standards

As indicated in Section 6.b.ii, planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The Statewide Agricultural Energy Efficiency Program will coordinate with applicable market initiatives to leverage market momentum and areas of mutual advantage.

Modeling on the success of the IOU partnership with the wine industry California Sustainable Winegrowers Alliance, the program may leverage the following efforts:

- California League of Food Processing;
- California Farm Bureau Federation;
- California Citrus Grower;
- Almond industry sustainability energy planning;
- Wine Industry – CSWA Program initiative;
- Dairy Industry;
- Irrigation Districts; and
- ASHRAE / ARI efforts to develop refrigeration best practices.

c) Best Practices

- As described in prior sections, the SoCalGas Agricultural Energy Efficiency Program reflects the best of each IOU program's successful components of statewide agricultural

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program offerings, and introduces new elements from other utilities and national efforts. These best practices include: Leveraging Local Agricultural Resources: i.e., industry associations and farm bureaus;

- Continuous Energy Improvement: An approach to transform the market and reduce energy intensity through addressing technical and management opportunities;
- Technical Assistance: Recognizes the need for personalized assistance for agricultural customers, which includes a full service approach starting from audits/pump tests to design and technical assistance, presentation of recommendations, resources to develop a long term plan, potential of project management assistance, with financial incentives and guidance on best practices.
- Vendor Partnerships: This strategy will be coupled with vendor support and educational workshops and classes provide the full breadth of support customers may need to influence their decision to implement energy efficient equipment and practices.
- Statewide Coordination: In order to take advantage of the statewide implementation of the program, the IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.

d) Innovation

A bundled and integrated product and service offering will integrate with multiple resource management solutions, offering a new and customer-centric approach to programs. This is supported by innovative customer segmentation work by the Marketing and Outreach IOU teams. Significant innovative aspects of the SoCalGas Agricultural Energy Efficiency Program include:

Integration

The Statewide Agricultural Energy Efficiency Program integrates demand side management strategies, and develops methods and pilots to promote integration of interlinked environmental and resource management issues. By improving the coordination of these issues of paramount importance to the industries being served, more face-time will be possible with large customers, projects will become more cost effective, and multiple problems will be solved concurrently. Specifically:

- Continuous Energy Improvement will foster a long-term energy management approach and support integrated demand side management.
- An innovative food processing pilot will integrate energy, air, water, GHG, and (potentially) waste streams.
- Integrated Comprehensive Energy Audits will provide targeted customers with integrated solutions in efficiency, DR, and DG, and may advise customers on other sustainability practices (for example, water conservation opportunities, CO2 reduction potential, and other programs references).
- IOUs will link customers with the California Climate Registry to identify the carbon footprint of a customer's plant.
- IOUs will promote innovative agricultural opportunities such as dairy biogas to energy, biogas injection, waste stream utilization, and community scale generation opportunities.

Marketing

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- A market-sector approach to designing and delivering programs will allow IOUs to delve more deeply into market opportunities and overcome specific market barriers. This approach is supported by innovative market segmentation work currently underway at IOUs that will support development of new, precisely targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs.
- Closer coordination with third parties, government partnerships, core programs, and other delivery channels will optimize portfolio performance.
- IOUs will increase outreach to new trade and community-based associations, leveraging best practices identified in ACEEE study of IOU agricultural programs.
- Expanded workforce education and training efforts with vendors, design teams, industry association members and other key market actors will help overcome many customer informational and transactional barriers
- Energy Design Resources, developed statewide by IOUs, will be expanded as a web-based hub of agricultural and food processing best practice information, training, modeling and performance tracking tools.
- Training will be provided on modeling and quantifying savings opportunities through tools such as eQUEST and Energy Pro.
- Non-IOU financing tools and resources will be coordinated and communicated to help customers leverage available sources of funds to complete targeted projects.

Implementation

- IOUs will coordinate on process improvements to statewide programs to ease participation barriers.
- Energy performance measuring and benchmarking assistance/services to customers will enable customers to compare themselves to “best in class” peers utilizing tools such as the U.S. EPA’s ENERGY STAR Benchmarking tool.

e) Integrated/Coordinated Demand Side Management

An integrated portfolio is cost-effective, captures program delivery efficiencies, and serves the needs and wants of customers who prefer a single, informed IOU point of contact to help inform and prioritize their energy investment decisions based on their unique needs. Consistent with Commission direction and with the Strategic Plan, the Statewide Agricultural Energy Efficiency Program includes integration of energy efficiency, demand response and distributed generation programs in integrated audits, marketing materials and industry-specific workshops. To this end, the statewide IOUs and the Statewide Agricultural Energy Efficiency Program has made progress in advancing integrated solutions.

The IOUs are placing major emphasis on marketing to get the right message to the right customer at the right time. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which outline multiple tactics, delivery channels and key messages to target to specific customers based on their specific needs. The IOU account representatives, who serve as the key customer point of contact, will be attending an integrated sales strategy and training program to ensure consistent delivery of portfolio offerings.

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Education and training, particularly workshops organized around a customer segment, provides an ideal situation to integrate customer energy solutions. IOUs will provide integrated workshops to dairies, wineries, and food processors. These workshops will cover topics, such as resources analysis and methods, conservation, efficiency, demand response, and generation topics and resources. These workshops provide opportunities for IOUs to cross-sell solutions and share key information from other IOU departments (for example, sharing biogas injection information at dairy workshops). They also provide opportunities to look at water, air, carbon credit and waste management issues.

As appropriate, Workforce Education and Training (WE&T) will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures. The Agricultural Program will coordinate with the WE&T group on curricula development and class planning.

The availability of a Continuous Energy Improvement approach, especially for the largest, most strategic customer accounts, will facilitate a thoughtful, integrated energy plan and will allow IOUs to stay engaged in supporting the progress of that plan.

Integrated comprehensive energy audits combine funds and resources of energy efficiency (EE) and demand response (DR) programs to provide integrated recommendations to customers. These audits provide customers with EE and DR recommendations and also provide general feasibility assessments for distributed generation (DG). Integrated comprehensive energy audits will be offered to customers with loads greater than 500 kW and all integrated audits will focus on EE, DR and DG options. In addition, the IOUs are developing an enhanced web-based integrated audit tool¹⁷ for customers and internal IOU personnel. The integrated audit tool will be the principal tool to provide IDSM information to customers with loads less than 200 kW and will be used by the CSI program for determining EE opportunities prior to installation of solar equipment. It will be capable of generating customer reports that include specific information on the costs and benefits of IDSM programs.

Emerging Technologies and CEC collaboration is expected to include pilot projects and market acceleration assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

f) Integration across resource types (energy, water, air quality, etc)

California's agricultural and related food processing sectors face a multitude of environmental and regulatory challenges that threaten their survival and competitiveness. In 2009, a severe drought is impacting California's farmers and increasing water pumping costs. In addition, new regulations aimed at improving air quality, water quality and reducing toxic

¹⁷ Integrated audit tool is referenced as a general term in the statewide PIPs; each IOU has a specific name for its tool. PG&E's tool is the Progressive Energy Audit Tool (PEAT). SDG&E, SoCalGas, and SCE's, tool is the California Integrated Customer Energy Audit Tool (CICEAT).

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environmental pollutants are proving to be expensive and disruptive to business as usual. Both these are impacting energy use and compliance.

The Agricultural Energy Efficiency Program proposes to leverage these challenges to coordinate with the regulating agencies and the programs they are operating in order to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. For example, the IOUs will continue to offer targeted trainings to customers who are sharing common regulatory challenges. In 2008 PG&E hosted three very successful workshops called NO_x – Comply and Save, which educated customers on impending regulations, requirements for their boilers, and the most efficient project options to consider for compliance. This workshop will be expanded statewide and offered at the other IOU energy centers. In addition, additional workshops will look at wastewater treatment options, refrigeration upgrades, and energy efficiency to meet AB32 targets.

IOUs will pursue opportunities to partner with water agencies to offer joint energy and water incentives to support projects that reduce both resources, which reduces project costs and improves payback.

An IOU is currently conducting a study to evaluate emerging water quality requirements in the state, and address best practices in comprehensive water related energy management in seven agricultural/food processing sub segments. The study will reflect statewide practice as much as possible. The results will be shared with the other IOUs, as well as posted on Energy Design Resources.

Where applicable, the program will integrate topics like GHG reduction and water conservation into targeted customer workshops, marketing and communications, building on a strong track record from the 2010-12 program cycle. For example, one IOU is currently conducting a series of winery workshops focusing on GHG reduction strategies, water management, Energy Management 101, and Green Building which includes materials and water. Ads and articles featured water savings opportunities and messaging.

g) Pilots

Traditionally agricultural customers are a high cost group to provide significant energy education to. They are geographically dispersed and typically time constrained. Energy efficiency is not a primary concern, and although the IOUs have established high value relationships with these customers, many times it takes more to get them to accommodate new technologies.

IOU Test Strategic Approach for Agricultural Segment

The IOUs may implement a Test Strategic Approach (TSA). The TSA is based on identifying agricultural sub-segments where the IOU(s) have strong relationships with an industry or trade association. The objective is to leverage the trade association's needs with IOU's knowledge and experience with energy efficiency, demand response and self-

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generation opportunity and solutions and in collaboration with the trade association leadership, educate sustainability and energy efficiency solutions to their membership.

This model is based on a successful effort implemented by the California Association of Winegrape Growers with Pacific Gas and Electric. For more information on their efforts, website link:

<http://www.cawg.org/CAWGProjects/SustainableWinegrowing/ProjectDescription.aspx>.

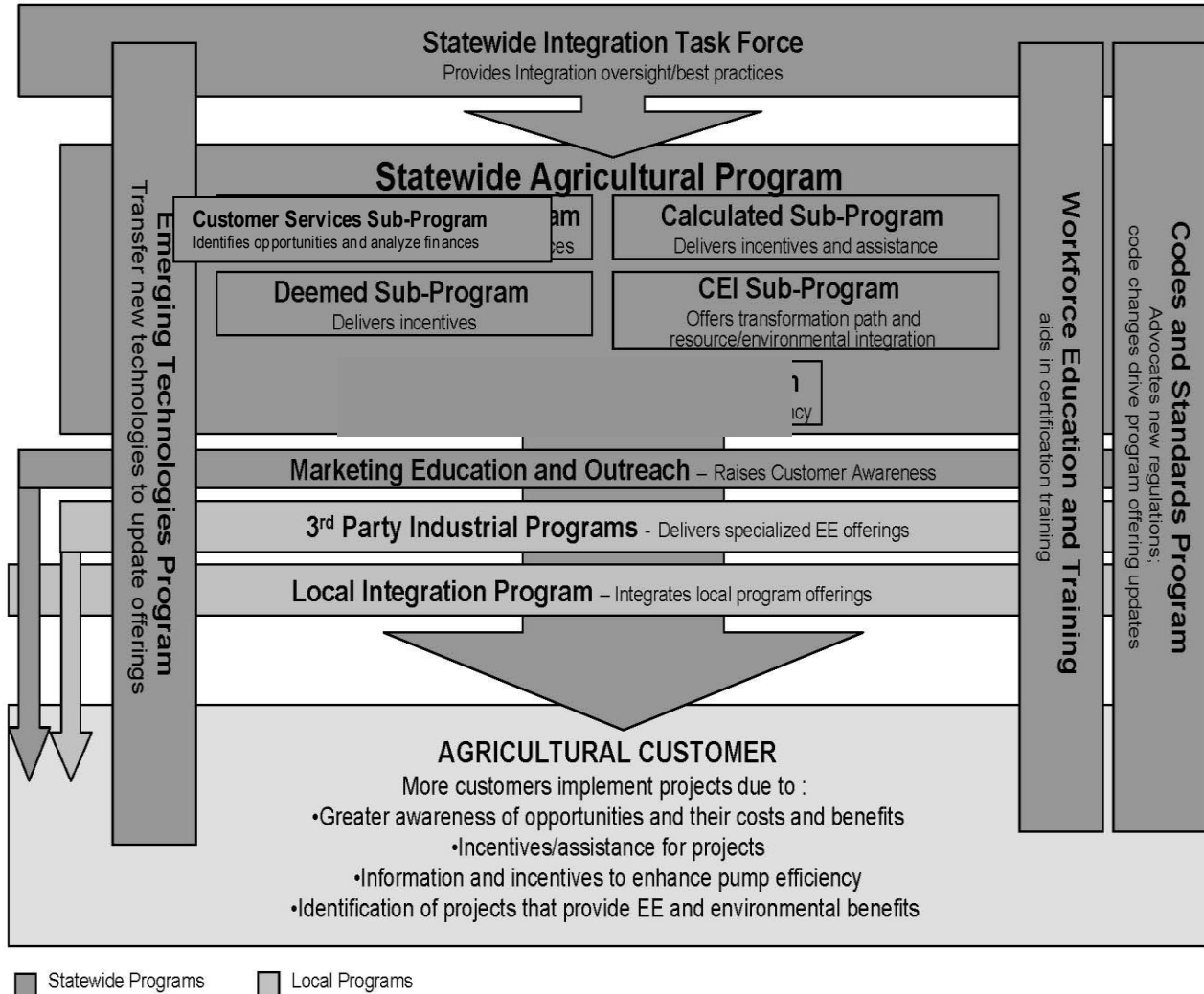
The IOU's intend on implementing methods to gather and retain more detailed performance and usage data on a pilot basis to determine the more effective methods to achieve savings. Exploring incentives for sub-metering is an option as is expanding the tool library in lieu of incentives.

h) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

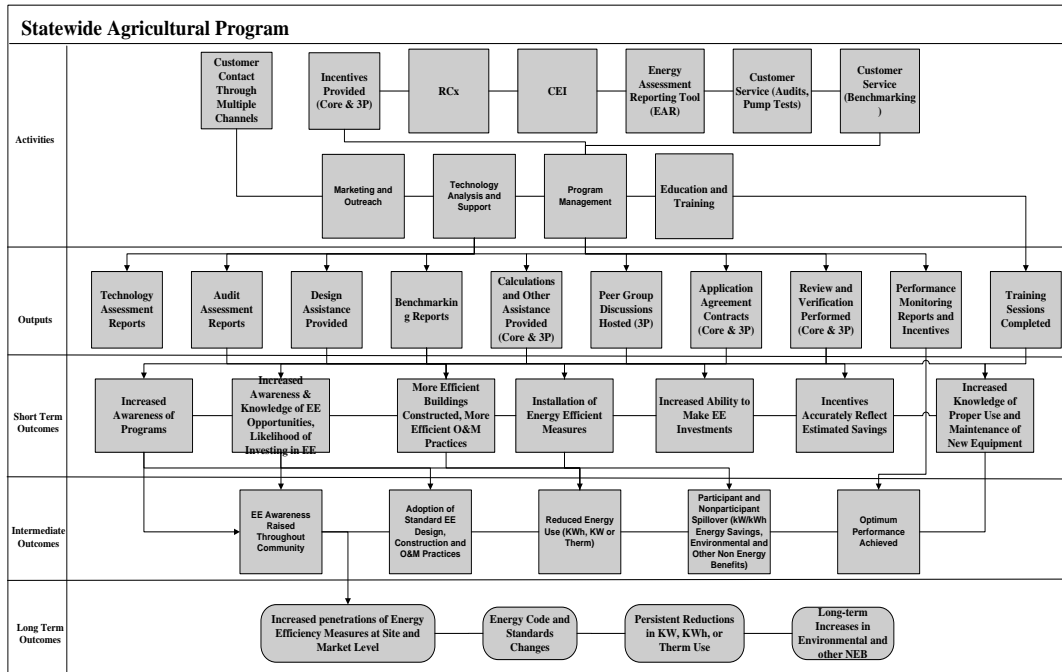
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7. Diagram of Program



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8. Program Logic Model



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1. **Program Name:** Agricultural Energy Advisor
Program ID#: SoCalGas 3717
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – See the overarching program for budget details.

3. **Projected Program Gross Impacts Table** – by calendar year

Table 2 - See the overarching program for savings details.

4. **Program Description**

- a) **Describe program**

The Statewide Investor Owned Utilities (IOUs) have created the Agricultural Energy Advisor (AEA) to bring together under one program all services offered to support customer education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

CPS was created to provide a streamlined and coordinated assignment of right-sized customer solutions. The key is to start the process with an initial analysis of a customer's needs, determination from the analysis which audit will service the customer with the highest cost/benefit, identify additional program support and key indicators that will motivate the customer to implement energy saving recommendations

The IOUs anticipate the restructuring of AEA will affect the way audits are provided. AEA will enhance the IOUs' ability to match customers' need(s) with the right audit service. This will result in an increased cost-effective delivery of these audit services with an increased expectation for customer adoption/installation of provided customer specific recommendations.

In its offerings, AEA will place an emphasis in deep energy saving measures and emerging technologies where appropriate. When the technologies and customer opportunities are correctly aligned, the customer will become more open to the benefits these technologies offer to their business and will therefore increase their acceptance and adoption.

Together the AEA offerings will work to support the achievement of Strategic Plan objectives across the agricultural sector.

The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

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The Agricultural EA package, consists of five distinct offerings:

- **Benchmarking** is the first step for a customer to begin to understand the energy use of their building. Benchmarking is an initiative designed to educate and motivate customers to measure and track the energy use of their facilities, educate customers of the benefits of benchmarking their facilities and how they can track the impact of energy savings after implementing energy saving measures. To support the customer's efforts, the IOUs will offer technical support, hands-on workshops that will provide customers with information on how to benchmark, how benchmarking can be used as an energy management tool and what to do next after benchmarking.

The IOUs will develop or continue Benchmarking initiatives that supports the customers' ability to comply with AB1103's benchmarking requirements (upon its implementation), utilizing ENERGY STAR Portfolio Manager and IOU supported Automated Benchmarking Services.

The IOUs will also continue to offer customers technical support ranging from email and phone hotlines, hands-on workshops and web-based benchmarking educational and instructional materials.

The IOUs will continue their support to identifying, evaluating and making information about other benchmarking tools available.

The primary focus for benchmarking activities will continue to be centered on commercial buildings within the agricultural sector (in alignment with the target building type of AB 1103).

- **Agricultural Continuous Energy Improvement (CEI)** Continuous Energy Improvement (CEI) is a consultative service aimed at helping agricultural customers (IOUs will target CEI services inline with market segment potential in their service territories and resource availability) engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of IOU customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices which address energy savings, reduction of greenhouse gas emissions and water conservation, through high-level energy commitments from executive and board-level management.

CEI offers customers the pinnacle of audit offerings guiding executive management to levels of energy management self-actualization that makes energy and environmental issues a consideration in all management/business operational

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decisions and in long term energy planning. For additional information about CEI, please consult the Agricultural CEI Program Implementation Plan.

- **Non Residential Audits (NRA)** for the Transition Period will provide Integrated Comprehensive Energy Audits (ICEA) that focus on customer energy savings, cost/benefits, and the targeted delivery of financial and technical assistance. Audit information must communicate complex information in a simple and understandable way to enable customers in identifying energy efficiency, demand response and distributed generation opportunities. Audits use “ex ante” Deemed and Calculated methodologies for energy savings analysis information.

As stated above, NRA offers ICEA. In Appendix A, each IOU defines the sub-categories of ICEA that they provide.

In this program cycle, emphasis will be given to meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), streamlining the audit process, increasing its efficiency, lessening complexity, and increasing the effectiveness of influencing customer implementation actions through actions such as integration of the demand response technical audit component directly into NRAs offerings. In addition, the IOUs will investigate ways to implement meaningful financial measurements such as return on investment and/or simple payback metrics. The key is ensuring that financial tools selected provide the customer with meaningful information by ensuring cost assumptions are appropriate to the customer. Also, NRA will assume the audit and budget responsibilities for Demand Response’s technical audit services, as applicable. It is intended that these audits will be a critical component of the integrated comprehensive audit service offering.

- **Pump Efficiency Services** is designed to help agricultural customers make informed decisions about improving inefficient pumping systems and operations through recommendations derived from pump test audit or direct observations of processes. Pumping of water is estimated to account for more than 80% of the electric load and 73% of the natural gas requirement in California’s agricultural segment, and this load is growing as the state’s water users increase their reliance on pumping water to meet their needs. Pumping is also estimated to account for 20 to 25% of energy usage within the nation.

The Pump Efficiency Services program element, implemented by a team of trained in house or third party contractors, aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, retrofit incentives, and targeted education, training and technical support for customers and pump companies. Each IOUs database of pump test results will be used in the near-term to target pumps in need of retrofit as a means to capture savings. However, pump performance data aggregation at the statewide level will contribute to the development of metrics and targets for pump improvements, in support of a statewide pumping focus on agriculture, supporting their strategies and objectives.

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The IOUs will continue to offer pump testing services at no or low cost and pumping system efficiency workshops through their energy education centers or other event opportunities during the Transition Period.

- **Retro-commissioning:**

Not Applicable.

The Transition Period will be used to develop and test the AEA design strategy. The strategy focuses on simplifying the way audits are provided to customers. Through various assessment functions, the IOUs will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (i.e. primarily EE, DR, and SG).

It is anticipated AEA will allow the expansion of audit serves across diverse class of customers, potentially across all segments and will interconnect the customer with the wide and diverse range of programs offered. From a customer perspective, the impact on customer time and resources will be reduced, the audit analyses will include DSM, greenhouse gas reduction information, provide water conservation recommendation all in a single report. The resulting report will identify comprehensive solutions that will simplify the customer decision-making process.

The primary program objectives for 2013-2014 are:

- Support the Strategic Plan by offering integrated audits across a wide selection that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed generation), focusing on agricultural facilities as defined by each IOU's market potential and resource availability.
- The continuation of delivering high value audit reports to the customer. Audit reports will be designed in such a way that they will provide the customer with information which motivates them to implement energy efficiency, demand response and consider renewable generation options.
- Enhance efforts to identify and provide financial analyses focused on deeper energy savings and technologies. Identify ways different financial metrics, such as return on investment and/or simple payback, can be provided where the values presented have meaning to the customer.
- The IOUs will explore and evaluate the potential of enhanced customer incentive options that are contingent on a customer's receiving an audit prior to applying to incentive programs.
- Incorporate new and/or emerging technologies appropriate for the customer's facility.
- Develop and implement enhancements to current Benchmarking workshops (targeting agricultural buildings) and continue providing Benchmarking and AB 1103 technical support through established and new delivery channels.

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- Encourage Statewide consistency by offering a similar energy audits with the ultimate goal of offering customers the best energy management practices and technologies.
- Enhance the AEA' offerings by including activities such as, but not limited to:
 - The highlighting of emerging technologies and deep energy savings opportunities and providing education on long-term energy planning/project management strategies (in coordination with CEI program).
 - Will continue existing water saving services and develop Leak detection services and strategies which will offer the service to customers in all customer segments as determined by the IOUs to provide customer benefits and cost-effective to administer. The services will, be offered through the use of audit teams, in house and/or contracted, and may be required as a service in the delivery of all integrated comprehensive audits.
- AEA will play a key role in exploring options regarding identifying deep energy savings, promotion of emerging technologies and providing the proper support to those customers who take advantage of more than three measures from Agricultural Deemed Incentive sub-program.
- AEA will develop processes to help energy audit teams and customers identify facilities and services that will provide the greatest return on benefits from the audit. The IOUs may explore leveraging tools to complete energy audits, usage analysis, assessments and/or building performance benchmarking as the first step in determining a customer's need.
- AEA may also enhance tracking and audit component capabilities to support customer needs analysis, reduce program application barriers, maximize recommendation follow up and streamline audit report generation.

b) List measures

The AEA primarily offers non-resource, auditing services. It does not offer incentives, but ultimately influences the customer's implementation of energy efficiency, demand response, and self-generation opportunities in combination with incentive from the core Agricultural incentive programs (refer to the Agricultural Deemed and Calculated sub-programs for specific information). However, each IOU reserves the ability to offer incentives specific to AEA's individual service offerings.

c) List non-incentive Agricultural Energy Advisor Services

The Agricultural Energy Advisor sub-program (AEA) is designed to deliver a coordinated and customer-specific service. AEA features a statewide integrated demand side management customer-specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer's need(s).

Such activities include, but are not limited to: energy management assessments, energy planning, marketing and outreach, baselining and benchmarking, project implementation

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support, technical support, energy savings calculations, process evaluations and report generation, and web-based energy resources.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The AEA offers services which change corporate/management cultures that prevent successful implementation of comprehensive energy policies. These offerings help overcome customers' lack of awareness of DSM opportunities by providing a customer focused, comprehensive package of energy solutions designed specifically to motivate the customer to implement recommendations. Information such as cost/benefit analysis (i.e. ROI or simple payback) and identification of appropriate IOU incentive and/or finance programs, can significantly enhance the financial benefit of the energy saving recommendation. AEA also provides customers with tools to measure the effects of implemented energy savings actions on their bottom line.

AEA brings together audits and related services to implement energy saving activities.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Number of Audits	63	65

e) Advancing Strategic Plan goals and objectives

The AEA is designed to promote DSM coordination and the integration strategies of the Strategic Plan. Foremost are recognition of the linkage between energy and environmental

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policy and the importance of integrating energy efficiency, demand response and distributed generation to support California's plan to reduce greenhouse gas emissions.

Specific near-term strategies proposed by the Strategic Plan that are addressed by the AEA include:

- Identify New and Improved Tools and Strategies to Reduce Energy Consumption in agricultural facilities.

Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the benchmarking, CEI, and NRA demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, industrial/ agricultural processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing agricultural facilities contribute to California's zero net energy goals. Once implemented, recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.

- State/Local Governments and Major Corporations Commit to Achieve EE Targets

AEA's offerings will seek to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop an actionable plan to achieve these goals; (4) guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

- Develop Tools to Reduce Energy in Agricultural Facilities.

As part of the implementation of specific AEA offerings, the IOUs will partner with energy industry peers, industry associations, and DOE/CPUC-sponsored labs and consultants to enhance the use of existing tools and explore new tools to help agricultural customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

- Management Standard for Energy SME2000-2008;
- LBNL Superior Energy Performance; and
- ISO-50001.

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- Develop Business Models to Deliver Energy Management Solutions

AEA's offerings will address the fundamental purpose to influence decision making practices from Agricultural, customers to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the agricultural market sector.

In addition, AEA's offerings promote acceptable practices of accounting, auditing, and evaluation by:

- Offering integrated and focused audits, benchmarking, savings calculation assistance for retrofit and simplifying the audit-to-project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action;
- Guiding and supporting customers as they implement technologies, processes and practices to achieve energy efficiency savings; and
- Long term energy planning support.

6. Program Implementation

- Assess and identify the best way to support the use of the BEARS tool.
- Enhanced current Benchmarking workshops and continue providing Benchmarking and AB 1103 technical support through established and new channels.
- Emphasize and support integration in emerging technologies and deeper energy measure opportunities.
- In coordination with incentive programs, identify ways to streamline the end to end process for customers wanting to participate in IOU energy saving programs.
- **Statewide IOU coordination**

i. Program name: Agricultural Energy Advisor Program

ii. Program delivery mechanisms

AEA will employ a variety of delivery mechanisms or channels. Most of AEA's offering will use IOU customer energy efficiency staff and contractors, service and sales representatives, website and/or marketing and outreach efforts. Other delivery channels may also be developed.

In addition, where applicable, IOU customer account representatives or program management staff will support this activity within the statewide agricultural sector, as well as third parties, government partnerships, and local programs.

iii. Incentive levels

Not applicable.

iv. Marketing and outreach plans

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A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs, in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs. Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost effectiveness of reaching customer groups.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

AEA's energy recommendations will continue to recognize the regulations required by other bodies. For example, information about GHG reductions resulting from AB 32 may be incorporated into the customer recommendations and to factor into the projects cost-effectiveness and water conservation information will be included in the reports as appropriate.

Program offerings will collaborate and support the CEC's AB 1103 mandate by assisting customers with technical and awareness activities. AEA will advance the introduction of the BEARS and California Rating Tool, where reasonable.

AEA recognizes the efforts of the CEC's Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs and will leverage such activities to the customer's benefit.

a) Program delivery and coordination

The sub-program will be coordinated with the following activities, as applicable:

i. Emerging Technologies program

The SW AEA Management Team will stay abreast of and incorporate relevant emerging technologies into audit recommendations as appropriate.

ii. Codes and Standards program

AEA implementation will include information about pending new codes and standards that may affect planning or prioritization of retrofit or new construction projects. Audits

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reports will include customer recommendations that are consistent with current governing codes.

iii. WE&T efforts

AEA implementation will integrate with WE&T efforts, as needed, by providing CSI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to integrate sector strategy approaches, as required.

iv. Program-specific marketing and outreach efforts

In 2013-2014, AEA marketing campaigns will provide a wide range of action-oriented solutions targeted to specific segments and subsegments of business customers. In addition, AEA marketing efforts too will be “bundled” as menu of demand response, energy efficiency and conservation programs providing customers with a full array of EE and DR opportunities. By providing packaged energy management solutions for each industry segment, the IOUs will be better able to communicate with and serve customers.

Marketing activities will target business customers and select effective channels to reach entities such as: trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support may be utilized.

Marketing collateral and messages for energy efficiency will be integrated with other IOU programs. Through additional market segmentation and feedback from customers, IOUs will further adjust approaches based on the varied needs of targeted customers. Additional sub-program marketing will be accomplished by leveraging local third-party programs. Specific IOU marketing budgets are provided in Table 1 of the core agricultural program.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The IOU’s AEA team will participate in Statewide and national efforts to develop and enhance audit, benchmarking and continuous energy improvement tools and practices. Such activities will likely occur in conjunction with ongoing industry efforts managed by

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the California Energy Commission (CEC), Consortium for Energy Efficiency (CEE), ENERGY STAR and the California Commissioning Collaborative (CCC).

CEI implementation will include non-energy activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy-related LEED points and definitions, and use of computerized financial analysis tools and cost estimating and forecasting tools

vi. Non-IOU programs

AEA reports will include information on non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. AEA will partner with programs offered by CEC, ARB, Air Quality Management Districts, ENERGY STAR, and other government and quasi-governmental agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to agricultural -sector customers, as opportunities present themselves.

With respect to water conservation, IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects (ESPM, BEARS, California Rating Tool, Water Agencies and others)

vii. CEC

SoCalGas will continue collaboration efforts with the CEC in energy efficiency tool development and seek to promote adoption of new technologies developed through the CEC's processes and to educate customers to demonstration, research and/or pilot projects. Specific AEA offerings will encourage recommendations addressing new technologies, processes, and methods, as identified in CEC projects, which will enable customers to achieve energy efficiency "stretch" goals that produce significant energy savings beyond an established baseline in a cost-effective manner.

viii. CEC work on Codes and Standards

AEA will not be implemented with a direct linkage to codes and standards efforts. Although AEA will reflect code regulation in its energy savings calculations as deemed appropriate.

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-IOU information and guidance that AEA offerings will provide to customers. In addition, the IOUs will participate in state and national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

b) Best Practices

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The IOUs will continue to leverage best practices and lessons learned at regularly scheduled statewide program management meetings. These meetings are forums to discuss program design and implementation issues, and as appropriate, provide statewide collaborated guidance in RFP solicitations and awareness of program offerings so customers operating multiple facilities across IOU service territories receive the same customer experience.

Other best practices approaches apply the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the agricultural market sector. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach will continue through the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

c) Innovation

For 2013-2014, the IOUs are identifying and evaluating program processes to increase effectiveness, simplification and increase the benefits the program delivers. Each IOUs set of lessons learned from these efforts will be shared and implemented to enhance energy savings benefits to all California IOU customers.

AEA will engage in a process of continuing improve as a new standard way of packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

Other AEA offerings may also consider specialized incentives approaches based on delivery, target markets and/or other opportunities.

d) Integrated/Coordinated Demand Side Management

AEA will provide a comprehensive approach for integrated audit services. Its services will have the flexibility of meeting every level of a customer's audits needs from integrated comprehensive audits to targeted or focused audits, which centers on specific systems or processes, to assessments or general walk through audits or online "do-it-yourself" audits (currently for small business customers), which when properly applied can assist in identifying the areas of a customer's greatest energy interest, financial capabilities of the customer's ability to invest in improving its energy use, and identification of other programs that can be brought into the discussion to motivate a customer to move forward with the energy saving plan.

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The scope of services offered can coordinate the audit to look for retrofit opportunities; with benchmarking tools, or long term planning. Audit reports can present a truly integrated analysis to customers, seamlessly providing them with information and recommendations regarding energy efficiency, distributed-generation, demand response, greenhouse gas emissions and water energy savings, Customers will be referred to other IOU programs that will help them implement the recommendations resulting from the audit report and thus will be given a complete picture of their energy usage and options for reducing costs and using energy more efficiently.

e) Integration Across Resource Types

AEA will focus on DSM integration.

AEA implementation will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IOU AEA managers will partner with the appropriate programs, when applicable, with government agencies to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers.

Conventionally, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote AEA offerings, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, IOU program managers will collaborate with the local water districts to produce marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

f) Pilots

AEA services may consider the development of test markets especially in the introduction of new energy benchmarking or saving tools.

g) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

7. Diagram of Program

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Please see the core program diagram.

8. Program Logic Model

Please see the Commercial Energy Advisor program logic model.

Audit Type Matrix

Audit Type	Description	Detail	SOCALGAS	SDG&E	PG&E	SCE
Integrated Customer Energy Audit		Phone	YES	YES	YES	YES
	The ICEAT audit is a customized audit specifically designed to help customers understand and identify their facility's energy use and provide concrete suggestions to maximizing energy efficiency (EE), demand response (DR), and distributed-generation opportunity as defined by the customer's need.	Online	YES	YES	YES	YES
		(Web-Based)				
		Onsite	YES	YES	YES	YES

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1. **Program Name:** Agricultural Calculated Energy Efficiency Program
Program ID#: SCG3719
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – reference the core program for budget details

3. **Projected Program Gross Impacts Table – by calendar year**

Table 2 - reference the core program for savings details

4. **Program Description**

a) **Describe program**

The purpose of the statewide Agricultural Calculated Energy Efficiency Program is to provide services to improve the energy efficiency of agricultural facilities in California, including financial incentives based on calculated energy savings. The energy savings are calculated for measures installed as recommended by comprehensive technical and design assistance for customized projects. Integrated projects are encouraged to combine energy efficiency and demand response. Eligible projects include new construction, and retrofit .

The Agricultural Calculated Energy Efficiency Program is part of a suite of programs within the Statewide Agricultural Energy Efficiency Program.

The Agricultural Calculated Energy Efficiency Program is utilized for projects where a rebate is not available through the statewide Agricultural Deemed Energy Efficiency Program, customized calculations provide the most accurate savings estimates, or interactive effects between measures are best captured through whole building or whole system modeling.

Because it presents a calculation method that can consider system and resource interactions, the program will become the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan.

Key features in the process include:

- Energy audits of facilities and processes which recommend efficient design alternatives and detailing energy savings and CO₂ reductions;
- Calculations/estimates of energy savings for exceeding Title 24 code or industry standard practice baselines;
- Technical assistance from IOUs in energy audits and calculated savings;
- Submission of project proposal for IOUs review and approval;
- Pre-inspection by IOUs for approved retrofit projects;
- Post-inspections on approved and completed projects to verify performance; and
- Payment of incentives from IOUs.

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Energy audits may be completed by customers directly or by authorized participants. Sponsors may include contractors, design teams, vendors, and energy service companies. The completed audit may then be submitted for review and approval.

For the energy audit feature, statewide consistent calculators are publicly available. The statewide IOU-created and maintained SPC Calculator can be used for retrofits and some new construction applications and is available online. For whole building construction projects, IOUs accept both Energy Pro, available for license, and the IOU-sponsored eQuest, available for free on the statewide Energy Design Resources website at www.energydesignresources.com, among others. Calculations must be submitted in open, unlocked, native format for review and consideration in the IOU's programs.

b) List measures

The broad range of measures eligible for incentives is summarized in the table below along with the current incentive levels. For detailed measure incentives, *see* Section 6.a.iii below.

The following measure categories are eligible for Calculated Incentives:

- Refrigeration
- Gas measures

c) List non-incentive Agricultural Energy Advisor

The Agricultural Calculated Incentives Program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical and calculation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd the project through the process.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors including projects/programs; not single project or sub-program. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

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c) Program Design to Overcome Barriers

The Calculated Energy Efficiency Program includes numerous features designed to overcome these barriers, as identified and discussed below.

Integrated Demand Side Management Approach

The program offers California's agricultural segment a statewide suite of products and services to help overcome market barriers to optimize energy management and meet the goals of the Strategic Plan. It overcomes multiple barriers through the implementation of strategies and tactics that provide an integrated solution to the customer, offer education and outreach to create awareness and promote continuous energy efficiency improvement. The program also enables a facility to attain resource management levels that exceed industry standards and gain them market and worldwide recognition.

CEI Program Offering

The Continuous Energy Improvement (CEI) program compliments the Calculated Energy Efficiency Program by helping customers implement energy efficiency measures that have been identified through energy efficiency audits or in-depth facility/process assessments. Such assessment may be jointly provided by the IOUs and the U.S. Department of Energy (DOE) or ANSI. It focuses on improving production and optimizing energy efficiency and provides integrated resource management solutions including GHG reduction. This approach overcomes such barriers as lack of awareness of energy efficiency opportunities and provides highly skilled workforce of energy efficiency, process optimization, and resource management.

Marketing and Outreach

To increase awareness of the program, a statewide centralized clearinghouse may be developed to give customers access to information on operating best practices in energy efficiency, industry relevant technical assistance, baselines, case studies, tools and computer based training. This clearinghouse addresses the issue of availability of information and qualified industry specialists to fully assess a building, system or process and help customers understand how energy efficiency can impact their emissions, resource consumption or waste discharge streams. A clearinghouse helps alleviate the problem often run into by Non-Residential customers of getting incorrect or out-of-date information from some local networks. It will also enable design engineers to specify energy efficient measures to exceed industry accepted baseline standards when constructing new or retrofitting existing buildings or systems, instead of specifying only what they know or what they are familiar with.

The Statewide Program information and services will primarily be delivered through account representatives, IOU call centers hotlines, local government partnerships, third parties, and IOU internet sites. Information may also be made available through industry events, through industry organizations, and through advertising in industry and trade publications. Other avenues to reach out to customers and identify energy efficiency opportunities include non-resource programs that provide education and outreach, workforce education and training, or through IOU Emerging Technologies Programs.

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Education and Training

Highly skilled energy management professionals may conduct technical training and seminars to educate the public as well as develop a highly trained energy efficiency workforce that is accessible to industry.

Emerging Technologies

In collaboration with ET and the CEC, ET may conduct studies, pilots, and demonstrations to prove the viability of promising emerging technologies and lower the risk of investment which in turn will speed up market penetration.

Financial Assistance

Rebates and incentives properly priced and based on energy savings quantified through technical assessments or basic audits, can help customers overcome internal financial hurdle rates. Skilled energy efficiency personnel may also assist customers and provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives or other local sources of project funding.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Projects	TBD	TBD

e) Advancing Strategic Plan Goals and Objectives

The Agricultural Energy Efficiency Program supports all three goals in the Strategic Plan for the Agricultural Sector. General advancement of the goals is presented in the program implementation plan for the Agricultural Energy Efficiency Program. More specific support of the goals in the Agricultural Calculated Energy Efficiency Program is presented here.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

The Agricultural Calculated Energy Efficiency Program supports strategies to develop a knowledge base of efficiency solutions, foster workforce education and training, and encourage applications of new technologies.

Goal 2: California regulations, financing mechanisms, and incentives programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

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The program supports strategies to attain multi-resource management goals and to coordinate technical assistance, funding and incentive mechanisms.

Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

The program supports strategies to make information on efficiency solutions readily available as well as conduct marketing and outreach to stimulate efficiency actions.

6. Program Implementation

a) Statewide IOU coordination

i. Program name: Agricultural Calculated Energy Efficiency Program.

ii. Program delivery mechanisms

Agricultural Calculated Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The Agricultural Calculated Energy Efficiency Program will coordinate with the core Agricultural Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the implementation cycle will be enabled.

iii. Incentive levels

A broad range of measures is eligible for the Calculated Energy Savings Program, as seen in the following table. The current incentives for these measures are standard across the IOUs participating in the Statewide Agricultural Calculated Energy Efficiency Program.

Incentives will be as follows:

- Therms, \$1.00/therms, Capped at 50% of project cost

The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division and market direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Calculated Incentive sub-program.

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iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The Calculated Energy Efficiency Program may be marketed through IOU Account Executives, as well as through trade allies, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. The Program may also provide direct customer contact by account executives, demand response program outreach, phone and e-mail support.

Marketing campaigns may provide a wide range of pro-active solutions targeted by segmentation research. In addition, marketing efforts may be integrated in a menu of demand response, energy efficiency and conservation programs. This menu will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment, IOUs will better communicate with and serve customers.

Marketing efforts may incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness and outreach efforts may use targeted multi-media communication channels. This will ensure the message reaches the intended audiences with enough frequency to create awareness, educate and engage the customer to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars. The strategy will also include energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Market outreach to raise awareness of EE programs available may use a number of multi-media strategies, including:

- Account representatives may make a regular and consistent customer calling effort to key customers within this sector;
- IOU representatives, program management representatives, and field engineers may be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the agricultural market sector;
- Attendance at the key trade shows for each high priority sub-segment within the agricultural market sector;
- IOU-sponsored training events at the IOU's Customer Training Centers and other convenient locations within the IOU's service territory;
- Hosting of IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Written collateral pieces that provide an overview of the IOU's Energy Efficiency programs will be linked into the appropriate IOU's DSM web page.

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The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination may be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above. Furthermore, agricultural facilities are recognized as large energy and water consumers. IOUs will develop proposals, as appropriate, to facilitate water-energy nexus projects.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Agricultural Calculated Energy Efficiency Program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with agricultural customers, to the extent possible. In the past, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who manage more than one resource type.

Regarding water conservation, IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Calculated sub-program incentives for energy efficient equipment that may also reduce water and GHG emissions.

vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that utilize the Agricultural Calculated Energy Efficiency Program infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program Delivery and Coordination

i. Emerging Technologies (ET) program

California's long-term energy efficiency vision can be attained through long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the energy efficiency benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the Calculated sub-program will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. In addition, portfolio staff actively works to incorporate promising emerging technologies

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from the ET program.

ii. Codes and Standards program

The Calculated sub-program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination sub-program. As codes and standards impact measures, the program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) are made available. These technologies will begin as R&D, transition to Emerging Technologies, then to Incubation and finally to Mainstream.

iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Agricultural Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings take place through IOU’s energy centers and technology centers.

iv. Program-specific marketing and outreach efforts

Marketing and outreach initiatives may include but not limited to

- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the agricultural sector, as appropriate;
- Attendance at key trade shows within the agricultural sector;
- IOU-sponsored training events at the IOU’s Customer Training Centers and other convenient locations within the IOU’s service territory;
- Hosting of IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Development of case studies, web pages, and marketing material that provide an overview of the IOU’s energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM

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programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program provides a significant challenge to integrating DSM initiatives to non-energy activities due to the general industry structure, the nature of market sector resource use, limited resource savings potential specific to smaller businesses, and limited bandwidth. Therefore, integrated audits across the various energy efficiency program offerings, with complementary options available through other entities (for example, water agencies) may identify the opportunities recommended to the specific agricultural customer.

Concerning water conservation, IOU program managers will contact the local water districts to share marketing collateral, attend trade shows, and mutually release notices for programs with interactive water and energy effects. IOUs will also offer Calculated sub-program incentives to ARB and Air Quality Management District customers. These incentives include energy efficient equipment that may also reduce both water and GHG emissions.

In addition, the program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, ARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC

As of June 2012, PIER no longer exists. However, the program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies.

viii. CEC work on C&S

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The program will support and educate customers. It will also facilitate initiatives (for example, AB 32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, and California Green Building Initiative). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

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c) Best Practices

The CEI program builds upon the initial feedback from the current CEI program and expands its reach into the Agricultural segment.

d) Innovation

For the 2013-2014 program cycle, California IOUs will implement an incentive structure that emphasizes advanced controls that enable demand response motivating customers to participate in energy efficiency and demand response incentive programs as well as enrollment in demand response programs.

IOUs will continue working collaboratively to modify program policies and procedures to address ongoing changes in customer expectations, market conditions and program flexibility. These changes will improve program understanding and participation, promote measures eligibility, increase customer economical benefits, and reduce policy restrictions identified as barriers to participation. IOUs are implementing such processes based on market studies and policy discussions conducted on the subject. Among modifications that would be potentially discussed and implemented are incentive caps and redesign of early retirement measures and equipment in conformance with Commission guidelines.

IOUs are planning to elaborate and utilize positive experience obtained using the SBD Simplified tool to include energy efficiency retrofit projects. Such tools substantially reduce application processing and review time and minimize number of hand-offs without sacrificing accuracy of energy saving calculations.

IOUs will use an integrated approach to addressing DSM opportunities (for example, merging energy efficiency and demand response analysis, and converting recommendations to Calculated programs). In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, and providing analytical information about applicable distributed generation solutions, will maximize customer adoption rates for the most cost-effective energy management opportunities.

IOUs will consolidate various calculating software such as SPC Software, Engage and other measure specific calculating tools to standardize calculating methodologies. This will ensure that calculations will be more uniformed and consistent amongst all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures.

The IOUs are exploring innovative means of improving the Agricultural Calculated Incentive sub-program based on Energy Division direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" and to "raise incentive levels for Emerging Technologies", is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Agricultural Calculated Incentive sub-program.

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e) Integrated/Coordinated Demand Side Management

The IOU's have identified integrated Demand Side Management (IDSM) as an important priority. As a result they have proposed the establishment of a Statewide Integration Task Force (Task Force). The program plans to work closely with the Task Force to identify comprehensive integration approaches that feed into the overall statewide strategy and to implement best practices as rapidly as practical.

f) Integration across resource types (energy, water, air quality, etc)

California's agricultural sector faces a multitude of environmental and regulatory challenges that affect their survival and competitiveness. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to conventional businesses, and complying with these regulations may actually cause increased energy use.

To help deal with these challenges, the program will coordinate with the regulating agencies and their programs to support common program designs, customer incentives, marketing opportunities, and implementation opportunities. IOUs will continue to offer targeted trainings to customers who share common regulatory challenges in an effort to educate customers on impending regulatory requirements for their business operation, and the most efficient solution options to consider for compliance. Future workshops may look at small and medium sized water and wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 targets.

IOUs will partner with water agencies to offer joint energy and water conservation incentives to support projects that reduce both energy and water consumption. This partnering will reduce administrative costs and increase the program's societal benefits and impacts.

The Program will integrate applicable topics such as GHG reduction and water conservation into targeted customer workshops, marketing efforts, and communications to build on efforts from the previous program cycle.

Water/Energy Nexus Strategy

SoCalGas supports improving the efficiency of water systems as one of the most critical strategies to capture water/energy nexus benefits in the energy efficiency programs. SoCalGas plans to focus its efforts in areas that use gas engines as the energy source to deliver and treat water. For water agencies within SoCalGas's territory, we plan to issue an RFP to utilize a contractor to implement leak-loss detection and remediation and pressure management services applicable to storage, pumping and distribution through SoCalGas's core or Third Party Program. SoCalGas will explore new project ideas for the water/energy nexus, as well as the calculation of ancillary water benefits (e.g. "embedded" energy savings). SoCalGas will accelerate the expansion of cost-effective water-energy nexus programs by coordinating with the other utilities, water agencies, and municipalities to study the cost effectiveness and the embedded energy savings for water/energy efforts. Our intent

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is to continue to offer measures and services to the water sector through the “calculated” and audit programs. SoCalGas will also explore for new direct energy measures that can be incented under the calculated program. Additionally, we will increase our efforts to capture the water-energy nexus and sustainability in the agricultural, industrial, and commercial segments.

g) Local Element (Negotiated Incentive Option)

SoCalGas will provide a local component which will include incentives for energy-efficient retrofits, systems new construction, or replacements of existing equipment at SoCalGas customer sites. Participants may be either customers or energy-efficiency service providers (EESP’s) acting as project sponsors for activities at customer sites. To qualify, a project must save a minimum of 1,000,000 therms per year. Associated energy, resource such as water, sewerage and emissions, and GHG savings will be considered when evaluating a project for funding. A project may consist of a single project at a single site, or may be aggregated from multiple projects belonging to a single customer, and may include a variety of measures.

This local element is designed to serve the largest non-residential customers within the SoCalGas service territory. Non-residential customers in this group are comprised of but not limited to the following industry sub-segments: Government/Utilities, Manufacturing/Processing Industries and Institutional. Each sub-segment has distinct energy use patterns, differences in equipment and facility design, and various management structures and decision-making processes. Because each industry sub-segment is unique, this option will use a customized, customer-focused approach. Participating customers, taking into account their individual energy and resource conservation opportunities as well as internal hurdle rates, will propose or “bid” to SoCalGas the incentive level needed to enable large EE and Resource savings projects. This ensures that this option will be adaptable to the unique needs of each market segment.

The program is designed to be flexible and cost effective: The project sponsor proposes a project and desired incentives. Incentives may cover up to 50% of the incremental project costs less any additional funding received from other sources. Measurement and verification (M&V) is required for all projects. As a performance-based incentive program, the approved M&V report will ultimately determine the energy savings for each project. The total sum of incentives paid for a project may not exceed the amount “bid” by the customer and agreed to by SoCalGas.

h) Pilots

Not applicable.

i) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and

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Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

Please see the Commercial Calculated Energy Efficiency Program logic model.

- 1. Program Name:** Agricultural Deemed Energy Efficiency Program
Program ID#: SCG3720
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 – reference the core program for budget details

a) Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the core program for savings details

b) Program Description

a) Describe program

The purpose of the statewide Agricultural Deemed Energy Efficiency Program is to provide services to improve the energy efficiency of agricultural facilities in California, including financial incentives based on deemed energy savings. The energy savings are deemed for installed measures. Integrated projects are encouraged to combine energy efficiency and demand response.

The Agricultural Deemed Energy Efficiency Program is part of a suite of programs within the Statewide Agricultural Energy Efficiency Program.

Key features of the program include:

- Information and technical assistance from SoCalGas on energy efficiency measures and savings potential;
- Application via mail, fax, internet and phone by customer for eligible measures;
- Reservation of financial incentives by SoCalGas, if requested by customer;
- Pre- and post-installation inspection by SoCalGas, as determined by SoCalGas based on prior participation and other factors; and
- Payment of incentives from SoCalGas.

b) List measures

Itemized retrofit measures have prescribed energy savings and incentive amounts. These measures are categorized under the following end uses:

- Food service
- Boilers and water heaters
- Pipe and tank insulation
- Greenhouse Curtain
- Infrared film

c) List non-incentive Agricultural Energy Advisor Services

The deemed sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical consultation and application preparation assistance to help customers

navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Agricultural Deemed Energy Efficiency Program is designed overcome several barriers. The program directly addresses key market factors that lead to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This element makes it attractive for customers to spend money in the short run in order to achieve lower energy costs in the long run.

Using itemized energy efficiency measures is intended to overcome barriers that inhibit many agricultural customers from adopting energy efficiency alternatives. The barriers are addressed by itemizing common energy efficiency measures and rebates, stimulating the supply of high efficiency equipment and products (through higher demand), and offering rebates that help offset higher start up and down payment expenses for energy efficient retrofits.

Furthermore, to ensure equity to all business customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Projects	TBD	TBD

e) Advancing Strategic Plan Goals and Objectives

The Statewide Agricultural Energy Efficiency Program supports all three goals in the Strategic Plan for the Agricultural Sector. General advancement of the goals is presented in the program implementation plan for the Statewide Agricultural Energy Efficiency Program. More specific support of the goals in the Agricultural Deemed Energy Efficiency Program is presented here.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

The Agricultural Deemed Energy Efficiency Program supports strategies to develop a knowledge base of efficiency solutions, foster workforce education and training, and encourage applications of new technologies.

Goal 2: California regulations, financing mechanisms, and incentives programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

The program supports strategies to attain multi-resource management goals and to coordinate technical assistance, funding and incentive mechanisms.

Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

The program supports strategies to make information on efficiency solutions readily available as well as conduct marketing and outreach to stimulate efficiency actions.

6. Program Implementation

a) Statewide IOU coordination

i. Program name: Agricultural Deemed Energy Efficiency Program

ii. Program delivery mechanisms

Agricultural Deemed Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The Agricultural Deemed Energy Efficiency Program will coordinate with the core Agricultural Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the three year implementation cycle will be enabled.

iii. Incentive levels

Incentive levels are based on measure type and will be set at uniform amounts across the state. Higher incentive levels will be provided for Emerging Technologies to spur traction in the market as feasible. The scale of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, therms, equipment cost, other market factors and cost effectiveness.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The Agricultural Deemed Energy Efficiency Program will be marketed through IOUs account executives, as well as through trade allies, educational, outreach and other marketing activities. Marketing activities will target agricultural customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support will be provided.

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness and outreach efforts will rely on a combination of targeted multi-media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to create awareness, educate and motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Market outreach to raise awareness of energy efficiency programs available will use a number of strategies, including:

- Account representatives will make a regular and consistent customer calling effort to key customers within this sector;
- IOU representatives, program management representatives, and field engineers will be available to provide additional expertise;
- Participation and membership in key trade associations affiliated with each high priority sub-segment within the agricultural market sector;
- Attendance at the key trade shows for each high priority sub-segment within the agricultural market sector;

- IOU-sponsored training events at the IOU's customer training centers and other convenient locations within the IOU's service territory;
- Hosting of IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Written collateral pieces that provide an overview of the IOU's Energy Efficiency programs will be linked into the appropriate IOU's DSM web page.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Agricultural Deemed Energy Efficiency Program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with agricultural customers, to the extent possible. Conventionally, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

With respect to water conservation, IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers program incentives for energy efficient equipment that may also reduce air and greenhouse gas emissions.

vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that are permitted to use the Agricultural Deemed Energy Savings Program infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program Delivery and Coordination

i. Emerging Technologies (ET) program

The long-term energy efficiency vision of California may be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the

program is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff actively works to incorporate promising emerging technologies.

ii. Codes and Standards program

The program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As codes and standards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will ensure the latest cost effective technologies/services (e.g., LEDs) are available. These technologies will begin as R&D, transition to Emerging Technologies, then to Incubation and finally to Mainstream.

iii. WE&T efforts

Workforce Education & Training efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the near term, WE&T efforts will focus on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems training to lay the groundwork for certification level trainings. These education and training offerings take place through IOU’s energy centers and technology centers.

iv. Program-specific marketing and outreach efforts

Marketing and outreach initiatives will include:

- Non-contracted vendors are a key delivery channel of the Deemed sub-program. Emphasis will be placed on building awareness with more vendors in the territory. Training vendors how to participate effectively in the program will also be a focus in the new program cycle.
- Community Based Organizations (CBOs), Faith Based Organizations (FBOs), Non-Profit organizations, and Non-Government Organizations (NGOs) with unique access and following are expected to be emphasized as a delivery channel.
- Trade associations and industry networks.
- Enabling partners (financial institutions, trade associations, service providers, law firms, environmental organizations, etc.).
- Unique channels that offer complementary value propositions from the customers’ perspective (for example, energy, water, materials management, recyclables, and corporate social responsibility).

- IOU-sponsored training events at the IOU's Customer Training Centers and other convenient locations within the IOU's service territory.
- Hosting of IOU-sponsored webinars that provide sub-segment training and program adoption.
- Development of case studies, web pages, and marketing material that provide an overview of the IOU's energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, ARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible..

vii. CEC

Not applicable. As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.

viii. CEC work on C&S

Planned Title 20 and 24 enhancements will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The program will educate and support customers, and/or facilitate such initiatives as AB 32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

To maximize program effectiveness, best practices in program design and implementation will be employed and shared amongst IOUs.

Best practices in Program Design:

- Regular communication among IOUs.
- Identify qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, FSTC website).
- Seek input from industry in the development of new programs. The IOU programs are trying to change how an industry operates from manufacturer design to the customers' purchasing and maintenance practices.
- Industry participation increases program volume and speeds market transformation.

Best practices in Program Implementation:

- Strive to simplify messaging and participation for the customer. (Look for the ENERGY STAR® label, purchase from a qualifying products list, etc.)
- Understand the key motivators that drive an industry and use that information to market the program. Make certain outreach efforts make the program visible to customers and the market catering to customers.
- Always communicate program marketing and advertising plans in advance to appropriate industry channels. Advanced notice allows industry partners an opportunity to leverage off of IOU marketing efforts and reinforce the program messaging.

d) Innovation

Innovative aspects of the program include improving major program performance indicators (for example, increasing the accuracy of energy saving calculations, higher realization rates, overcoming energy efficiency barriers, reducing application processing times and administrative costs, and integrated energy management).

For the new program cycle, California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During the 2013-2014 program cycle, the new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance, including measure bundling incentives. The IOU's will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper savings.

IOUs will continue working collaboratively on modifications to program policies and procedures to address ongoing changes in customer expectations, market conditions and program flexibility. These modifications include changes that have been and will be targeting ease of program understanding and participation, measures eligibility, increase of customer economical benefits and policy restrictions identified as barriers to participation. IOUs are implementing such processes based on market studies conducted on the subject and after discussion of the policy change. Among potential modifications are incentive caps, and redesign of early retirement measures and equipment.

Where possible, IOUs will use an integrated approach to addressing DSM opportunities. These approaches include merging energy efficiency and demand response analysis and

converting recommendations to Calculated program projects. In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

e) Integrated/Coordinated Demand Side Management

The program will integrate the portfolio of IOU offerings to include energy efficiency, demand response and distributed generation and other resources, such as air and water as they connect to energy. This supports not only cost effectiveness of the portfolio and the CA Loading order, but also customer requirements. It also advances significantly the Strategic Plan's goals. On a broader scale, IDSM also includes the integration of third party programs and Local Government Partnerships (LGP) delivery channel with the statewide agricultural program.

f) Integration Across Resource Types (energy, water, air quality, etc.)

California's agricultural sector faces a multitude of environmental and regulatory challenges that threaten its survival and competitiveness. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual. Both these are impacting energy use and compliance.

To help deal with these challenges, the agricultural program will coordinate with the regulating agencies and their programs to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. IOUs will continue to offer targeted trainings to customers who share common regulatory challenges to educate customers on impending regulatory requirements for their business operations, and the most efficient solution options for their compliance. Future workshops may look at small-and-medium sized water and wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 targets.

IOUs will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other IOUs will help reduce administrative cost and has a greater impact on societal benefits.

The Program will integrate applicable topics (for example, GHG reduction and water conservation) into targeted customer workshops, and marketing communications, based on work done in the earlier program cycle.

g) Pilots

Not applicable.

h) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader

IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

Please see the Commercial Deemed Energy Efficiency Program logic model.

- 1. Program Name:** Agricultural Continuous Energy Improvement Program
Program ID#: SCG - 3718
Program Type: Core

2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the overarching program for savings details

4. Program Description

a) Describe program

The purpose of the Statewide Agricultural Continuous Energy Improvement (CEI) Program is to help agricultural customers engage in long-term, strategic energy planning. Target agricultural customers will be identified and approached selectively.

The program features:

- Management assessment of energy priorities;
- Integrated comprehensive energy audits with recommendations on energy efficiency, demand response, and self-generation;
- Benchmarking of energy usage and other resources;
- Development of a strategic plan with actions for implementation;
- Implementation including incentives from each IOU; and
- Evaluation of performance leading to modifications for continuous improvement

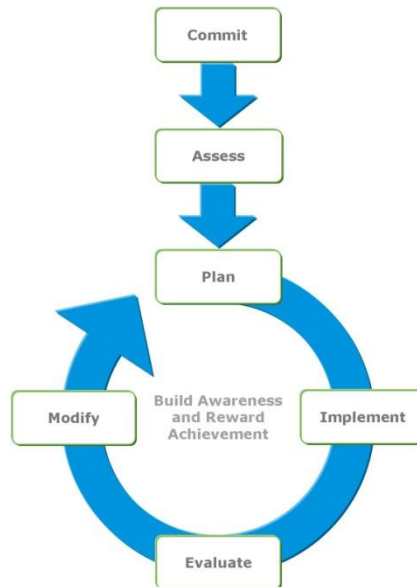
The CEI Program is part of a suite of programs within the Statewide Agricultural Energy Efficiency Program. The CEI will be designed to complement statewide agricultural energy audit and incentive programs, namely:

- Statewide Agricultural Energy Efficiency Program;
- Agricultural Deemed Energy Efficiency Program;
- Agricultural Calculated Energy Efficiency Program; and
- Agricultural Energy Advisor.

The audit and planning services of the IOUs will be provided at no charge to the participating customer. Costs for capital investments by the customer will be shared by the IOUs to the extent they are tied to measures installed under the agricultural programs.

The program seeks to help transform energy markets and reduce energy intensity. The program represents a comprehensive approach that addresses both technical and management opportunities. Background information on continuous improvement and details on implementation are provided below.

A CEI approach applies the six principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management: Commit, Assess, Plan, Implement, Evaluate, and Modify.



At each stage of customer engagement, there are a variety of IOU and non-IOU products and services that can be offered to fit different customer profiles and optimize the cost effectiveness of each IOU's portfolios.

In implementation, IOUs will screen customers for certain CEI services based on factors such as customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment or demonstrated motivation to take action. Screening criteria and specific product offerings will be IOU-specific.

In 2013-2014, CEI will be expanded to include select group of mid-sized nonresidential customers. Available options to help target these customers may include an individualized, a small group, or a mass-market, remote deployment approach.

CEI will coordinate its services with the Agricultural Energy Advisor sub-program offerings. CEI offers customers what can be considered the pinnacle of audit offerings guiding senior management to instill energy considerations in all management/business operational decisions and in long-term energy planning.

CEI Commitment

CEI begins with a high level management commitment by the customer to improving energy performance, combined with other environmental and regulatory commitments being developed by energy users in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention. The message also paves the way for establishing the company resources required to implement the steps of CEI. These resources

can include capital, personnel, i.e., energy champions or teams, or technical systems and software required for energy management.

Gaining true customer commitment can take time, but is critical. In implementation, IOUs will formalize the Commitment phase with more intensive customers through a CEI participation agreement, which outlines the IOU CEI services being offered as well as minimum customer expectations.

CEI Assessment

After the CEI Commitment, a comprehensive assessment identifies not only technical opportunities, but also systemic energy management practices and cultural shifts. This can improve overall facility management practices and sustain continuous improvements towards long-term company targets. A component to the assessment will also include tools to help identify Energy Efficiency (EE), Distributed Generation (DG), and Demand Response (DR) opportunities.

There are many tools and resources, both IOU and non-IOU, free and licensed, available to support comprehensive customer energy assessment. They include ENERGY STAR®'s *Guidelines for Energy Management*, customer energy management assessment software products like those developed by Envinta, benchmarking tools, Integrated Comprehensive Energy Audits through the Agricultural Energy Advisor sub-program, or local and statewide third parties who can offer specialized technical expertise and assessment.

Based on screening criteria, IOUs will offer comprehensive energy assessment services utilizing, but not limited to, vetted sources like those described below, to develop a customer specific strategic energy plan.

ENERGY STAR®'s Guidelines for Energy Management

ENERGY STAR®'s Guidelines for Energy Management is housed on the ENERGY STAR® website and provides step by step guidelines to customers to support CEI, and also guides customers to ENERGY STAR®'s numerous assessment tools. This option is a low cost resource for smaller and medium customers interested in CEI, with details available at http://www.energystar.gov/index.cfm?c=guidelines.guidelines_index.

Energy Management Assessment Tools

Envinta One-To-Five, Achiever, Challenger: A professionally facilitated energy management assessment with company decision makers. The assessment explores management practices and company priorities to develop a CEI roadmap for energy goals and actions. Available tools are:

- Each IOU's website tools
- EPA website tools
- DOE website tools.

Integrated Comprehensive Energy Audits

Integrated Comprehensive Energy Audits provide an inventory of technical facility end-uses and energy efficiency, demand response and self-generation investment opportunities. For a full description, see the Agricultural Energy Advisor sub-program plan.

Benchmarking

Benchmarking can measure energy performance of a company, building, process, or piece of equipment to industry standards or comparable groupings. Benchmarking is a natural first step for the CEI process. Customers with multiple facilities find benchmarking useful to prioritize efficiency projects, track progress toward energy or green house gas improvement goals, or drive competition among similar benchmarked facilities. Units of measurement vary widely. For commercial buildings, the unit is energy used/square foot for a unit of time. For agriculture or agricultural facilities, however, benchmarking utilizes energy/unit of production for a unit of time.

Benchmarking can also be applied to other resources and environmental issues, such as water use and CO₂ emissions.

The statewide IOUs can currently utilize a variety of benchmarking tools and resources including those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab with CEC funding:

- ENERGY STAR® Portfolio Manager *Commercial* Benchmarking: Benchmarks customer facility against a national database of similar NAICS codes for an ENERGY STAR® score (0-100), kBtu/sq ft-yr, lbs CO₂/yr;
- ENERGY STAR® *Cement Plant* Energy Performance Indicator;
- ENERGY STAR® *Auto Assembly Plant* Energy Performance Indicator; and
- LBNL BEST *Winery*: Benchmarks a winery's energy and water use against a theoretical best practice winery and allows user to model efficiency improvements.

Other benchmarking tools are under development including:

- ENERGY STAR® *Food Processing* Energy Performance Indicator;
- ENERGY STAR® *Glass Manufacturing* Energy Performance Indicator;
- ENERGY STAR® *Pharmaceutical Manufacturing* Energy Performance Indicator;
- LBNL BEST *Dairy Processing*: Benchmarks a dairy processors energy and water use against a theoretical best practice facility allows modeling of improvements;
- Management Standard for Energy SME 2000-2008;
- DOE sponsored ISO Plant Certification; and
- LBNL Superior Energy Performance.

In implementation, the statewide agricultural program teams will continue to partner with energy industry peers, industry associations and DOE/Commission sponsored labs and consultants, to enhance the use of existing tools, and develop new tools for key California industries. Benchmarking will be coordinated with the Agricultural Energy Advisor sub-program.

CEI Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. Planning for customers will typically involve Account Representatives and/or consultants. As is discussed in the Strategic Plan and in the PIP Integration Section, strategic planning can also include complementary non-energy considerations as well, such as greenhouse gas reductions, water efficiency, and waste-stream minimization, all which have embedded energy components.

Data and findings from a comprehensive customer assessment are critical in developing any comprehensive energy plan, including the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information is analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (“Company X will reduce its overall energy intensity by 3% over the 2013-2014 program cycle”), carbon reduction goals (“Company X will be carbon neutral by 2014”), or management oriented goals (“Company X will implement energy teams by 2013”). Goals can be internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as assistance with planning for the resources, staff and schedule for tracking. Action plans typically include activities such as prioritizing process systems or facilities based on benchmarking or company drivers, identifying internal resources required to implement plans, develop project justification and incentive application documentation lists and detailed schedules.

CEI Implementation

In the implementation stage, IOUs partner with customers to identify technical support and IOU and non-IOU resources available to support implementation of projects, such as rebates, incentives, third party and government partnership programs, and state and national resources, including:

- Statewide Deemed rebates;
- Statewide Calculated incentives for new construction/tenant improvement, and retrofit ;
- Third Party and Government Partnership programs (described in the statewide and local third party filings);
- IOU and non-IOU financing options and owners engineer support; and
- External and internal engineer support.

CEI Evaluation and Modification

In any continuous improvement program, evaluation is an ongoing process of evaluating actual performance against company goals, targets and action plans. It may include repeating the benchmarking and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management

improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward.

CEI will be available to all Non-Residential customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will include but not be limited to customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment and demonstrated motivation. Marketing and outreach plans include training of the IOU in-house staff and customer groups. Collateral materials such as fact sheets, how-to documents, and Power Point slides will be produced and distributed during sales calls, public events or trade shows.

b) List measures

Integrated energy audits under the CEI program will include the full range of applicable end-uses and measures for those end-uses. This will include process changes. The energy audit provides a tool that will lead customers to the measures and incentives offered in the other agricultural programs. However, depending on the outcome of the 2012 process evaluation, customer incentives may be offered.

c) List non-incentive Agricultural Energy Advisor

Activities conducted under the CEI Program are non-resource activities with no associated incentives. These activities include: marketing and outreach, savings calculation assistance, retrofit project scoping, technical assistance, and incentive application assistance.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers include:

- Lack of information – The CEI evaluation and modification process provides data that customers can use to reevaluate their commitment and/or modify their energy goals.

- Performance uncertainties – Through CEI’s comprehensive baselining and benchmarking assistance, customers will have access to real-time data that demonstrates how their facility is performing relative to their established goals.
- Organizational customs – The high-level customer commitment that is at the core of CEI increases the likelihood that corporate cultures that prevent successful implementation of comprehensive energy policies will be changed.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

	Program Target by 2013	Program Target by 2014
Number of Engagements	TBD	TBD

e) Advancing Strategic Plan Goals and Objectives

The Agricultural Energy Efficiency Program supports all three goals in the Strategic Plan for the Agricultural Sector. General advancement of the goals is presented in the program implementation plan for the Agricultural Energy Efficiency Program. More specific support of the goals in the Agricultural Deemed Energy Efficiency Program is presented here.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

The Agricultural CEI Program supports strategies to develop a knowledge base of efficiency solutions, foster workforce education and training, and encourage applications of new technologies.

Goal 2: California regulations, financing mechanisms, and incentives programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

The program supports strategies to attain multi-resource management goals and to coordinate technical assistance, funding and incentive mechanisms.

Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

The program supports strategies to make information on efficiency solutions readily available as well as conduct marketing and outreach to stimulate efficiency actions.

6. **Program Implementation**

a) **Statewide IOU coordination**

i. **Program name:** Agricultural Continuous Energy Improvement Program

ii. **Program delivery mechanisms**

The Agricultural CEI Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, marketing and outreach plans, and IOU program interactions. The Agricultural CEI Program will coordinate with the core Agricultural Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the two-year implementation cycle will be assured.

iii. **Incentive levels**

Not applicable.

iv. **Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms**

As with other information and education programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other channels of delivery may be developed.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. **IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable**

The program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with agricultural customers.

vi. **Similar IOU and POU programs**

Over the next two years, the IOUs will seek to increase their interactions with the POUs, as applicable, to promote the CEI concept throughout the state. This may involve the creation of periodic California energy efficiency program summits that seek to increase

awareness of the STRATEGIC PLAN and how programs could/should be designed to help meet its aggressive targets.

b) Program Delivery and Coordination

i. Emerging Technologies (ET) Program

The audit program management team will stay abreast of and incorporate relevant emerging technologies into audit recommendations. In addition, IOU field engineers, who deliver IEAs, are active contributors to the Emerging Technology process by their participation in ET Roundtable/Information meetings and continually seek to offer new technologies to customers.

ii. Codes and Standards Program

CEI implementation will include information about pending new codes and standards that may affect planning or prioritization of retrofit or new construction projects.

iii. WE&T efforts

CEI implementation will integrate with WE&T efforts by providing CEI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches. Program costs will be shared with WE&T.

iv. Program-specific marketing and outreach efforts

A broad range of marketing activities will be used to promote audits and elevate customer engagement. The Agricultural CEI program will be promoted via direct communication between customers and Account Executives with support of Project Managers from individual programs, as well as through traditional advertising activities, such as internet, bill inserts, brochures, trade shows, etc. Marketing activities will be coordinated between IOUs, Demand Response and Distributed Generation departments within each IOU.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

Integrated Comprehensive Energy Audits are a key tool for identifying non-energy opportunities for specific customers. The energy audits can identify non-energy benefits associated with recommended measures, such as improved safety, productivity, indoor air quality, comfort and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

vii. CEC

As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.

viii. CEC work on C&S

The program will not be implemented with a direct linkage to codes and standards efforts

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-IOU information and guidance that CEI will provide customers. In addition, the IOUs will participate in national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

c) Best Practices

A CEI approach applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management: Commit, Assess, Plan, Implement, Evaluate, and Modify.

d) Innovation

The program seeks to help transform energy markets and reduce energy intensity. The program represents a comprehensive approach that addresses both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

e) Integrated/Coordinated Demand Side Management

CEI includes project analysis and implementation support of recommendations of Integrated Comprehensive Energy Audits, which provide customers with an inventory of facility end-use breakdown and energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other, similar programs, but because of siloing – thinking of programs as

separate, unrelated efforts – this has proved difficult. To overcome this, the CEI sub-program will leverage lessons learned from IDSM efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other's financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program's incentives are based upon. Since benefits from long-term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the CEI sub-program will offer additional support and services for energy efficiency measures that enable demand response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable.

Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.

To support the integration of energy efficiency and demand response programs, the sub-program will focus on several tactics:

- Promotion and incentives for demand response in such a way as to stimulate energy efficiency first;
- Integrated and coordinated year-round marketing (e.g. applications, collateral, web sites, and events);
- Linking of program eligibility requirements (e.g. customer size);
- Provide unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities;
- Integrated presence on IOU websites; and
- Regular coordination meetings between energy efficiency and demand response program management

CEI is recognized as a strategy to advance the statewide IDSM program's goals and objectives. The IOUs will increase IDSM messaging and coordination within CEI.

f) Integration Across Resource Types (energy, water, air quality, etc)

CEI implementation will include information on non-IOU Programs to expose customers to available funding, such as from air or water agencies to support efforts. IOU CEI sub -

program managers will partner, as appropriate, with CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral and financial incentive analysis with customers. Conventionally, each government agency and IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will inform the customer about the mutual benefit of combining complementary resource programs.

To promote the CEI, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. Concerning water conservation, IOU program managers will partner with the local water districts to produce co-branded marketing collateral, attend trade shows, and co-release notices for programs with interactive water and energy effects.

g) Pilots

Not applicable.

h) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V plan after the program implementation plans are filed. This may include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies.

More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

Once results of the 2010-2012 evaluations are ready, recommendations will be reviewed for modifying the CEI PIP accordingly.

7. Diagram of Program

Please see the core program diagram.

8. Program Logic Model

Please see the Commercial Continuous Energy Improvement program logic model.

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1. Program Name: ~~Statewide Agriculture~~Agriculture Energy Efficiency Program
Program ID#: SCG - 3717 – SW-AG-Energy Advisor
 SCG - ~~3718~~ – SW-~~AG~~ – CEI
 SCG - 3719 – SW-~~AG~~ – Calculated Incentives
 SCG - ~~3720~~ – SW~~W~~ – AG – Deemed Incentives
Program Type: Statewide Core Program

~~2. Note: The projected program budget and savings impacts shown in Tables 1 and 2 below were approved in SCE's 2010-2012 EE Compliance Advice Letter 2410-E effective March 24, 2010, per the Energy Division's disposition letter dated April 8, 2010 [budget table description here].~~

~~3.~~

~~4.2~~ **Projected Program Budget Table**

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Agricultural Energy Efficiency Program					
3717	SW-AG-Energy Advisor	\$6,779	\$0	\$71,234	\$0	\$78,013
3718	SW-AG-CEI	\$3,453	\$0	\$60,768	\$0	\$64,221
3719	SW-AG-Calculated Incentives	\$436,521	\$245,389	\$2,248,748	\$1,114,574	\$4,045,232
3720	SW-AG-Deemed Incentives	\$143,746	\$56,503	\$537,544	\$329,373	\$1,067,167
	TOTAL:	\$590,499	\$301,893	\$2,918,294	\$1,443,947	\$5,254,633

~~5.~~

~~6.~~

~~7.~~

~~8.3~~ **Projected Program Gross Impacts Table**

Table 2

Program #	Main/Sub Program Name	2013-2014 Gross kW Savings	2013-2014 Gross kWh Savings	2013-2014 Gross Therm Savings
	SW Agricultural Energy Efficiency Program			
3717	SW-AG-Energy Advisor	0	0	0
3718	SW-AG-CEI	0	0	0
3719	SW-AG-Calculated Incentives	0	0	1,496,799
3720	SW-AG-Deemed Incentives	0	0	487,026
	TOTAL:	0	0	1,983,825

SCE-SW-004	Agriculture Energy Efficiency Program	2010-14 EE Program Gross kWh Savings	2010-14 EE Program Gross kW Savings	2010-14 EE Program Gross Therm Savings
	Agriculture Energy Audit Program	5,560,596	998	-
	Agriculture Calculated Energy Efficiency Program	96,766,084	17,447	-
	Agriculture Deemed Energy Efficiency Program	24,937,145	7,749	-
	Agriculture Continuous Energy Improvement Program	-	-	-
	Pump Test Services Program	46,712,091	15,538	-
	TOTAL	172,975,916	41,731	-

~~9.~~

~~10. SCE is forecasting installation beyond 2012 to capture those projects committed (funds reserved) in the 2010-2012 program cycle, however are not installed until after 2012.~~

~~11.~~

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12.4. Program Description

a) Describe program

The ~~Statewide Agricultural~~ Energy Efficiency Program facilitates the delivery of integrated energy management solutions—including energy efficiency, demand response, and distributed generation—to California’s ~~agricultural~~ customers. The Program offers a suite of products and services (for example, through strategic energy planning support, technical support services, facility audits, pump tests, calculation/design assistance, financing options, and financial support through rebates and incentives). In addition, the program adopts and supports the strategies and actions of the ~~Agricultural~~ and Industrial chapters of the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan).

~~The Statewide Agricultural Energy Efficiency Program targets end-users such as irrigated agricultural growers (crops, fruits, vegetable, and nuts), greenhouses, post-harvest processors (ginners, nut hullers, and associated refrigerated warehouses), and dairies. Traditionally food processors, due to NAICS designation, have received IOU services through the Industrial program offering. However, there are those facilities with on-site processing that are integrated with a growers and their products, as is the case with some fruit and vegetable processors (canners, dryers, and freezers), prepared food manufacturers, wineries, and water distribution customers that may be addressed by this program’s offerings. Traditionally food processors due to NAICS designation have received IOU services through the Industrial program offering. However, there are those facilities that are integrated with a growers and their products, as is the case with some fruit and vegetable processors (canners, dryers, and freezers), prepared food manufacturers, wineries, and water distribution customers that may be addressed by this program’s offerings. The program may also target food processors, especially those facilities that are integrated with a growers product, as is the case with some such as fruit and vegetable processors (canners, dryers, and freezers), prepared food manufacturers, wineries, and water distribution customers.~~

To address the potential in these markets, the Statewide ~~Agricultural~~ Energy Efficiency Program offers ~~five-four~~ sub-programs. A brief description is provided below. For a detailed accounting of the sub-programs’ activity refer to the sub-program’s specific program implementation plan:
~~A brief description is provided below. For a detailed accounting of the sub programs’ activities, refer to the sub program’s specific program implementation plan:~~

1. ~~Agricultural~~ Customer Services Energy Advisor Energy Audit Program provides ~~basic remote online audits, and onsite audits, including benchmarking (offices and other “commercial” building areas), focused and integrated comprehensive energy audits, pump tests, and retro-commissioning (RCx) audits and may include Continuous Energy Improvement (CEI) audits/services across the agricultural, commercial, and industrial (CIA) segments depending on the IOU’s market segment potentials and available resources.~~ The Program provides an inventory of technical

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~~Pump Test Services Program reduces energy used for water pumping by offering pump tests, incentives, and targeted education, training and technical support for agriculture, industrial and commercial customers and pump companies. Each IOU's database of pump test results will be used in the near term to target pumps in need of improvements as a means to capture savings. However in the mid-term, pump performance data, aggregated at the statewide level, will contribute to the development of metrics and targets for long-term pumping efficiency improvements.~~

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In addition to these ~~five threefousixfour (4364)~~ sub-programs, each of the four investor-owned utilities (IOUs) in the state also offers local programs that complement and enhance the core offerings in their region. The IOU local portfolio mix ~~of SCE is specifically~~ designed to enhance energy efficiency and DSM opportunities for ~~agriculture~~Agricultural customers. ~~Additional information regarding the local efforts can be found in the sub-program descriptions and in section 6.g) of this program implementation plan. The local portfolio mix includes the AB 32 Carbon Emissions Reduction (CER) Program and water conservation education information.~~

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Market Characterization:

California's ~~agriculture~~agricultural customer base consists primarily of a broad mix of smaller accounts and consumes approximately 7%¹ of total statewide electricity. The business models and energy efficiency needs for these market segments vary widely and thus require targeted marketing and program delivery strategies. A review of the primary segments addressed by this Program is included below.

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Irrigated ~~Agrieulture~~Agriculture

~~Irrigated agriculture~~e represents an estimated 80% of the total electricity ~~and 73% of total natural gas~~ used by the ~~agricultural~~agricultural segment. This energy is predominately used to lift, move, and pressurize irrigation water. Increased reliance on ground water is increasing energy intensity, giving high priority to improving the current average pumping efficiency from 53% towards the technical potential for 68-70% through optimizing pump operation. Increasing pressures from international competition, land and water use policy decisions, labor force uncertainties, and consolidation of smaller family farms into larger agribusiness enterprises make this segment increasingly receptive to new technologies and practices balanced by financial concerns from risks of crop failure.

Greenhouses:

This specialty segment is in transition from the cut flowers industry to ornamental plants and vegetable transplants. Increased mechanization and consolidation in this segment presents opportunities for energy efficiency. Top opportunities for energy savings are in boiler improvements, building envelope improvements, and temperature control enhancements (for example, heat curtains).

¹ 1980-2005 California Electricity Consumption by Sector - California Energy Commission, http://www.energy.ca.gov/electricity/consumption_by_sector.html.

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Post-Harvest Processing Facilities:

Post-harvest facilities associated with or near agricultural growing facilities, process, package and store agricultural commodities, such as cotton ginneries, nut harvesters and bag-houses, and fruit and vegetable packing plants. Their operations are typically seasonal and driven by harvest schedules. Nut hullers are a growing market due to new more productive strains of almonds. Key technical opportunities in this segment include industrial refrigeration improvements and process improvements.

Dairies and Confined Animal Feeding Operations:

California's more than 1,900 dairies are primarily located in Tulare, Fresno, Kern, Merced, Stanislaus, and San Joaquin counties. Dairy farms are consolidating, with larger farms facing increased regulatory challenges related to air and water quality, creating opportunities for the adoption of new technologies and practices. Energy efficiency opportunities are focused in refrigeration, ventilation, and waste handling. Benchmarking will be developed as a key foundational activity to drive customer awareness and continuous energy improvement. Improved dairy waste management offers significant potential for distributed generation, as well as potential reduction of air and water quality problems and the capture and sale of greenhouse gas credits. Like dairies, feedlots and poultry operations for meat and egg production have drawn recent food safety and regulatory attention that may make them more receptive to new technologies and practices for improved efficiencies and waste to energy opportunities. Animal waste streams within this segment offer biogas development potential.

Food Processing, General:

Off site Food Processing **may** include breweries, meat and poultry processing, dairy processors (e.g., creameries), canned, dried or frozen fruits and vegetables, grain products, baked goods, sugar and confectionary products, oils, snack manufacturing, soft drink manufacturers and seafood processing. The market is characterized by a small number of large users representing a disproportionate percentage of the energy consumed, offering an ideal opportunity for delivering a large customer strategy. The segment has high energy-intensity in relation to profit margins and is highly seasonal, with the majority of natural gas and over half of the electricity used during the peak summer season. Increased global competition and environmental regulations like AB 32 position this market for reductions in energy, water, emissions, greenhouse gasses and raw materials. An integrated resource management strategy, focusing on long-term continuous improvements, is expected to improve energy efficiency performance in the segment. The majority of the energy savings potential comes from process system improvements such as in refrigeration, boilers and steam systems, compressed air and motors. Distributed generation and demand response opportunities include using waste heat/steam for production processes such as pasteurization, cooking and heating.

Food Processing, Wineries:

California's more than 2000 wineries produce 90% of all US wine. The segment is comprised of a small number of very large wineries and conglomerates, and a large number of small and medium facilities. This environmentally progressive segment of tightly knit and organized peer-to-peer networks has established environmental programs and web-based

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The Deemed Energy Efficiency Program offers itemized retrofit measures with prescribed energy savings and incentive amounts. These measures are categorized under the following end-uses:

- Lighting
- Air conditioning
- Food service
- Refrigeration
- Industrial
- Motors
- Plug Loads
- Irrigation
- Process

The IOUs will also explore the development of a statewide consistent deemed measure catalog that includes measures specific to the agriculture and food processing end-users.

In brief, statewide incentive levels for the Calculated Energy Efficiency Program are as follows:

Measure Type	Incentive level (kWh/kW)
Lighting	05 cents per kWh + \$100/pk kW
AC and refrigeration	15 cents per kWh + \$100/ pk kW
Motors and others	09 cents per kWh + \$100/ pk kW
Gas measures	\$1.00 per therm

For the Calculated Energy Efficiency Program, statewide incentive levels are currently based on type of measure and savings in kilowatt hours (kWh) and kilowatts (kW).

The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" and to "raise incentive levels for Emerging Technologies", is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Calculated Incentive sub-program.

c) List of non-incentive customer services Agricultural Energy Advisor Services

The Statewide Agriculture Agricultural Energy Efficiency Program includes a wide variety of non-incentive program services. These services are intended to support customer strategic planning, educate and train customers and the workforce about energy efficiency, and provide customized technical and project support. The service list may include and is not limited to:

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- Energy Audits
 - Remote energy audits;
 - Integrated energy audits;
 - RCx audits;
 - Benchmarking (currently limited to portions of an agricultural facility with commercial spaces);
 - Pump tests and pumping systems technical support; and
 - Water leak detection services (new service).

- Continuous Energy Improvement (CEI)
 - Energy management assessments;
 - Energy planning;
 - Baselining and benchmarking;
 - Project implementation support; and
 - Customer recognition.

● Resources on Energy Design Resources website

- Customer Education and Training
 - DOE basic, intermediate and specialist training on agricultural and industrial pumps, motors, compressed air, and steam;
 - Other industrial process systems training;
 - ~~Agriculture~~ Agricultural pumping efficiency seminars;
 - Workshops merging regulatory compliance with energy efficiency opportunities (such as with NO_x compliance and boiler retrofits); and
 - Integrated industry-focused workshops, such as for wineries, dairies, greenhouses, and food processors.

- Workforce Education and Training
 - The Statewide WE&T crosscutting program effort will be leveraged to deliver targeted training to the agricultural sector to support Superior Energy Performance (SEP), ANSI and ISO energy management certification;
 - Title 24 training, such as for refrigerated warehouses; and
 - Industrial refrigeration best practices (for designers), in support of the Strategic Plan focus on refrigeration.

● Pump tests and technical support

● Design assistance and calculation support

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13-5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

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Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies³.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical, and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁴. Markets are social institutions⁵, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁷. According to York⁸, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

~~The question of what constitutes successful transformation is controversial because of a Catch 22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these~~

² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁴ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁶ Sebald, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org

⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁸ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

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~~baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate—particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.~~

Market transformation draws heavily upon diffusion of innovation theory¹⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are.

First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"¹³ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the ~~utilities IOUs~~ look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs.

⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R. N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

¹⁰ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹¹ Example in bottom chart of this graphic from the New York Times: <http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>.

¹² Sebold et al (2001) p. 6-5.

¹³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

¹⁴ CPUC (2008) Strategic Plan, p. 5.

¹⁵ Nadel, Thorne, Sachs, Prindle & Elliot (2003).

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Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers¹⁶ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a ~~behaviorial~~behavioral based metric for this sector, a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies, to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be

¹⁶ Pelozo & York, (1999).

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surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

Therefore, for the Agricultural sector, the following approach to quantitative baseline and market transformation information is as follows:

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Statewide Agricultural Energy Efficiency Program (Resolution E-4385, Appendix A, pp. 32-34).

SW PROGRAM/ Sub-Program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED * Data to be reported in disaggregate form by SW program (commercial, industrial, and agricultural)		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub-programs (NRA, Deemed, Calculated, and CEI) by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and by Hard to Reach (HTR)** ** "HTR" is as defined in the EE Policy Manual	<u>2a</u>
<i>Continuous Energy Improvement (CEI)</i>	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short-term (2010-2012) milestones as identified by their long term energy plans.	<u>2a</u>
	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N)	<u>2b</u>
	*3. Number and percent of commercial, industrial and	<u>2a</u>

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	agricultural customers that created an energy plan via CEI will be tracked by program.	
<i>Non-Residential Audit Program (NRA) Energy Advisor (EA)</i>	*1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.	<u>2b 2b</u>
	*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices. (Report disaggregated data by type of audit -- Basic and Integrated, and Retro-commissioning audit). ** (1) **Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates. (1) – An audit completed in one portfolio may have measures implemented over several years and portfolios.	<u>2b 2b</u>
<i>Deemed Incentives</i>	*1. Number and percent of new, improved, or ETP measures** installed in the commercial, industrial and agricultural programs. ** “ETP measure” defined as ETP measures first introduced into the EE portfolio since January 1, 2006.	<u>2a 2a</u>
<i>Calculated Incentives</i>	*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.	<u>2a 2a</u>
<u>AGRICULTURE/AGRICULTURAL</u>		
	1. Number and percent of first-time** participants in energy efficiency programs. (Report disaggregate data by sub-program.) **“First time” means customer has not participated in energy efficiency programs since December 31, 2005.	<u>2b2b</u>
<i>Pump and Test Repair</i>	1. Percent of agricultural pump tests that lead to a repair or replacement.	<u>2b 2b</u>

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b) Market Transformation Indicators (MTIs)

~~Resolution E 4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms sub programs. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities IOUs to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 201013-20142 energy efficiency evaluation, monitoring and verification (EM&V) activities.~~

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Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in "Attachment H" are approved for this sub-program as applicable.

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c) Program Design to Overcome Barriers

The ~~2010-2012~~ Statewide ~~Agriculture~~**Agricultural Energy Efficiency** Program builds on past program successes and best practices to overcome both market wide and segment specific barriers to efficiency, including:

- Market-wide barriers:
 - Agriculture is a diverse and geographically widespread sector, dependent on regional resources for information, and traditionally ~~resistant to change~~needs significant experiences to warrant changing practices that has served them well for years.
 - Capital constraints, combined with variable commodity pricing, limit the availability of funds for investing in projects.
 - ~~Utilities will expand the On-Bill Financing Program, which offers unique benefits to government departments by allowing them to retain rebates and cost savings from EE projects without having to upstream these financial benefits to the General Fund. The Statewide Finance PIP includes plans to explore and develop additional finance tools to facilitate the adoption of integrated projects.~~
 - Low energy costs relative to other operating expenses reduces the motivation to invest in energy efficiency.
 - ~~Regulatory compliance issues further strain limited internal resources. Customers, like in many areas, are tired and frustrated of being told how to run their business.~~
 - Lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings hinders investment.
 - ~~As in many industries, cyclical budgeting processes makes it impossible~~difficult for customers to commit to a plan of action, if their decision making occurs out of sync with budget planning.
- Food processing and industrial refrigeration barriers:
 - Few firms maintain facility level energy managers, and finding technically qualified staff is an ongoing challenge.
 - Regulatory compliance issues further strain limited internal resources.
 - International competition drives short-term survival attitudes versus a long-term continuous improvement approach.
 - The industrial refrigeration industry lacks design standards and best practices, resulting in substandard design and maintenance.
 - Huge capital outlay requirements in industrial refrigeration can delay or offset efficiency projects.
 - Efficient design alternatives can be lost in low-cost bidding scenarios.

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- Whole system opportunities are missed by individual equipment vendors.
- Customers are often not aware of systems operating sub-optimally.

The Statewide ~~Agriculture~~Agricultural Energy Efficiency Program takes these barriers into account with the features described below for continuous improvement, trade ally workforce education and training, and technical support.

Continuous Energy Improvement

The long-term strategic energy planning approach of CEI, especially the emphasis on benchmarking, goal setting, and performance tracking, will help customers overcome short-term attitudes. CEI also fosters integration of non-energy business objectives into energy planning and leveraging of the co-benefits of water conservation, GHG reduction, and other relevant issues. This integration elevates the importance of energy efficiency and improves uptake and market penetration. In addition, top-down corporate attention and tracking of energy performance will positively affect facility staff performance.

Trade Allies/Workforce Education and Training

Customers in the agricultural~~ale~~ and food processing markets often treat vendors, designers, and engineers as ad hoc outsourced technical resources. These customers ask for everything from new equipment design to emergency equipment repair or replacement. Because these transactions often happen without ~~utility~~IOU knowledge, it becomes critical to continually inform and equip these vendors about efficiency technologies, practices, programs, and rebates. Vendor Participation Agreements, training, and outreach collaboration allow participating vendors to up-sell customers to efficient options and differentiate themselves on energy efficiency. ~~Utilities~~IOUs gain an additional sales force in the field with customers, minimizing lost opportunities.

Technical Support Services: ~~Audits, Pump Tests, Incentives Calculation Support~~

The role of the ~~utility~~IOU as an unbiased, trusted energy advisor cannot be overstated, both in evaluating proposed vendor projects and in identifying new technical opportunities in retrofit and new construction projects. The combination of technical support and the availability and commitment of approved ~~utility~~IOU incentive funds – based on a rigorous technical review and followed by an EM&V process – are essential drivers to overcome key customer barriers, including the lack of in-house technical resources and the tendency for efficiency options to get eliminated in low-cost vendor bidding scenarios.

**~~The C~~Customer Services~~Agricultural Energy Advisor sub-program~~Program
(CSPAEA):**

CSPAEA is designed to deliver a coordinated and customer-specific audit service. CSPAEA features a statewide integrated demand-side management customer-specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies, as appropriate, to the customer's need(s).

The CSPAEA is designed to support the goals of the Strategic Plan by providing customers with comprehensive building-specific information on cost-effective DSM opportunities. The

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IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

The CSPFA umbrella, consists of six (6) distinct components:

- ~~— Benchmarking is an initiative designed to educate and motivate customers to benchmark their facilities. It will offer technical support, hands-on workshops that will provide customers with information enabling them to utilize benchmarking as an energy management tool. The program is also designed to support the implementation of AB 1103.~~
- ~~— Online Energy Audit Tool (Small Business): The Online Energy Audit Tool is designed as an enhanced, customer friendly "do it yourself" online audit tool that targets small business customers. Currently the tool identifies customized energy efficiency, demand response and solar recommendations for eight (8) business types.~~
- ~~— Continuous Energy Improvement (CEI) Continuous Energy Improvement (CEI) is a consultative service aimed at helping Agricultural customers engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices through a high level energy commitment from executive and board level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.~~
- ~~— Continuous Energy Improvement (CEI) Continuous Energy Improvement (CEI) is a consultative service aimed at helping Agricultural customers engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by~~

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~~transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices through a high-level energy commitment from executive and board level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.~~

~~Non Residential Audits (NRA) design for the Transition Period is focused on cost efficiency and the delivery of financial and technical assistance that the customer needs to make energy saving decisions. Audit information must communicate complex information in a simple and understandable way to identify energy efficiency, demand response and renewable generation opportunities.~~

~~The goal is to use a “one-stop shop” approach to maximize the benefits for the customer and reduce any associated negative impacts. This program cycle, emphasis will be given on meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan) and streamlining the audit process increasing efficiency, lessening complexity, and increasing the effectiveness of influencing customer implementation actions.~~

~~Onsite audits will take the form of providing to our customers, opportunities for integrated comprehensive audits and focused audits.~~

~~Pump Efficiency Services is designed to help commercial, industrial and agriculture customers make informed decisions about improving inefficient pumping systems before they stop moving water and start wasting excessive amounts of energy. Pumping of potable water is estimated to account for more than 80% of the electric load in California’s agriculture segment, and this load is growing as the state’s water users increase their reliance on pumping water to meet their needs.~~

~~All California investor-owned utilities (IOUs) will offer pump services and workshops at no or low cost through in-house or contracted resources during the Transition Period.~~

~~Retro-commissioning:~~

~~The RCx element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary~~

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adjustments to correct the deficiency. A “Master List of Findings” results from the initial assessment that identifies low-cost projects with simple payback periods of less than 4 years. These projects may involve resetting, repair or replacing of existing system controls and components. Through the RCx assessment report, comprehensive projects are identified and referred to other sub-programs for completion (i.e., Calculated and Deemed Incentives). Energy savings from projects identified through RCx will be claimed in the Calculated Incentives Program.

strategy is designed to simplify the process by which customer are aware of the vast and varied auditing services that the utility has to offer. Through assessment functions, the utility will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (EE/DR/SG/Water Conservation).

CSP will serve a diverse class of customers and will bridge offerings across different IOU programs. From a customer perspective, the audit analyses will appear as a single package, identifying comprehensive options that simplifies the customer decision-making process.

Utility technical resources evaluate customer project opportunities and recommend design alternatives, including energy savings, cost savings, and available rebates and incentives for exceeding program baselines. In the future, utilities will be exploring providing regulatory benefits and opportunities for CO₂ reductions and non-energy benefits, such as production and safety data. The calculated approach provides for a “whole systems” integrated approach (such as incorporating controls and optimization with other systems). This technical data, in conjunction with financial data like payback periods, net present value, and/or ROI, allows facility managers to easily “sell” efficiency projects internally to management. Incentives improve ROI, accelerate project schedules, and can prevent efficiency options from being “value engineered” out at a later time.

A comprehensive retrocommissioning effort will be developed with an agriculture focus to help identify sub-optimal systems and improve operating performance. By being more of a maintenance-based offering, Agriculture Commissioning (ACx), allows customers to complete projects with short paybacks through their operations budget rather than their capital budget. This overcomes a common financial barrier related to capital budget approvals. Incentives sweeten the project opportunity, while ACx also requires a customer to complete any project with less than a one-year payback, improving the uptake of projects.

d) Quantitative Program Targets

Table 5 - Program targets are provided at the sub-program level.

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e) Advancing Strategic Plan Goals and Objectives

The teams of statewide agricultural program supported the development of the California ~~Long-Long~~-Term Energy Efficiency Strategic Plan (Strategic Plan), and the 201~~30~~-201~~42~~ program design integrates the goals and strategies of the Strategic Plan. Specifically, the following actions will be advanced during the 201~~30~~-201~~42~~ program cycle.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

Strategy 1.1: Develop knowledge base of efficiency solutions.

Near term: Conduct an energy use characterization and efficiency potential study for the statewide agricultural market. Include potential for waste streams to offset energy consumption. Study plan (6/2009) and study completed (12/2010).

Near term: Collect data on key programs and measures, best practices for energy efficiency in the agricultural sector. Study completed (6/10).

~~Utilities IOUs~~ will continue to coordinate with the California Energy Commission (CEC), ~~Commission,~~ and other resources to identify a study plan, scope, and deliverables for a statewide agricultural market characterization that considers integrated energy opportunities in the segment. If possible, the plan will be coordinated with other agricultural characterization plans planned or underway in the state focusing on renewable energy potentials, such as the California Department of Food and Agriculture's strategic plan for agriculture. The IOUs will defer to the Commission and the CEC to determine the best method and timeline for this study, and will ensure coordination between each IOU's EM&V groups towards study objectives.

Such a marketing characterization will support the development of future program baseline data and metrics to help set targets and show market progress. The resulting study will be posted on appropriate websites, including the IOU websites and the ~~Energy Design Resources~~-statewide websites.

To develop a "one stop shopping" clearinghouse of energy management and related information for the agricultural segment, the ~~utilities IOUs~~ will organize and post all relevant existing technical information on the ~~IOU and~~ statewide ~~Energy Design Resources~~ websites, as needed. This information includes best practices, continuous energy improvement resources, emerging technologies data, tools, programs, and other information.

Strategy 1.2: Ensure workforce has information and training necessary to apply efficiency solutions.

Near term: Conduct workforce training needs assessment and next steps (12/2010).

Near term: Develop training curricula and modules identified by needs assessment. (12/2011)

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Utilities IOUs will assemble technical sub-groups, including utility IOU and industry experts, to focus on the key technical areas identified in the Strategic Plan, such as pumping, refrigeration and process heating. Coordinating with Statewide WE&T Program, the Statewide Agriculture Agricultural Energy Efficiency Program will develop a scoping document that outlines training objectives and partners. The group will identify priority topics, resource needs and industry partners for key workforce education and training, and will closely coordinate with the national ANSI Superior Energy Performance standards development work towards workforce certification. Additionally, utilities IOUs will offer prerequisite training to support future Department of Energy certification classes.

Workforce training needs assessment will be included in the agricultural market characterization study, and results communicated to the Statewide WE&T team for coordination and development of a detailed WE&T plan and associated curricula. Furthermore, marketing for WE&T will be incorporated into program specific marketing and outreach efforts. Such efforts, pending timely completion of the characterization study, are targeted for completion by the close of the 2010-2012 program cycle.

Strategy 1.3: Conduct research & development of new technologies and practices for agricultural efficiency.

Near term: Conduct an Energy Technologies/RD&D gap analysis. Identify and prioritize needed RD&D/ET projects. (12/2011).

Near term: Coordinate research activities across government, utilities IOUs, agricultural extension and university programs, and equipment manufacturer proprietary efforts.

The IOU's ET teams will continue to closely coordinate with the CEC, universities and industry associations to identify key potential areas for emerging technologies development and research needs, such as, for agriculture, in irrigation pumping, refrigeration, and process heating applications. Utilities IOUs will identify the most promising technologies that can play a role of providing multiple solutions, both for energy efficiency and greenhouse gas mitigation, as well as water efficiency purposes.

Goal 2: California regulations, financing mechanisms, and incentive programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

Strategy 2.1: Set objectives and framework for agriculture to attain multi-resource management goals.

Near term: Establish a task force to coordinate resource management policies, action goals, and program designs targeting California's agricultural sector.

Near term: Identify where goal conflicts arise and resolve these conflicts.

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Near term: Assess potential for integrated approaches.

In support of statewide regulatory coordination, the IOUs will establish a task force with the California Department of Food and Agriculture (CDFA), CEC, Environmental Protection Agency (EPA), and the California Air Resources Board (CARB). The task force will be empowered to coordinate strategies and goals, and also assess the potential for integrated approaches, on behalf of their agencies. In order to facilitate this complex, multi-agency coordination, intervention at the governor's level is likely to be required.

~~Other efforts planned by the Agriculture Energy Efficiency Program (for example, the pilot project for Integrated Demand Side Management for Food Processing) will allow California's IOUs and regulatory agencies to assess the potential for integrated approaches.~~

Strategy 2.2: Coordinate technical assistance, funding, and incentive mechanisms.

Near term: Identify the programs and major funding sources affecting the management of energy, air and water resources, and climate change.

Near term: Create a collaborative forum to facilitate sharing of information and coordination of programs.

As challenges to the national and state economies arise, deploying financial resources in support of energy efficiency and other resource efficiency will be increasingly important. In support of financial coordination, ~~utilities~~ IOUs will work with appropriate agencies, utilities, industry and private banking to assemble a comprehensive list of incentives, resources, funds, grants, loan products, and federal economic stimulus monies. This list will support energy and other resource management objectives, made available to customers through the planned Information Clearinghouse on Energy Design Resources.

In addition, financial resources will be integrated into marketing and outreach, education and training, and other program efforts, as appropriate.

Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

Strategy 3.1: Make information on efficiency solutions readily available to motivate efficiency improvements.

Near term: Develop benchmarking resources, tools and methods for the agricultural le sub-sectors.

Near term: Design and launch focused program for irrigation efficiency, refrigeration, and process heating.

The IOUs will post relevant market data, technical information, education and training resources, and benchmarking tools, other than proprietary- material or information, on the planned Energy Design Resources or other statewide

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clearinghouse websites. This information will cover relevant technologies in agriculture and food processing segments, but will have a focus on irrigation efficiency, refrigeration, and process heating. The Continuous Energy Improvement Program will also support this strategy. On benchmarking, the IOUs will continue to work with industry associations (for example, the Wine Institute, Almond Board, and Farm Bureau) to prioritize benchmarking needs and to develop tools and methods, as well as to market benchmarking once resources are available.

Strategy 3.2: Conduct marketing & outreach to stimulate efficiency actions.

Near term: Develop ME&O strategy, addressing communication channels, partners, and effective messaging.

Near term: Begin pilot implementation.

For details on marketing and outreach planned to stimulate energy efficiency actions, please refer to Section 6.b.iv.

Strategy 3.3: Resolve metrics for embedded energy in water savings.

Near term: Update evaluation measurement & verification protocols to define energy impacts of water efficiency actions.

Near term: Design and conduct appropriate water/energy efficiency pilots for agriculture.

In support of the significant efforts underway in California to conserve water resources, and to optimize public funds where energy and water converge, the ~~utilities~~ IOUs will work with the Commission, water resources boards, and others to resolve metrics around embedded energy in water conveyance and treatment. Furthermore, IOUs will explore opportunities for saving energy on-site related to water, such as that in heating, cooling, pumping, and treating water. Lessons learned from current water-energy pilots underway in one ~~utility~~ IOU's territory will be shared with the other IOUs. The IOUs are willing and available to work with the Commission to advance these important multi-resource efforts through studies, pilots and partnerships with water agencies as appropriate.

14.6. Program Implementation

a) Statewide IOU Coordination

i. Program name: ~~Statewide~~ ~~Statewide~~ ~~SOCAL GAS~~ ~~Agriculture~~ ~~Agricultural~~ Energy Efficiency Program

ii. Program delivery mechanisms

The ~~Statewide~~ ~~SoCal Gas~~ ~~OAL GAS~~ ~~Agriculture~~ ~~Agricultural~~ Energy Efficiency Program will ensure the program is continuously updated and enhanced throughout the ~~three~~ ~~two~~-year implementation cycle. This also includes coordination with crosscutting program elements, including Emerging Technologies, Codes and Standards, Workforce Education and Training, Marketing and Outreach, and Non-IOU programs and market initiatives.

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Each designated IOU program lead will be responsible for representing key updates from each crosscutting program element in order to discuss opportunities for statewide program enhancements, modifications and further coordination as needed. IOU leads will then be responsible for incorporating program modifications at the IOU level to support statewide consistency when appropriate. Such items will be tracked in the meeting minutes to facilitate a record of statewide initiatives.

In addition, the ~~five~~ ~~three~~ ~~four~~ (4) agricultural sub-programs will be coordinated statewide to unify program implementation including delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. The two coordination systems (one for the broad core program and one designed for the five sub-programs) will interact with and support one another. The broad, high-level coordination effort is described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide ~~Agriculture~~ ~~Agricultural~~ Energy Efficiency Program.

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The Statewide IOU Coordination process for the ~~Statewide Agriculture~~ ~~Statewide SoCal Gas~~ ~~OCAL GAS~~ ~~Agriculture~~ ~~Agricultural~~ Energy Efficiency Program will be as follows:

- **Designate an IOU Program Lead** – The coordination process will begin with each IOU designating a Statewide ~~Agriculture~~ ~~Agricultural~~ Energy Efficiency Program lead. The IOU lead will represent one agricultural sub-program and liaise with the crosscutting program element managers, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges may impact the Statewide ~~Agriculture~~ ~~Agricultural~~ Energy Efficiency Program across multiple sub-programs or the statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.
- **Establish protocols for Steering Committee Meetings** – The IOUs will coordinate to establish protocols around scheduling meetings, agenda setting, interstate travel, meeting minutes and tracking of action items identified.
- **Hold Quarterly Steering Committee Meetings** – The ~~Agriculture~~ ~~Agricultural~~ Steering Committee will be comprised of all designated IOU leads (including at least one lead for each of the five sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the quarterly Steering Committee meeting, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be shared with all IOUs. The Steering Committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the agricultural program's progress against statewide metrics and goals.

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- **Adopt Program Enhancements** – After the Steering Committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide Steering Committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.
- **Evaluate Program Enhancements Against Statewide Targets** – To complete the adaptive management loop, the Steering Committee will track the program’s accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Steering Committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and help ensure achievement of statewide targets across IOU service territories.

iii. Incentive levels

~~Details on the incentive levels are discussed with each of the four sub-programs. Incentives for industrial agricultural customers will be provided through both the deemed prescriptive and customized-calculated approaches. The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division direction. One possible method to comply with the Energy Division’s guidance to “achieve deeper energy savings retrofits and packages of measures” and to “raise incentive levels for Emerging Technologies”, is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects.~~

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

~~The IOUs will continue to develop in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the agricultural sub-program plans.~~

To specifically address this highly diverse and dispersed group of agriculture, food processing and related water customers, ~~utilities~~ IOUs will continue to foster strategic

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partnerships with industry and commodity groups, as well as with regional farm and food associations. These partnerships engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. These strategies leverage both past program successes as well as best practices studies that have confirmed that the targeted market segments rely substantially on local and industry-specific organizations for information and support.

~~The key food processing industry association partnerships include the Wine Institute's California Sustainable Winegrowers Alliance and the California League of Food Processors. The partnerships will reach large and small customers with key messages and emerging technologies information through association communications, presence at industry conferences and trade shows—and to pursue mutually advantageous benchmarking and pilot opportunities. To reach the more broadly dispersed agriculture segments, the IOUs will coordinate with the state and regional farm bureaus on communicating program offerings in the Ag Alert newsletters, through regional meetings, through market sector workshops and trainings, and through media plans targeting ads and articles in trade publications.~~

~~The utilities will also inventory and coordinate relevant agriculture and food processing technical and programmatic resources into a centralized one stop shopping clearinghouse. The clearinghouse will be part of the enhanced statewide Energy Design Resources website with specific market segment portals to assist customers with project design and implementation. For more discussion about the enhance Energy Design Resources website, see the Workforce Education and Training Program Plan.~~

~~The IOU IOU IOUs~~ The IOUs have ~~The IOUs~~

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

~~The~~ Statewide SoCal Gas OCal Gas Statewide Agriculture Agricultural Energy Efficiency Program will support integrated marketing opportunities for distributed generation from biogas, biomass, solar, fuel cells, and wind, as well as agricultural ale-based community-scale generation projects. These efforts support customer needs and wants, state renewable energy targets (through newly available small generator Power Purchase Agreement contracts), AB 32 greenhouse gas reduction targets, and emerging carbon markets and offset programs (such as the Chicago Climate Exchange or through the California Climate Action Registry). Consistent with California's preferred loading order, however, the utilities IOUs will continue to aggressively market and support energy efficiency first, as California's most cost-effective energy resource, while also being mindful of the customer's ultimate interests and goals.

vi. Similar IOU and POU programs

During the Transition Period, POU program activities will be coordinated with the Sacramento Municipal Utility District (SMUD) and the Imperial Irrigation District (IID) ~~other agencies' and organizations'~~; territories with containing a substantial

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agricultural base, as opportunities present themselves. This will ensure that California's agricultural customers receive a consistent message, and program approach and removes a common barrier to program participation (i.e. processing or transaction costs).

b) Program delivery and coordination

i. Emerging Technologies program (ET)

The long-term energy efficiency vision of California can be attained through the continuous development, verification, and acceptance of new technologies into the market. IOU portfolio staff actively works with statewide emerging technologies staff to identify new emerging technologies, support evaluation and demonstration, develop and promote case studies, and market results to applicable customers towards total market penetration. The programs coordinate specifically with ~~the CEC's PIER program, and~~ universities to supply market-ready and viable technologies into the ET portfolio.

~~The Agriculture Program is currently working to support a diverse list of emerging technologies including winery electro dialysis, wastewater treatment technologies, forklift battery chargers, dairy refrigeration advancements, industrial refrigeration design enhancements, field pre-cooling advancements, and solar thermal applications.~~

The ~~utilities~~ IOUs will use a formal technology integration process for incorporating emerging technologies into the program. This process will be designed to track technologies/tools to be assessed, timeline to deployment, integration, codes and standards actions, expected actions of other players (such as manufacturers and ENERGY STAR) and other related information. The statewide program management team will work with other partners to update and execute the technology integration process, based on developments in technology, the program, and the market context. This process will be updated regularly to reflect current conditions.

ii. Codes and Standards program

The ~~Statewide~~ SoCalGas ~~Agriculture~~ Agricultural Energy Efficiency Program relies on the Codes and Standards Program to help maintain an updated and relevant list of measures that will support agricultural savings. As ~~c~~Codes and ~~s~~Standards evolve, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program will coordinate with the Codes and Standards Planning & Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. In the ~~Statewide~~ ~~Agriculture~~ Agricultural Energy Efficiency Program, current work focuses on transitioning the market to accept new refrigerated warehouse code changes, and incorporating best practices and advanced refrigeration practices into that marketing and outreach effort. Towards that end, the Statewide ~~Agriculture~~ Agricultural Energy Efficiency Program will continue to coordinate closely with crosscutting Codes and Standards, Workforce Education and Training, and industry

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partners and associations, and will utilize the Statewide AgricultureAgricultural Steering Committee to enhance the coordination effort.

iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others supporting the market transformation strategies of the Strategic Plan. In general, the StatewideSoCalGas OALGASAgricultureAgricultural Energy Efficiency Program will interface with the Workforce Education and TrainingWE&T&E Program Implementation Plan to serve the goals of the Strategic Plan.

WE&T efforts will include specific activities to support the various sub-programs. In addition, training on Title 24 code changes, industrial refrigeration best practices, and ANSI Superior Energy Performance certification will also be provided. The latter will be contingent on program developments occurring at the national level.

In the interim, the statewide agricultural program will support the same superior energy performance concepts and principals through Continuous Energy Improvement workshops available for customers and trade allies. -Additionally, DOE process system trainings (pumps, motors, steam, and compressed air) will be offered by IOUs statewide to lay the groundwork for certification level classes, once they have been developed nationally and are ready for rollout. The IOUs will be coordinating closely with national efforts and have expressed openness to discuss piloting certification classes. As a result, California will be poised to adopt this national standard and be a leader in this effort.

The education and training generally takes place through IOU energy centers, technology test centers, and education and training program offerings. Working with the Statewide WE&T team, the agricultural program managers will also expand training opportunities to local universities and academic institutions that have agricultural-based programs (e.g. Cal Poly Pomona and San Luis Obispo).

iv. Program-specific marketing and outreach efforts

The IOUs are currently engaged in in-depth market segmentation analyses. -The results of this work will be shared among the IOUs and incorporated into detailed marketing and sales strategies to ensure the IOUs are targeting the right products to the right customer at the right time, and utilizing the right-preferred method of communication channels.

This foundational segmentation and integration of programs and -services will evolve withprovide incremental insight into customer mindsets, behaviors, responses and motivations to achieve the most effective level of energy use. Based on this in-process segmentation analysis, the utilitiesIOUs will be able to focus on providing consistent marketing and overall messaging focused on customers' business and personal goals, unique needs, and specific environmental considerations.

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The results of this strategic planning effort will help define successful program outreach efforts to address the diverse agricultural, food processing and related water customers segments. Such efforts are customized to suit the unique needs of each segment and customer profile. See the marketing section of 5.6, Program Design to Overcome Market Barriers.

For example, utilities IOUs will continue to foster strategic partnerships with industry and commodity groups, and regional farm and food associations to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users.

Specific efforts will may include:

- Attending Farm Bureau meetings and providing information in monthly newsletters;
- Close partnerships with key industry associations and participation in their annual conferences, with an effort to develop conference speaking engagements;
- Presence at technical conferences, targeting customers and trade allies;
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement;
- Media campaigns focusing on trade magazine ads and articles, discussing IOU program information and case studies;
- Targeted customer efforts through assigned IOU account representatives and program engineers, third parties, and government partnerships;
- Phone and web-based customer support and outreach;
- Development of coordinated statewide agricultural and food processing resources into a centralized “one stop shopping” clearinghouse, on Energy Design Resources and
- Market sector specific collateral that drives customers to account representatives and/or Web sites for additional support.

Such efforts have already shown success in California’s IOU programs and are identified as best practices in the American Council for an Energy Efficient Economy (ACEEE) comparative analysis of national agricultural energy efficiency programs.

Where possible and applicable, the IOUs will coordinate statewide in these targeted marketing efforts and partnerships to ensure cost-effectiveness and a consistent approach to customer-facing activities. Cost-Cost-sharing at industry conferences, co-sponsoring workshops, and identifying opportunities for statewide media campaigns as well as co-development of web-based tools and resources will be pursued.

The Energy Design Resources website will be used as a statewide clearinghouse of best practices, technology information, case studies, updates on upcoming education and training, and to promote new tools and resources available to support the Continuous Energy Improvement approach, such as benchmarking and performance tracking tools.

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Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

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v. Non-energy activities of program

Refer to Section 6.f on "integration across resource types."

vi. Non-IOU programs

There are a variety of programs that will be coordinated with and leveraged in support of the program objectives. ~~Those~~ These include:

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- Connecting customers with the CA Climate Action Registry;
- AB 32 support through CO2 tracking in program resources;
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations;
- Non-~~utility~~ IOU financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives;
- Water/Energy efforts within California;
- ANSI, for the Superior Energy Performance Standard; and
- ISO international energy management standards.

The program will continue to engage with Air Quality Management Districts, the California Energy Commission, the California Air Resources Board, the Department of Energy, water agencies, and other government agencies on programs impacting regulatory compliance and resource management.

vii. CEC

~~vii. CEC work on PIER~~

~~Not applicable.~~

As of June 2012, PIER no longer exists. However, the program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies.

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~~The program will not be implemented with a direct linkage to PIER.~~

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viii. CEC Work on Codes and Standards

As indicated in Section 6.b.ii, planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

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~~The program will not be implemented with a direct linkage to codes and standards efforts.~~

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ix. Non-utility market initiatives

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The ~~Statewide Agriculture~~Agricultural Energy Efficiency Program will coordinate with applicable market initiatives to leverage market momentum and areas of mutual advantage. Modeling on the success of the ~~utility IOU~~ partnership with the wine industry California Sustainable Winegrowers Alliance, the program ~~will may~~ leverage the following efforts:

- ~~California League of Food Processing; Efficiency Alliance~~
- ~~California Farm Bureau Federation;~~
- ~~California Citrus Grower;~~
- Almond industry sustainability energy planning;
- Wine Industry – CSWA Program initiative;
- ~~Dairy Industry;~~
- ~~Irrigation Districts; and~~
- ~~ASHRAE / ARI efforts to develop refrigeration best practices.~~
- ~~National dairy sustainability effort.~~

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c) Best Practices

As described in prior sections, the ~~SoCal Gas Statewide~~SOCAL GAS ~~Agricultural~~Energy Efficiency Program reflects the best of each ~~utility IOU~~ program's successful components of statewide agricultural energy program offerings, and introduces new elements from other utilities and national efforts. These best practices include:

- Leveraging Local Agricultural Resources: i.e., industry associations and farm bureaus;
- Continuous Energy Improvement: An approach to transform the market and reduce energy intensity through addressing technical and management opportunities;
- Technical Assistance: Recognizes the need for personalized assistance for ~~commercial, industrial and~~ agricultural customers, which includes a full service approach starting from audits/pump tests to design and technical assistance, presentation of recommendations, resources to develop a long term plan, potential of project management assistance, with financial incentives and guidance on best practices.
- Vendor Partnerships: This strategy will be coupled with vendor support and educational workshops and classes provide the full breadth of support customers may need to influence their decision to implement energy efficient equipment and practices.
- Statewide Coordination: In order to take advantage of the statewide implementation of the program, the IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.

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d) Innovation

A bundled and integrated product and service offering will integrate with multiple resource management solutions, offering a new and customer-centric approach to programs. This is supported by innovative customer segmentation work by the Marketing and Outreach IOU teams. Significant innovative aspects of the ~~Statewide SoCal Gas~~SOCAL GAS ~~Agricultural~~Energy Efficiency Program include:

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Integration

The Statewide ~~Agriculture~~Agricultural Energy Efficiency Program integrates demand side management strategies, and develops methods and pilots to promote integration of interlinked environmental and resource management issues. By improving the coordination of these issues of paramount importance to the industries being served, more face-time will be possible with large customers, projects will become more cost effective, and multiple problems will be solved concurrently. Specifically:

- Continuous Energy Improvement will foster a long-term energy management approach and support integrated demand side management.
- An innovative food processing pilot will integrate energy, air, water, GHG, and (potentially) waste streams.
- Integrated Comprehensive Energy Audits will provide targeted customers with integrated solutions in efficiency, DR, and DG, and may advise customers on other sustainability practices (for example, water conservation opportunities, CO2 reduction potential, and other programs references).
- IOUs will link customers with the California Climate Registry to identify the carbon footprint of a customer's plant.
- ~~Utilities~~IOUs will promote innovative agriculturalle opportunities such as dairy biogas to energy, biogas injection, waste stream utilization, and community scale generation opportunities.

Marketing

- A market-sector approach to designing and delivering programs will allow IOUs to delve more deeply into market opportunities and overcome specific market barriers. This approach is supported by innovative market segmentation work currently underway at IOUs that will support development of new, precisely targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs.
- Closer coordination with third parties, government partnerships, core programs, and other delivery channels will optimize portfolio performance.
- ~~Utilities~~IOUs will increase outreach to new trade and community-based associations, leveraging best practices identified in ACEEE study of ~~utility~~IOU agriculturalle programs.
- Expanded workforce education and training efforts with vendors, design teams, industry association members and other key market actors will help overcome many customer informational and transactional barriers
- Energy Design Resources, developed statewide by IOUs, will be expanded as a web-based hub of agriculturalle and food processing best practice information, training, modeling and performance tracking tools.
- Training will be provided on modeling and quantifying savings opportunities through tools such as eQUEST and Energy Pro.
- Non-~~utility~~IOU financing tools and resources will be coordinated and communicated to help customers leverage available sources of funds to complete targeted projects.

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Implementation

- Utilities IOUs will coordinate on process improvements to statewide programs to ease participation barriers.
- Energy performance measuring and benchmarking assistance/services to customers will enable customers to compare themselves to “best in class” peers utilizing tools such as the U.S. EPA’s ENERGY STAR Benchmarking tool.

e) Integrated/Coordinated Demand Side Management

An integrated portfolio is cost-effective, captures program delivery efficiencies, and serves the needs and wants of customers who prefer a single, informed utility IOU point of contact ~~who can~~ help inform and prioritize their energy investment decisions based on their unique needs. Consistent with Commission direction and with the Strategic Plan, the Statewide Agriculture Agricultural Energy Efficiency Program includes integration of energy efficiency, demand response and distributed generation programs in integrated audits, marketing materials and industry-specific workshops. To this end, the statewide utilities IOUs and the Statewide Agriculture Agricultural Energy Efficiency Program has made progress in advancing integrated solutions.

The IOUs are placing major emphasis on marketing to get the right message to the right customer at the right time. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which outline multiple tactics, delivery channels and key messages to target to specific customers based on their specific needs. The IOU account representatives, who serve as the key customer point of contact, will be attending an integrated sales strategy and training program to ensure consistent delivery of portfolio offerings.

Education and training, particularly workshops organized around a customer segment, provides an ideal situation to integrate customer energy solutions. Utilities IOUs will provide integrated workshops to dairies, wineries, and food processors. These workshops will cover topics, such as resources analysis and methods, conservation, efficiency, demand response, and generation topics and resources. These workshops provide opportunities for utilities IOUs to cross-sell solutions and share key information from other utility IOU departments (for example, sharing biogas injection information at dairy workshops). They also provide opportunities to look at water, air, carbon credit and waste management issues.

As appropriate, Workforce Education and Training (WE&T) will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures. The Agriculture Agricultural Program will coordinate with the WE&T group on curricula development and class planning.

The availability of a Continuous Energy Improvement approach, especially for the largest, most strategic customer accounts, will facilitate a thoughtful, integrated energy plan and will allow utilities IOUs to stay engaged in supporting the progress of that plan.

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Integrated comprehensive Energy audits combine funds and resources of energy efficiency (EE) and demand response (DR) programs to provide integrated recommendations to customers. These audits provide customers with EE and DR recommendations and also provide general feasibility assessments for distributed generation (DG). ~~Detailed~~ Integrated comprehensive energy audits will be offered to customers with loads greater than 500 kW and all integrated audits will focus on EE, DR and DG options. In addition, the utilities IOUs are developing an enhanced web-based integrated audit tool¹⁷ for customers and internal utility IOU personnel. The integrated audit tool will be the principal tool to provide IDSM information to customers with loads less than 200 kW and will be used by the CSI program for determining EE opportunities prior to installation of solar equipment. It will be capable of generating customer reports that include specific information on the costs and benefits of IDSM programs.

Emerging Technologies and CEC-PIER collaboration is expected to include pilot projects and market acceleration assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

f) Integration across resource types (energy, water, air quality, etc)

California's agricultural and related food processing sectors face a multitude of environmental and regulatory challenges that threaten their survival and competitiveness. In 2009, a severe drought is impacting California's farmers and increasing water pumping costs. In addition, new regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual. Both these are impacting energy use and compliance.

The Agriculture Agricultural Energy Efficiency Program proposes to leverage these challenges to coordinate with the regulating agencies and the programs they are operating in order to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. For example, the IOUs will continue to offer targeted trainings to customers who are sharing common regulatory challenges. In 2008 PG&E hosted three very successful workshops called NO_x – Comply and Save, which educated customers on impending regulations, requirements for their boilers, and the most efficient project options to consider for compliance. This workshop will be expanded statewide and offered at the other IOU energy centers. In addition, additional workshops will look at wastewater treatment options, refrigeration upgrades, and energy efficiency to meet AB32 targets.

Utilities IOUs will pursue opportunities to partner with water agencies to offer joint energy and water incentives to support projects that reduce both resources, which reduces project costs and improves payback.

¹⁷ Integrated audit tool is referenced as a general term in the statewide PIPs; each IOU has a specific name for its tool. PG&E's tool is the Progressive Energy Audit Tool (PEAT). SDG&E, SoCalGas, and SCE's, tool is the California Integrated Customer Energy Audit Tool (CICEAT).

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An IOU is currently conducting a study to evaluate emerging water quality requirements in the state, and address best practices in comprehensive water related energy management in seven agricultural/food processing sub segments. The study will reflect statewide practice as much as possible. The results will be shared with the other IOUs, as well as posted on Energy Design Resources.

~~The Integrated Demand Side Management Pilot with Food Processors is still under development, but aims to coordinate air, energy, and water/waste streams management. Ideally, learning from the current Commission water/energy pilot, which includes wineries, will be useful in advancing the objectives of this effort.~~

Where applicable, the program will integrate topics like GHG reduction and water conservation into targeted customer workshops, marketing and communications, building on a strong track record from the ~~2006~~2010-128 program cycle. For example, one IOU is currently conducting a series of winery workshops focusing on GHG reduction strategies, water management, Energy Management 101, and Green Building which includes materials and water. Ads and articles featured water savings opportunities and messaging.

g) Pilots

~~IOUs will pilot and develop methods to use more detailed performance and usage data that can be measured, stored and used to improve energy efficiency offerings and services for greater customer impact. The Agriculture Program will support the pilot proposed by the California League of Food Processors tentatively titled the Integrated Demand Side Management Pilot for Food Processing Program. The pilot forms an alliance between the food industry, the Commission, IOUs, and other state and national stakeholders and promotes integrated energy management solutions to end-use customers in the food processing segment.~~

~~The pilot aims to explore the relationship between energy, demand, air, water, and other resources and develop integrated strategic plans for pilot participants that will optimize their management. This comprehensive strategic approach to resource efficiency is warranted due to the close interconnection with the demand for energy and water, air and wastewater emissions. The pilot will support the need for industrial managers, plant supervisors and workers to have new skills and abilities to engage in technical deliberations to ensure the integration across resources achieves the desired resource optimization objectives.~~

~~The end result is expected to be that food processors reduce, reuse and recycle water resources; limit air pollution emissions; capture solid and liquid waste streams to generate bio-energy products; and continuously achieves energy efficiency through best practices and personal development. The reward will be energy efficiently made products with the lowest level possible of impacts on natural resources and the environment.~~

~~The scope of the pilot is still under development. In 2010, utilities will coordinate with the California League of Food Processors, Commission, CEC, ANSI and the International Standardization Organization to clarify and refine pilot design, budget, timelines, partners,~~

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and goals. Candidates will ultimately be selected from the food processing and potentially industrial segments. If possible, non-utility funding sources will be leveraged to support pilot activities as the resource benefits cross multiple agencies and jurisdictions. The pilot is expected to be planned during the bridge period and be rolled out in the six month period after 2010-2012 program cycle begins.

— **Test Strategic Approach for Agricultural Segment (SCE)**

Traditionally agricultural customers are a high cost group to provide significant energy education to. They are gGeographically they're dispersed and typically time constrained, over much of the middle of the state. Time is very important to them. Energy efficiency is not a primary concern, and although the IOUs have established high value relationships with these customers, many times it takes more to get them to accommodate new technologies.

— **IOU Test Strategic Approach for Agriculture Segment**

The IOUs may implement a Test Strategic Approach (TSA). The TSA is based on identifying agricultural sub-segments where the IOU(s) have strong relationships with an industry or trade association. The objective is to leverage the trade association's needs with IOU's knowledge and experience with energy efficiency, demand response and self-generation opportunity and solutions and in collaboration with the trade association leadership, educate sustainability and energy efficiency solutions to their membership.

This model is based on a successful effort implemented by the California Association of Winegrape Growers with Pacific Gas and Electric. For more information on their efforts, website link: <http://www.cawg.org/CAWGProjects/SustainableWinegrowing/ProjectDescription.aspx>.

— This Test Strategic Approach is based on identifying at least two agricultural subsegments where SCE has strong relationships with their industry or trade association. The objective is to leverage the trade association's needs with SCE's knowledge and experience with energy efficiency, demand response and self-generation issues and in collaboration present sustainability and energy efficiency solutions to their membership (1).

— **The anticipated benefits:**

- Influence for installation of kWh and KW
- Customer satisfaction, and
- Cost efficiency delivery of DSM services
- Identification of appropriate emerging technologies

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M&E study support: (i.e. suggested market research, researchable questions based on theory, high level research plan ...)

- Customer satisfaction
- Energy issues related to other AG subsegments
- Evaluation of other AG trade associations in SCE service territory

(1) This model is based on successful effort implemented by the California Association of Winegrape Growers and Pacific Gas and Electric. For more information on their efforts, website link: <http://www.cawg.org/CAWGProjects/SustainableWinegrowing/ProjectDescription.aspx>

The IOU's intend on implementing methods to gather and retain more detailed performance and usage data on a pilot basis to determine the most cost-effective methods and to support a greater realization rate to achieve savings. Exploring incentives for sub-metering is an option as is expanding the tool library in lieu of incentives.

h) EM&V

The utilities IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2010-2012 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

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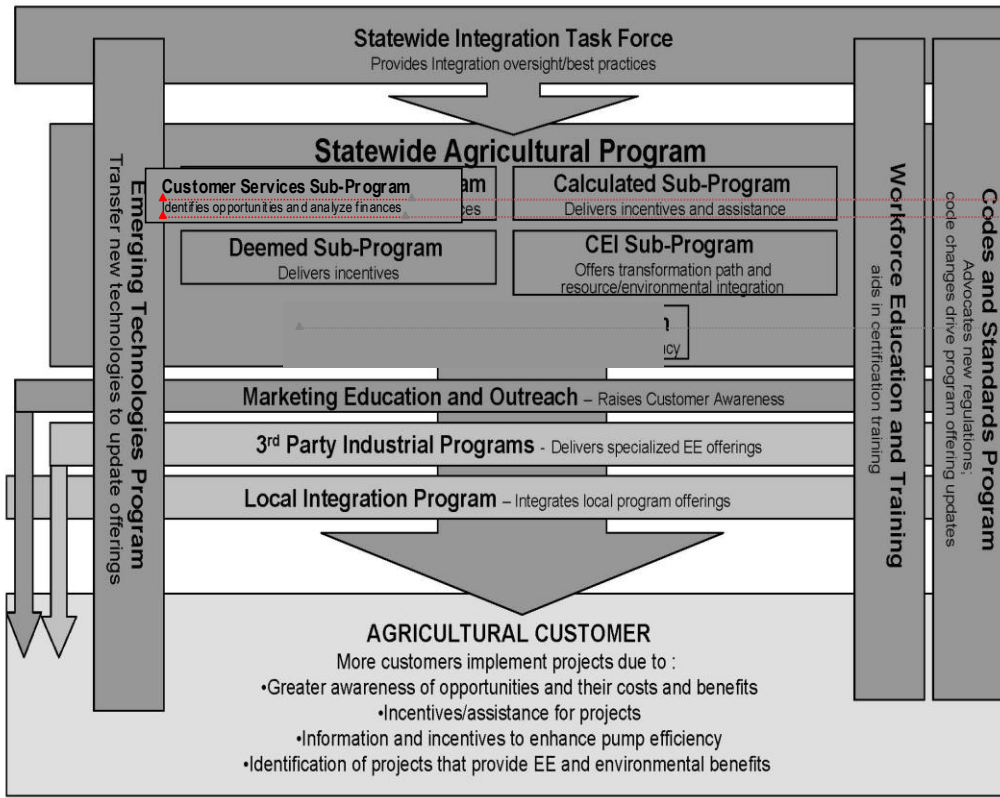
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15-7. Diagram of Program

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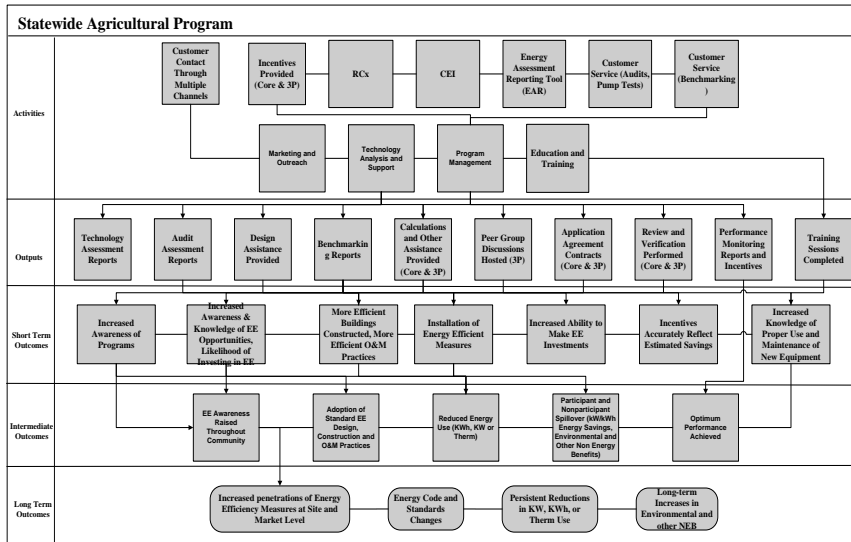
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8. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statement energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Agricultural Energy Efficiency Program.



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1. **Program Name:** ~~Agriculture~~Agricultural ~~Customer Services~~Energy Advisor Program
Program ID#: ~~SoCalGas~~OCALGAS 3717
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1 – See the overarching program for budget details.

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - See the overarching program for savings details.

4. “SubProgram Description

a) Describe program

The Statewide Investor Owned Utilities (IOUs) have created the ~~Customer Services~~Agricultural Energy Advisor SubProgram (CSPAEA) to bring together under one program all services offered to support customer education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

CPS was created to provide a streamlined and coordinated assignment of right-sized customer solutions. The key is to start the process with an initial analysis of a customer’s needs, determination from the analysis which audit will service the customer with the highest cost/benefit, identify additional program support and key indicators that will motivate the customer to implement energy saving recommendations

The ~~utilities~~IOUs anticipate the restructuring of ACSPEA will affect the way audits are provided. ACSPEA will enhance the IOUs’ ability to match customers’ need(s) with the right audit service. This will result in an increased cost-effective delivery of these audit services with an increased expectation for customer adoption/installation of provided customer specific recommendations.

~~The ~~Customer Services~~Energy Advisor sub-program (CSPEA) is designed to deliver a coordinated and customer specific audit service. CSPEA features a statewide integrated demand side management customer specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer’s need(s).~~

In its offerings, ACSPEA will place an emphasis in deep energy saving measures and emerging technologies where appropriate. When the technologies and customer

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opportunities are correctly aligned, the customer will become more open to the benefits these technologies offer to their business and will therefore increase their acceptance and adoption.

Together the ACSPEA offerings will work to support the achievement of Strategic Plan objectives across ~~the all segments (agricultural, commercial and industrial)~~ sector.

~~The CSPEA is designed to support the goals of the Strategic Plan by providing customers with comprehensive building specific information on cost effective DSM opportunities. The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.~~

The ~~Agriculture~~ Agricultural CSPEA ~~umbrella~~ package, consists of ~~six~~ five (5) distinct offerings ~~components~~:

- **Benchmarking** is the first step for a customer to begin to understand the energy use of their building. Benchmarking is an initiative designed to educate and motivate customers to ~~benchmark~~ measure and track the energy use of their facilities, educate customers of the benefits of benchmarking their facilities and how they can track the impact of energy savings after implementing energy saving measures. To support the customer's efforts, the IOUs ~~it~~ will offer technical support, hands-on workshops that will provide customers with information ~~enabling them to~~ on how to benchmark, how ~~utilize~~ benchmarking can be used as an energy management tool and what to do next after benchmarking.;

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The IOUs will develop or continue Benchmarking initiatives that supports the customers' ability to comply with AB1103's benchmarking requirements (upon its implementation), utilizing ENERGY STAR Portfolio Manager and IOU supported Automated Benchmarking Services.

The IOUs will also continue to offer customers technical support ranging from email and phone hotlines, hands-on workshops and web-based benchmarking educational and instructional materials.

~~And~~The IOUs will continue their support to identifying, evaluationg and making information about other benchmarking tools available.

The primary focus for benchmarking activities will continue to be centered on ~~commercial agriculture~~ commercial buildings within the agricultural sector (in alignment with the target building type of AB 1103).

~~The program is also designed to support the implementation of AB 1103.~~

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~~Online Energy Audit Tool (Small Business); Business Energy Adviser (California Integrated Customer Energy Audit Tool (CA-ICEAT)); BEAThe Online Audit Tool (OAT) is designed as an enhanced, customer friendly "do it yourself" online web-based audit tool that targetings small business customers. OAT offers an~~

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~~integrated auditing approach providing energy efficiency, demand response and self generation recommendation and education.~~

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~~With large numbers of small business customers in each IOU's service territory, it is necessary to offer and test different cost-effective strategies that can help small business customers maximize their energy use.~~

~~The IOUs will confirm their implementation timelines and once their tool is rolled out, they will initiate a continuous improvement cycle to ensure the benefits and features of the tool are meaningful for customers use. As the timing is appropriate, the IOUs will initiate marketing campaigns to raise small business customer awareness of the tool's availability and benefits.~~

~~Per the Final Transition Period Decision, IOUs with implementation timelines occurring beyond 2012 will be listed in Appendix XX.~~

~~**Currently the tool identifies customized energy efficiency, demand response and solar recommendations for eight (8) business types.**~~

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• Agricultural Continuous Energy Improvement (CEI) Continuous Energy Improvement (CEI) is a consultative service aimed at helping ~~a~~**Agricultural, commercial and industrial** customers (utilities IOUs will target CEI services in line with market segment potential in their service territories and resource availability) engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of ~~utility~~ IOU customers. With current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices which address energy savings, reduction of greenhouse gas emissions and water conservation, through ~~a~~ high-level energy commitments from executive and board-level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost effectiveness of the delivered energy management solution.

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CEI offers customers the pinnacle of audit offerings guiding executive management to levels of energy management self-actualization that makes energy and environmental issues a consideration in all management/business operational decisions and in long term energy planning. For additional information about CEI, please consult the [Agriculture Agricultural CEI Program Implementation Plan](#).

- **The Integrated Demand Side Management Energy Non Residential Audits (IDANRA)** design for the Transition Period is will provide focused Basic and on Integrated Comprehensive Energy Audits (ICEA) that focus on customer energy savings, cost/benefits efficiency and, the and the targeted delivery of financial and technical assistance. that the customer needs to make energy saving decisions. Audit information must communicate complex information in a simple and understandable way to enable customers in identifying energy efficiency, demand response and renewable distributed generation opportunities. Audits uses -Deemed, or “ex ante” Deemed, and Calculated methodologies for energy savings analysis information.

As stated above, NRA offers ICEA. In Appendix A, each IOU defines the sub-categories of ICEA that they provide. As stated above NRA offers two (2) categories of audits — Basic and ICA. In (cite appendix location here) each IOU defines the sub category of Basic and ICA they provide.

The goal is to use a “one stop shop” approach to maximize the benefits for the customer and reduce any associated negative impacts. This In this program cycle, emphasis will be given on to meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), and streamlining the audit process, increasing its efficiency, lessening complexity, and increasing the effectiveness of influencing customer implementation actions through actions such as integration of the demand response technical audit component directly into NRAs offerings. In addition, the IOUs- will investigate ways to implement meaningful financial measurements such as return on investment and/or simple payback metrics. The key is ensuring that whatever financial tools is selected used it must provide the customer with meaningful information by ensuring cost assumptions are appropriate to the customer. - Also, NRA will assume the audit and budget responsibilities for Demand Response’s technical audit services, as applicable. It is intended that these audits will be a critical component of the integrated comprehensive audit service offering.

Onsite audits will take the form of providing to our customers, opportunities for integrated comprehensive audits and focused audits.

- **Pump Testing Efficiency Services** is designed to help agricultural, commercial, and industrial and agriculture customers make informed decisions about improving inefficient pumping systems and operations through recommendations derived from

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pump test audit or direct observations of processes before they stop moving water and start wasting excessive amounts of energy. Pumping of potable water is estimated to account for more than 80% of the electric load and 73% of the natural gas requirement in California's agricultural segment, and this load is growing as the state's water users increase their reliance on pumping water to meet their needs. Pumping is also estimated to account for 20 to 25% of energy usage within the nation.

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The Pump Efficiency Services sub-program program element, implemented by a team of trained in house or third party contractors, aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, retrofit incentives, and targeted education, training and technical support for customers and pump companies. Each IOU's database of pump test results will be used in the near-term to target pumps in need of retrofit as a means to capture savings. However, pump performance data aggregation at the statewide level will contribute to the development of metrics and targets for pump improvements, in support of a statewide pumping focus across segments, inon agriculture, commercial and industrial, supporting their strategies and objectives.

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All California investor owned utilities (IOUs)The IOUs will continue to offer pump testing services and workshops at no or low cost and pumping system efficiency workshops through in house or contracted resourcesthrough their energy education centers or other event opportunities during the Transition Period.:

• **Retro-commissioning:**

The IOUs are planning to continue andto enhance their core Retro-commissioning (RCx) programs. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments.

The RCx element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary adjustments to correct the deficiency. A "Master List of Findings" results from the initial assessment that identifies low cost projects with simple payback periods of less than 4 years. RCx is offered to agricultural, commercial and/or industrial customers, based on the market segment potential and resources of the respective IOU. These range of projects may involve measures which resetting, repair or replacing of existing system controls and components. Simple payback for these measures are usually short in duration and must meet customer expectations. Through the RCx assessment report, comprehensive projects are identified and referred to other sub programs for completion (i.e., Calculated and Deemed Incentives). Energy savings from projects identified through RCx will be claimed in the Calculated Incentives Program.

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Enhanced RCx program elements will explore and may include but not be limited to:

- Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- Continuous commissioning and monitoring based commissioning;

- ~~— Solutions for small and medium commercial customers;~~
- ~~— Strategies to drive savings persistence;~~
- ~~— Appropriate alignment with retrofit activities; and~~
- ~~— Overall program incentives, targeting, and delivery.~~

~~The RCx program is a key offering in the Agriculture Calculated Sub-Program and a more detailed description of the program is provided. Not Applicable.~~

~~The Transition Period will be used to develop and test the ~~A~~The CSPEA design strategy. The strategy focuses on ~~is designed to simplify~~ing the ~~process~~ way audits are provided to customers. ~~by which customer are aware of the vast and varied auditing services that the utility has to offer.~~ Through various assessment functions, the ~~utility~~ IOUs will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (i.e. primarily EE, ~~ADR,~~ and ~~ASG~~Water Conservation).~~

~~It is anticipated ACSPEA will allow the expansion of audit serves across diverse class of customers, potentially across all segments and will ~~bridge~~ interconnect the customer with ~~offerings across different~~ the wide and diverse range of programs offered. ~~IOU programs.~~ From a customer perspective, the impact on customer time and resources will be reduced, the audit analyses will include DSM, greenhouse gas reduction information, provide water conservation recommendation all ~~appear as in a single package~~ report. The resulting report will identify ~~ing~~ comprehensive ~~options~~ solutions that will ~~simplify~~es the customer decision-making process.~~

~~The primary program objectives for 2013-2014 are:~~

- ~~● Support the Strategic Plan by offering integrated audits across a wide selection that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed generation), focusing on agricultural, ~~commercial, and industrial~~ facilities as defined by each IOU's market potential and resource availability. (Applicable to: General)~~
- ~~● Provide a focus on the "MUSH" market (municipalities, universities, colleges, schools, and hospitals) to test ideas for deep energy retrofit efforts. (P22) ~~Move towards~~ The continuation of delivering high value audit reports to the customer. - ~~and away from doing audits to meet a "number of audits performed" goal.~~ Audit reports will be designed in such a way that they will provide the customer with information which motivates them to implement energy efficiency, demand response and consider renewable generation options. (Applicable to: General ~~IEA, Pump Tests, RCx, CEI~~)~~
- ~~— Integrate audit offerings (Benchmarking, non-residential audits, pump tests, Retrocommissioning, and Continuous Energy Improvements) in to a consolidated "Customer Service" offering for our customers. SCE will develop the metrics to become more proficient in providing our customers with the specific audits and incentives to influence their decision to implement integrated energy recommendations. (Applicable to: General)~~

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- Enhance efforts to identify and provide financial analyses focused on deeper energy savings ~~measures~~ and technologies. Identify ways different financial metrics, such as return on investment and/or simple payback, can be provided where the values presented have meaning to the customer. ~~(Note: Project cost is an elusive variable unless provided by the customer. Need to identify the challenges and investigate the solutions).~~ (Applicable to: General)
- The IOUs will explore and evaluate the potential of enhanced customer incentive options that are contingent on a customer's receiving an audit prior to applying to incentive programs.
- ~~Enhance and develop new channels to incorporate recommend~~ new and/or emerging technologies appropriate for the customer's facility. (Applicable to: General)
- ~~Develop and implement enhancements to~~ current Benchmarking workshops (targeting ~~commercial~~ agricultural buildings) and continue providing Benchmarking and AB 1103 technical support through established and new delivery channels. (Applicable to: Benchmarking)
- ~~Enhance customer benchmarking of their facilities (Applicable to: IEA, Benchmarking, RCx, CEI,)~~
- Encourage Statewide consistency by offering a similar energy audits with the ultimate goal of offering customers the best energy management practices and technologies.
- Enhance the ~~Audit process~~ CSPEA' offerings by including activities such as, but not limited to:
 - ~~Integrated Benchmarking score in the Energy Assessment Reporting tool (EAR). SCE will pilot integrating the California Rating Tool methodology within EAR. This also may be an opportunity to Review and evaluate test the CEC's Building Energy Asset Rating System tool (BEARS). This will be further evaluated) once the BEARS tool is completed and review the CEC has completed developing the tool. (The successful implementation of testing the new BEARS audit tool will depend on its timely release. BEARS is currently slated for completion at the end 2012. If the release of the BEARS tool is significantly delayed then the implementation of a successful pilot will also be delayed.)~~
 - The highlighting of emerging technologies and deep energy ~~measures~~ savings opportunities and providing education on ~~long~~ long-term energy planning/project management strategies (in coordination with CEI program).
 - Will continue existing water saving services and develop ~~it~~
 - ~~Evaluating the potential to integrate Return On Investment metrics as part of the Customer Audit Report. (Applicable to: IEA)~~
 - ~~Enhance CSP offerings by pursuing process streamlining and increasing the cost effectiveness of the service offered.~~
 - ~~(SCE: A key project for the Transition Period is to complete the development of the Energy Assessment Reporting tool, an auto or semi-automated auditing tool (both of~~

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~~these will be notepad based) and interconnecting these tools with a single database which will provide an automated Customer Audit Report tool (CAR) and the capability to directly populate SCE's online audit application].~~

- ~~Leak detection services will and strategies which will offer the service to customers in all customer segments as determined by the IOUs to provide customer benefits and cost-effective to administer. The services will, be offered by SCE's Pump Test and Hydraulic Services staff and through the use of audit teams, in house and/or contracted, and may be required as a service in the to-delivery of all integrated comprehensive audits. (Applicable to: IEA, Pump Tests).~~

A

- ~~CSPEA will play a key role in exploring options regarding identifying deeper measures energy savings, promotion of emerging technologies and providing the proper support to those customers who authorize take advantage of more than three (3) measures from Agriculture Agricultural Deemed Incentive subprograms sub-program. the programs such as Direct Install and others program.~~
- ~~ACSPEA will develop processes to assist help energy audit teams and customers identify facilities and services that will provide the greatest return on benefits from the audit. The IOUs may explore leveraging tools to complete energy audits, usage analysis, assessments and/or building performance benchmarking as the first step in determining a customer's need.~~
- ~~ACSPEA may also enhance tracking and audit component capabilities to support customer needs analysis, reduce program application barriers, maximize recommendation follow up and streamline audit report generation.~~

b) List measures

~~The ACSPEA primarily offers non-resource, auditing services. It does not offer incentives, but ultimately influences the customer's implementation of energy efficiency, demand response, and self-self-generation opportunities in combination with incentive from the core Agricultural incentive programs (refer to the I Agriculture Agricultural Deemed and Calculated sub-programs for specific information). However, each utility IOU reserves the ability to offer incentives specific to ACSPEA's individual service offerings.~~

c) List non-incentive customer services Agricultural Energy Advisor Services

~~The Customer Services Agricultural Energy Advisor sub-program (CSPA EA) is designed to deliver a coordinated and customer customer-specific audit service. CSPA EA features a statewide integrated demand side management customer customer-specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer's need(s).~~

~~Such activities include, but are not limited to: energy management assessments, energy planning, marketing and outreach, baselining and benchmarking, project implementation~~

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support, technical support, energy savings calculations, process evaluations and report generation, and web-based energy resources.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The ACSPEA offers services which change corporate/management cultures that prevent successful implementation of comprehensive energy policies. These offerings help overcome customers' lack of awareness of DSM opportunities by providing a customer focused, comprehensive package of energy solutions designed specifically to motivate the customer to implement recommendations. Information such as cost/benefit analysis (i.e. ROI or simple payback) and identification of appropriate IOU incentive and/or finance programs, can significantly enhance the financial benefit of the energy saving recommendation. ACSPEA also provides customers with tools to measure the effects of implemented energy savings actions on their bottom line.

ACSPEA brings together audits and related services to implement energy saving activities. ~~This is in direct response to evaluation studies conducted for program cycles 2002, 2003, and 2004-2005 which clearly identify energy audits as one of the most powerful tools in creating awareness, enforcing customers' implementation of energy conservation recommendations~~

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d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

~~[TARGETS FOR CSP SUB COMPONENTS ADDED HERE]~~

<u>Influence Targets</u> <u>(Proposed)</u>	<u>Program Target by</u> <u>2013</u>	<u>Program Target by</u> <u>2014</u>
<u>Number of Audits</u>	<u>63</u>	<u>65</u>

Comment [LdH1]: Inserted SOCALGAS Audit Goals

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<u>Influence Targets (Proposed)</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>

<u>Influence Targets (Proposed)</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>

<u>Influence Targets (Proposed)</u>	<u>Program Target by 2013</u>	<u>Program Target by 2014</u>

e) Advancing Strategic Plan goals and objectives

[May Need other connectivity to CALTEESP goals from RCx]

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The ACSPEA is designed to promote DSM coordination and the integration strategies of the Strategic Plan. Foremost are recognition of the linkage between energy and environmental policy and the importance of integrating energy efficiency, demand response and distributed generation to support California’s plan to reduce greenhouse gas emissions.

Specific near-term strategies proposed by the Strategic Plan that are addressed by the ACSPEA include:

Ensure Facilitate all State Owned and Leased Buildings are having a Retro-Commissioning Retrocommissioning optioned

By offering a dedicated retro-commissioning program, a mechanism is created whereby IOUs can facilitate the achievement of this goal as a coordinated effort with the IOU Government and Institutional Partnership Programs.

Strengthen Tools and Practices for Building Commissioning

Based on the IOUs' experience with managing the 2006-2008 Retro-commissioning program, lessons learned and best practices can be be integrated into the 20130-20142 offering. To increase market adoption of these program best practices, the IOUs will work in cooperation with the California Commissioning Collaborative to disseminate relevant information to the retro-commissioning community and services may be extended to all segments as deemed appropriate by each IOU.

- Identify New and Improved Tools and Strategies to Reduce Energy Consumption in agricultural, commercial and industrial facilities.

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Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the ~~audits, benchmarking, CEI, and NRA and RCx,~~ demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, industrial/ agricultural processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing agricultural facilities contribute to California's zero net energy goals. Once implemented, recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.

- State/Local Governments and Major Corporations Commit to Achieve EE Targets

ACSPEA's offerings will seek to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop an actionable plan to achieve these goals; (4) guide customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the Strategic Plan.

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- Develop Tools to Reduce Energy in ~~a~~ Agricultural, commercial, and industrial Agricultural Facilities.

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As part of the implementation of specific ACSPEA offerings, the IOUs will partner with energy industry peers, industry associations, and DOE/CPUC-sponsored labs and consultants to enhance the use of existing tools and ~~develop~~ explore new tools to help agricultural customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

- Management Standard for Energy SME2000-2008;
- LBNL Superior Energy Performance-; and
- ISO-50001.

- Develop Business Models to Deliver Energy Management Solutions

ACSPEA's offerings will address the fundamental purpose to ~~achieve~~ influence corporate level decision making practices ~~commitments~~ from Agricultural, commercial and industrial customers to ~~change their existing business models to~~ consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the agricultural market sector.

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In addition, ACSPEA's offerings promote acceptable practices of accounting, auditing, and evaluation by:

- Offering integrated and focused audits, benchmarking, savings calculation assistance for retrofit ~~and retro-commissioning opportunities~~, and simplifying the audit-to-project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action;
- Guiding and supporting customers as they implement technologies, processes and practices to achieve energy efficiency savings--; and
- Long term energy planning support.

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6. Program Implementation

- Assess and identify the best way to support the use of the BEARS tool.
- Enhanced current Benchmarking workshops and continue providing Benchmarking and AB 1103 technical support through established and new channels.
- Emphasize and support integration in emerging technologies and deeper energy measure opportunities.
- In coordination with incentive programs, identify ways to streamline the end to end process for customers wanting to participate in ~~utility~~ IOU energy saving programs.
- Continuation of Statewide IOU coordination

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i. Program name: ~~Agriculture~~ Agricultural Customer Services Energy Advisor Program

ii. Program delivery mechanisms

ACSPEA will employ a variety of delivery mechanisms or channels. Most of ACSPEA's offering will use IOU customer energy efficiency staff and contractors, service and sales representatives, website and/or marketing and outreach efforts. Other delivery channels may also be developed.

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In addition, where applicable, ~~Utility~~ IOU customer account representatives or program management staff will support this activity within the statewide agricultural sector, as well as third parties, government partnerships, and local programs.

iii. Incentive levels

N/A Not applicable. ~~(this sub program is a non resource offering).~~

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iv. Marketing and outreach plans

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs, in order to maximize effectiveness, integrate

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offerings, and as appropriate refer customers to relevant DSM programs. The IOUs will look to partner with interested public and governmental bodies to proactively promote energy efficiency and environmental green actions, in partnership with programs such as the local government partnerships and green communities.

Non-Residential Audit program evaluation studies conducted for program cycles 2002, 2003, and 2004 2005 clearly identify energy audits as one of the most powerful tools in creating awareness, enforcing customers' implementation of energy conservation recommendations.

Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost effectiveness of reaching customer groups.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

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In this Transition Period, the IOUs may test and evaluate a "pay for performance" or capitation fee for contracted organizations ("channel partners") that successfully deliver energy efficiency programs, measures and/or solutions to small business customers.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

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ACSPEA's energy ~~audit~~ recommendations will continue to recognize the regulations required by other bodies. For example, information about GHG reductions resulting from AB 32 may be incorporated into the customer recommendations and to factor into the projects cost-effectiveness and water conservation information will be included in the reports as appropriate.

Program offerings will collaborate and support the CEC's AB 1103 mandate by assisting customers with technical and awareness activities. ACSPEA will advance the introduction of the BEARS and California Rating Tool, where reasonable.

ACSPEA will recognize the efforts of ~~include the~~ the CEC's PIER's ~~and~~ Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs and will leverage such activities to the customer's benefit.

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a) Program delivery and coordination

The sub-program will be coordinated with the following activities, as applicable:

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i. Emerging Technologies (ET) program

The IOUW ACSPEA Management Team will stay abreast of and incorporate relevant emerging technologies into audit recommendations as appropriate.

ii. Codes and Standards program

ACSPEA implementation will include information about pending new codes and standards program that may affect planning or prioritization of retrofit or new construction projects. Audits reports will include customer recommendations that are consistent with current governing codes.

iii. WE&T efforts

ACSPEA implementation will integrate with WE&T efforts, as needed, by providing CSI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches, as required.

iv. Program-specific marketing and outreach efforts

In 2013-2014, ACSPEA marketing campaigns will provide a wide range of action-oriented solutions targeted to "personas" identified through segmentation research. In addition, as ACSPEA is a bundled or package of services offerings, marketing efforts too will be "bundled"—that is, as menu of demand response, energy efficiency and conservation programs will provide customers with a full array of EE and DR options opportunities. By providing packaged energy management solutions for each industry segment, the IOUs will be better able to communicate with and serve customers.

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Marketing activities will target business customers and select effective channels to reach entities such as ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support may be utilized.

Marketing collateral and messages for energy efficiency will be integrated with other IOU programs. Through additional market segmentation and feedback from customers, IOUs will further adjust approaches based on the varied needs of targeted customers.

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Additional sub-program marketing will be accomplished by leveraging local third-party programs. Specific IOU marketing budgets are provided in Table 1 of the core agricultural program.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The IOU's ACSPEA team will participate in Statewide and national efforts to develop and enhance audit, benchmarking and ~~retro commissioning~~, continuous energy improvement tools and practices. Such activities will likely occur in conjunction with ongoing industry efforts managed by the California Energy Commission (CEC), Consortium for Energy Efficiency (CEE), ENERGY STAR and the California Commissioning Collaborative (CCC).

CEI implementation will include non-energy activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy-related LEED points and definitions, and use of computerized financial analysis tools and cost estimating and forecasting tools

vi. Non-IOU programs

ACSPEA reports will include information on ~~n~~Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. ~~A Non-Residential Audits~~ ACSPEA will partner with programs offered by CEC, ARB, Air Quality Management Districts, ENERGY STAR, and other government and quasi-governmental agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to agricultural -sector customers, as opportunities present themselves.

With respect to water conservation, ~~utility~~ IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects (ESPM, BEARS, California Rating Tool, Water Agencies and others)

vii. CEC ~~work on~~ PIER Collaboration

~~CSP implementation will continue collaboration efforts with the CEC and ally seek to promote the adoption of new technologies developed through the PIER CEC's processes and to expose educate customers to demonstration, research and/or pilot projects. Specific CSP offerings will provide encourage recommendations addressing new equipment technologies, processes, and methods, as identified in CEC projects, that which~~

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~~will enable customers to achieve energy efficiency "stretch" goals that produce significant energy savings beyond an established baseline in a cost effective manner. Not applicable.~~

SoCalGas/OCALGAS will continue collaboration efforts with the CEC in energy efficiency tool development and seek to promote adoption of new technologies developed through the CEC's processes and to educate customers to demonstration, research and/or pilot projects. Specific AEA offerings will encourage recommendations addressing new technologies, processes, and methods, as identified in CEC projects, which will enable customers to achieve energy efficiency "stretch" goals that produce significant energy savings beyond an established baseline in a cost-effective manner.

viii. CEC work on Codes and Standards

ACSPEA will not be implemented with a direct linkage to codes and standards efforts. Although ACSPEA will reflect code and standards regulation in its energy savings calculations as deemed appropriate.

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-utility IOU information and guidance that ACSPEA offerings will provide to customers. In addition, the IOUs will participate in state and national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

b) Best Practices

The IOUs will continue to leverage best practices and lessons learned at regularly scheduled statewide program management meetings. These meetings are forums to discuss program design and implementation issues, and as appropriate, provide statewide collaborated guidance in consistent RFP process solicitations for selecting third-party vendors and to ensure awareness of that program offerings are delivered consistently and consistent and it approaches/report outputs to ensure so that customers operating multiple facilities across IOU service territories receive the same information customer experience.

Other best practices approaches apply the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the agricultural, commercial and industrial market sectors. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach can now will be successfully continue implemented given through the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

c) Innovation

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For 2013-2014, the IOUs are identifying and evaluating program processes to increase effectiveness, simplification and increase the benefits the program delivers. Each IOUs set of lessons learned from these efforts will be shared and implemented to enhance energy savings benefits to all California IOU customers.

ACSPEA will engage in a process of continuing improve as a new standard way of packaging energy efficiency, demand response and self-generation products and services, aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

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Other ACSPEA offerings may also consider specialized incentives approaches based on delivery, target markets and/or other opportunities.

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d) -Integrated/Coordinated Demand Side Management

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AEACS P will serve as the foundation will provide a comprehensive approach for integrated audit services. Its services will have the flexibility of meeting every level of a customer's audits needs from integrated comprehensive audits to targeted or focused audits, which centers on specific systems or processes, to assessments or general walk through audits or online "do-it-yourself" audits (currently for small business customers), which when properly applied can assist in identifying the areas of a customer's greatest energy interest, financial capabilities of the customer's ability to invest in improving its energy use, and identification of other programs that can be brought into the discussion to motivate a customer to move forward with the energy saving plan.

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The scope of services offered can coordinate the audit to look for retrofit ~~or retro-commissioning~~ opportunities; with benchmarking tools, or long term planning. Audit reports can present a truly integrated analysis to customers, seamlessly providing them with information and recommendations regarding energy efficiency, distributed-generation, demand response, greenhouse gas emissions and water energy savings, Customers will be referred to other IOU programs that will help them implement the recommendations resulting from the audit report and thus will be given a complete picture of their energy usage and options for reducing costs and using energy more efficiently.

e) Integration Across Resource Types

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~~A~~The core focus of CSPEA is will focus on ~~to implement~~ DSM integration.

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ACSPEA implementation will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IOU ACSPEA managers will partner with the CEC, ARB, Air Quality Management Districts appropriate programs, when applicable, with government agencies ~~, and other~~

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government agencies to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers.

Conventionally, each government agency and utility IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote ACSPEA offerings, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, utility IOU program managers will ~~partner~~ collaborate with the local water districts to produce ~~co-branded~~ marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

f) Pilots

~~Depending on the outcome of the 2012 process evaluation, CEI may pilot customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.~~

~~Other CSPEA offerings may consider specialized incentives approaches based on delivery, target markets or other opportunities. CSPEA services may consider the development of test markets especially in the introduction of new energy benchmarking or saving tools.~~

g) EM&V

The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan ~~for 2013-2014~~ after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

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7. Diagram of Program

Please see the core program diagram. ~~NEEDS MODIFICATION TO REPRESENT THE PACKAGE OF AUDIT SOLUTIONS OFFERED BY CUSTOMER SERVICES ENERGY ADVISOR PROGRAM.~~

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8. Program Logic Model

On December 2, 2010, the Commission issued Resolution E 4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Nonresidential Audit Sub-Program.

~~NEEDS MODIFICATION TO REPRESENT THE PACKAGE OF AUDIT SOLUTIONS OFFERED BY CUSTOMER SERVICES ENERGY ADVISOR PROGRAM.~~

~~Please see the Commercial Customer Services Energy Advisor Program logic model.~~

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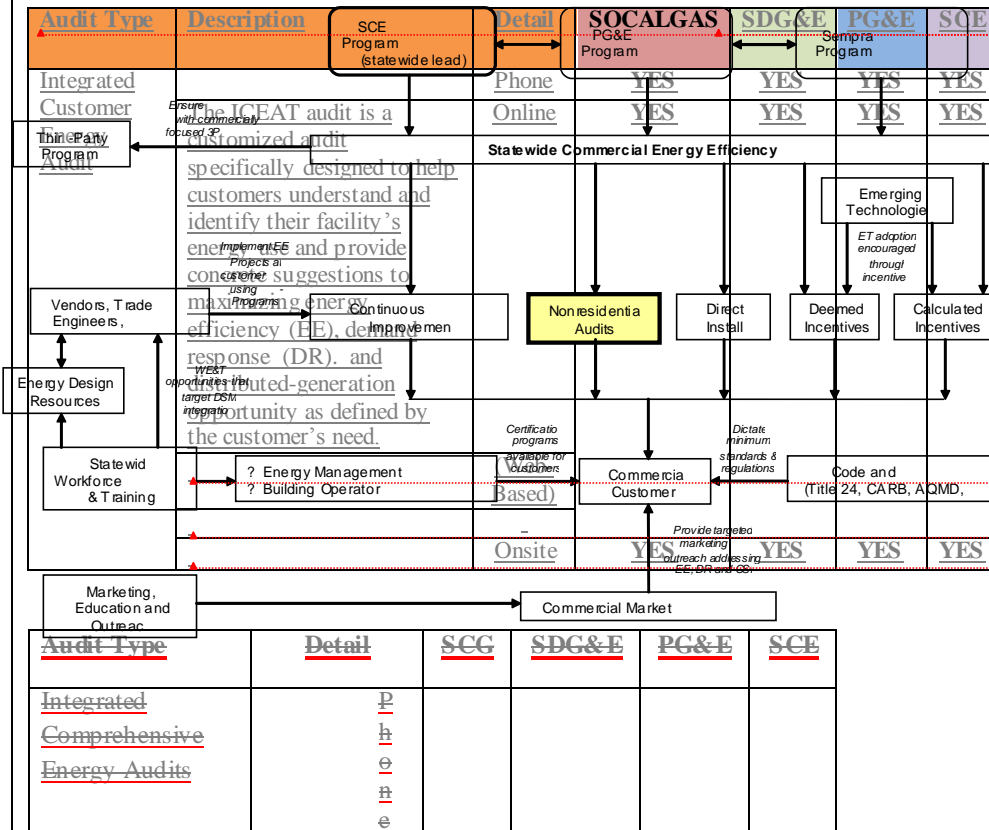
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Statewide Audit Type Matrix

Provide management and oversight of all commercial program activities within respective service territories. DUs coordinate program activities through statewide program management



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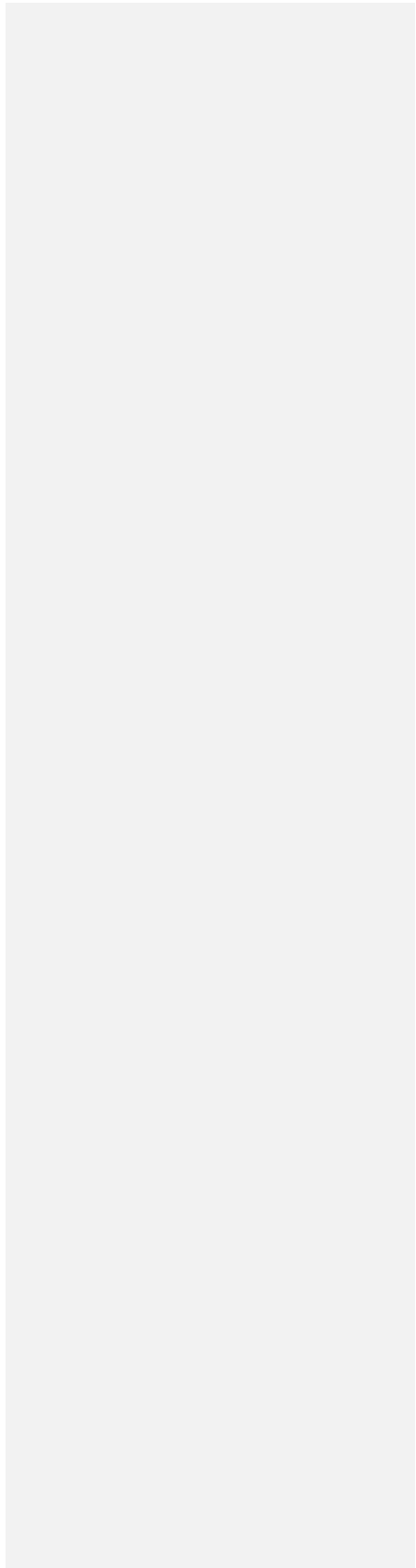
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2013-2014 Energy Efficiency Programs
Statewide Agricultural Energy Efficiency Program
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4b

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1. **Program Name:** ~~Agriculture~~Agricultural Calculated Energy Efficiency Program
Program ID#: ~~SCGOCALGAS~~3719
Program Type: ~~Sub-Program~~Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – reference the core program for budget details

3. **Projected Program Gross Impacts Table – by calendar year**

Table 2 - reference the core program for savings details

4. **Program Description**

a) **Describe program**

The purpose of the ~~s~~Statewide ~~Agriculture~~Agricultural Calculated Energy Efficiency Program is to provide services to improve the energy efficiency of agricultural facilities in California, including financial incentives based on calculated energy savings. The energy savings are calculated for measures installed as recommended by comprehensive technical and design assistance for customized projects. Integrated projects are encouraged to combine energy efficiency and demand response. Eligible projects include new construction, and retrofit ~~, and retrocommissioning.~~

The ~~Agriculture~~Agricultural Calculated Energy Efficiency Program is part of a suite of programs within the Statewide ~~Agriculture~~Agricultural Energy Efficiency Program.

The ~~Agriculture~~Agricultural Calculated Energy Efficiency Program is utilized for projects where ~~÷~~

a rebate is not available through the statewide ~~Agriculture~~Agricultural Deemed Energy ~~Savings~~ Efficiency Program, ~~ec~~customized calculations provide the most accurate savings estimates, or interactive effects between measures are best captured through whole building or whole system modeling.

Because it presents a calculation method that can consider system and resource interactions, the program will become the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan.

Key features in the process include:

- Energy audits of facilities and processes which recommend efficient design alternatives and detailing energy savings and CO₂ reductions;
- Calculations/estimates of energy savings for exceeding Title 24 code or industry standard practice baselines;
- Technical assistance from ~~SCE~~IOUs in energy audits and calculated savings;
- Submission of project proposal for ~~SCE~~IOUs review and approval;
- Pre-inspection by ~~SCE~~IOUs for approved retrofit projects;

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- ~~Post-inspections on approved and completed projects to verify performance; and~~
- ~~Payment of incentives from SCE IOUs.~~

Energy audits may be completed by customers directly or ~~project-by authorized participants/sponsors~~. Sponsors may include contractors, design teams, vendors, and energy service companies. The completed audit may then be submitted for review and approval.

For the energy audit feature, statewide consistent calculators are publicly available. The statewide ~~utility IOU~~-created and maintained SPC Calculator can be used for retrofits and some new construction applications and is available online ~~and through CDs~~. For whole building construction projects, ~~utilities IOUs~~ accept both Energy Pro, available for license, and the ~~utility IOU~~-sponsored ~~eEQQuest/EST~~, available for free on the statewide Energy Design Resources website at www.energydesignresources.com, ~~among others~~. ~~Calculations must be submitted in open, unlocked, native format for review and consideration in the IOU's programs.-~~

~~Retro commissioning (RCx) is also eligible in the program for delivering energy savings. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or operations and maintenance, which deal with routine maintenance, retro commissioning focuses on identifying and correcting problems that may not be readily identified by a standard energy audit.~~

~~O&M items with an effective useful life greater than three3 years can also be identified through this assessment. Additionally, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay.~~

~~RCx will be offered as a bundle of products/services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:~~

- ~~Initial benchmark;~~
- ~~Collect data to quantify the owner's operational requirements;~~
- ~~Perform detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs;~~
- ~~Define measures, quantifying implementation costs and savings;~~
- ~~Assist customers with measure implementation;~~
- ~~Verify completion of measures;~~
- ~~Provide post installation documentation and training as well as other persistence techniques; and~~
- ~~Post project benchmark.~~

b) List measures

The broad range of measures eligible for incentives is summarized in the table below along with [the current](#) incentive levels. For detailed measure incentives, *see* Section 6.a.iii below.

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The following measure categories are eligible for Calculated Incentives:

- Lighting
- AC & Refrigeration
- Motors and Others
- Gas measures

Measure Type	Incentive level (kWh/kW)
Lighting	5 cents per kWh + \$100/pk kW
AC & Refrigeration	15 cents per kWh + \$100/ pk kW
Motors and Others	9 cents per kWh + \$100/ pk kW
Gas measures	\$1 per therm

Financial incentives are calculated in several steps:

- ~~Calculations of estimated energy savings above Title 24 or from a baseline energy use~~
- ~~Calculation of incentives per unit of energy savings times the estimate of energy savings by measure~~
- ~~Estimate of project costs for retrofit projects or incremental cost for added load projects~~
- ~~For retrofit projects, incentives are capped at 50% of the total project costs, or the calculated incentive, whichever is less.~~
- ~~For added load projects, incentives are capped at 50% of the incremental project cost, or the calculated incentive, whichever is less.~~

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c) List non-incentive customer services Agricultural Energy Advisor

The ~~Agriculture~~Agricultural Calculated Incentives Program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical and calculation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd the project through the process.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

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By its nature, market transformation occurs as a result of numerous factors including projects/and programs; not single project or sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Calculated Energy Efficiency Program includes numerous features designed to overcome these barriers, as identified and discussed below.

Integrated Demand Side Management Approach

The program offers California's agricultural able segment a statewide suite of products and services to help overcome market barriers to optimize energy management and meet the goals of the Strategic Plan. It overcomes multiple barriers through the implementation of strategies and the tactics that provide an integrated solution to the customer, offer education and outreach to create awareness and promote continuous energy efficiency improvement. The program also enables a facility to attain resource management levels that exceed industry standards and gain them market and world-wide recognition.

CEI Program Offering

The Continuous Energy Improvement (CEI) program compliments the Calculated Energy Efficiency Program by helping customers implement energy efficiency measures that have been identified through energy efficiency audits or in-depth facility/process assessments. Such assessment may be jointly provided by the IOUs and the U.S. Department of Energy (DOE) or ANSI. It focuses on improving production and optimizing energy efficiency and provides integrated resource management solutions including GHG reduction. This approach overcomes such barriers as lack of awareness of energy efficiency opportunities and provides highly skilled workforce of energy efficiency, process optimization, and resource management.

Marketing and Outreach

To increase awareness of the program, a statewide centralized clearinghouse will may be developed to give customers access to information on operating best practices in energy efficiency, industry relevant technical assistance, baselines, case studies, tools and computer based training. This clearinghouse addresses the issue of availability of information and qualified industry specialists to fully assess a building, system or process and help customers understand how energy efficiency can impact their emissions, resource consumption or waste discharge streams. A clearinghouse helps alleviate the problem often run into by Non-Residential customers of getting incorrect or out-of-date information from some local networks. It will also enable design engineers to specify energy efficient measures to exceed industry accepted baseline standards when constructing new or retrofitting existing buildings or systems, instead of specifying only what they know or what they are familiar with.

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The Statewide Program information and services will primarily be delivered through account representatives, ~~utility~~IOU call centers hotlines, local government partnerships, third parties, and ~~utility~~IOU internet sites. Information ~~will~~ may also be made available through industry events, through industry organizations, and through advertising in industry and trade publications. Other avenues to reach out to customers and identify energy efficiency opportunities include non-resource programs that provide education and outreach, workforce education and training, or through IOU Emerging Technologies Programs.

Education and Training

Highly skilled energy management professionals may conduct technical training and seminars to educate the public as well as develop a highly trained energy efficiency workforce that is accessible to industry.

Emerging Technologies

In collaboration with ET and the CEC, ET may conduct studies, pilots, and demonstrations to prove the viability of promising emerging technologies and lower the risk of investment which in turn will speed up market penetration.

Financial Assistance

Rebates and incentives properly priced and based on energy savings quantified through technical assessments or basic audits, can help customers overcome internal financial hurdle rates. Skilled energy efficiency personnel may also assist customers and provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives or other local sources of project funding.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

Program Name	Program Target by 201 0 <u>3</u>	Program Target by 2011 <u>2014</u>
Projects	75 TBD	90 TBD

e) Advancing Strategic Plan Goals and Objectives

The Agricultural ~~le~~ Energy Efficiency Program supports all three goals in the Strategic Plan for the ~~Agriculture~~Agricultural Sector. General advancement of the goals is presented in the program implementation plan for the ~~Agriculture~~Agricultural Energy Efficiency Program. More specific support of the goals in the ~~Agriculture~~Agricultural Calculated Energy Efficiency Program is presented here.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

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The ~~Agriculture~~Agricultural Calculated Energy Efficiency Program supports strategies to develop a knowledge base of efficiency solutions, foster workforce education and training, and encourage applications of new technologies.

Goal 2: California regulations, financing mechanisms, and incentives programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

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The program supports strategies to attain multi-resource management goals and to coordinate technical assistance, funding and incentive mechanisms.

Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

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The program supports strategies to make information on efficiency solutions readily available as well as conduct marketing and outreach to stimulate efficiency actions.

6. Program Implementation

a) Statewide IOU coordination

i. **Program name:** ~~Agriculture~~Agricultural Calculated Energy Efficiency Program.

ii. Program delivery mechanisms

~~Agriculture~~Agricultural Calculated Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and ~~utility~~IOU program interactions. The ~~Agriculture~~Agricultural Calculated Energy Efficiency Program will coordinate with the core ~~Agriculture~~Agricultural Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the ~~three-year~~ implementation cycle will be enabled.

iii. Incentive levels

A broad range of measures is eligible for the Calculated Energy Savings Program, as seen in the following table. The current incentives for these measures are standard across the ~~utilities~~IOUs participating in the ~~s~~Statewide ~~Agriculture~~Agricultural Calculated Energy Efficiency Program.

Incentives will be as follows:

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- ~~— Lighting, \$0.05/kWh and \$100/kW~~
- ~~— Air Conditioning & Refrigeration I, \$0.15/kWh and \$100/kW~~
- ~~— Air Conditioning & Refrigeration II, \$0.09/kWh and \$100/kW~~
- ~~— Other, \$0.09/kWh and \$100/kW~~
- Therms, \$1.00/therms, Capped at 50% of project cost

#	MeasureName	Per kWh Incentive	Per kW Incentive
1	Air Compressor System Replacement / Upgrade	\$0.09	\$100
2	ASD - HVAC Compressor Motors	\$0.15	\$100
3	ASD - Others	\$0.09	\$100
4	Building Shell Improvements	\$0.09	\$100
5	Carbon Monoxide Sensors	\$0.09	\$100
6	Controls - Non-Lighting	\$0.09	\$100
7	Equipment - Other not specified	\$0.09	\$100
8	Extruder System Replacement / Upgrade	\$0.09	\$100
9	Fan and Pump System Upgrades	\$0.09	\$100
10	Furnace / Energy Efficient	\$0.09	\$100
11	Heat Recovery Equipment (Process)	\$0.09	\$100
12	Heat Recovery Equipment (Space Conditioning)	\$0.15	\$100
13	HVAC - Chiller	\$0.15	\$100
14	HVAC - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
15	HVAC - Heat Pump	\$0.15	\$100
16	HVAC - Other	\$0.09	\$100
17	HVAC - Package Unit	\$0.15	\$100
18	Injection Molding Machine Replacement / Upgrade	\$0.09	\$100
19	Insulation	\$0.09	\$100
20	Lighting	\$0.05	\$100
21	Lighting Controls	\$0.05	\$100
22	Motors Project (HVAC Compressor)	\$0.15	\$100
23	Motors Project (Non-HVAC Compressor)	\$0.09	\$100
24	Precooling Equipment	\$0.15	\$100
25	Process - Chiller	\$0.15	\$100
26	Process - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
27	Professional Wet Cleaning	\$0.09	\$100
28	Pumping System Replacement / Upgrade	\$0.09	\$100
29	Rapid Closing Door	\$0.09	\$100
30	Refrigeration - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
31	Refrigeration - Other	\$0.09	\$100
32	Series to Parallel Street Lighting	\$0.09	\$100
33	Special Window Glazing & Glazing Treatments	\$0.09	\$100
34	Vacuum Systems	\$0.09	\$100
35	Window Replacement	\$0.09	\$100

The IOUs are exploring innovative means of improving the Calculated Incentive sub-program based on Energy Division and market direction. One possible method to comply with the Energy Division’s guidance to “achieve deeper energy savings retrofits and packages of measures” is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from

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stakeholders and may institute a scaled incentive mechanism for the Calculated Incentive sub-program.

~~The IOUs are soliciting input from stakeholders and may replace the fixed incentive methodology described above with a scaled incentive mechanism for the Calculated Incentive sub-program. A scaled incentive mechanism would provide higher incentives for more comprehensive projects to achieve deeper energy savings retrofits and packages of measures and to raise incentive levels for Emerging Technologies.~~

~~Higher incentive levels will be provided for Emerging Technologies to spur traction in the market as feasible. The level of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, equipment cost, other market factors and cost effectiveness.~~

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iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

~~The Calculated Energy Efficiency Program will may be marketed through IOU Account Executives, as well as through trade allies, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. The Program will may also provide direct customer contact by account executives, demand response program outreach, phone and e-mail support.~~

~~Marketing campaigns will may provide a wide range of pro-active solutions targeted by segmentation research. In addition, marketing efforts will may be bundled- integrated in a menu of demand response, energy efficiency and conservation programs. This menu will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment, utilities IOUs will better communicate with and serve customers.~~

~~Marketing efforts will incorporate may incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness and outreach efforts will may use targeted mass-multi- media communication and targeted communication channels. This will ensure the messages reaches the intended audiences with enough frequency to create awareness, educate and engage the customer to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars. The strategy will also include energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.~~

~~Market outreach to raise awareness of EE programs available will may use a number of multi-media strategies, including:~~

- ~~• Account representatives will may make a regular and consistent customer calling effort to key customers within this sector;~~

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- Utility IOU representatives, program management representatives, and field engineers will may be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the agricultural market sector;
- Attendance at the key trade shows for each high priority sub-segment within the agricultural market sector;
- Utility IOU-sponsored training events at the utilities IOU's Customer Training Centers and other convenient locations within the utilities IOU's service territory;
- Hosting of utility IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Written collateral pieces that provide an overview of the utilities IOU's Energy Efficiency programs will be linked into the appropriate utility IOU's DSM web page.

The ideal marketing mix will be assessed evaluated for efficiency for and for assessed for maximum awareness and participation. Marketing and outreach coordination will may be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above. Furthermore, agricultural facilities are recognized as large energy and water consumers. Utilities IOUs will develop proposals, as appropriate, to facilitate water-energy nexus projects.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

iv.—

The Calculated Energy Efficiency Program will be marketed through IOU Account Executives, as well as through trade allies, educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. The Program will also provide direct customer contact by account executives, demand response program outreach, phone and e-mail support.

Marketing campaigns will provide a wide range of pro-active solutions targeted by segmentation research. In addition, marketing efforts will be bundled in a menu of demand response, energy efficiency and conservation programs. This menu will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment, utilities will better communicate with and serve customers.

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Marketing efforts will incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness and outreach efforts will use mass media communication and targeted communication channels. This will ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars. The strategy will also include energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Market outreach to raise awareness of EE programs available will use a number of strategies, including:

- Account representatives will make a regular and consistent customer calling effort to key customers within this sector;
- Utility representatives, program management representatives, and field engineers will be available to provide additional expertise;
- Participation and membership in one or two key trade associations affiliated with each high priority sub segment within the agriculture market sector;
- Attendance at the key trade shows for each high priority sub segment within the agriculture market sector;
- Utility sponsored training events at the utilities Customer Training Centers and other convenient locations within the utilities service territory;
- Hosting of utility sponsored webinars that provide sub segment training and program adoption; and
- Written collateral pieces that provide an overview of the utilities Energy Efficiency programs will be linked into the appropriate utility DSM web page.

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The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above.

IOU program interactions

IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Agriculture Agricultural Calculated Energy Efficiency Program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with commercial agriculturale customers, to the extent possible. In the past, each government agency and utility IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who manage more than one resource type.

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Regarding water conservation, ~~utility~~ IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Calculated sub-program incentives for energy efficient equipment that may also reduce ~~air-water~~ and GHG emissions.

v. vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that utilize the ~~Agriculture~~ Agricultural Calculated Energy ~~Savings-Efficiency~~ Program infrastructure. This will ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program Delivery and Coordination

i. Emerging Technologies (ET) program

California's long-term energy efficiency vision can be attained through long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the energy efficiency benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the Calculated sub-program ~~will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. is poised to adopt the efficiency potential of new technologies.~~ In addition, portfolio staff actively works to incorporate promising emerging technologies from ~~IOU or PIER-funded projects~~ the ET program.

ii. Codes and Standards program

The Calculated sub-program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into Codes and Standards. ~~The program will coordinate with the Codes and Standards Planning & Coordination sub-program.~~ As ~~c~~Codes and ~~S~~Standards impact measures, the program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward "low energy" or "zero net energy" buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) are made available. These technologies will begin as R&D, transition to Emerging Technologies, then to Incubation and finally to Mainstream.

iii. WE&T efforts

Workforce Education & Training (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who

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can support the market transformation strategies of the Strategic Plan. In the ~~Agriculture~~Agricultural Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training offerings take place through ~~utilities-~~IOU's energy centers and technology centers.

iv. Program-specific marketing and outreach efforts

Marketing and outreach initiatives ~~will~~may include ~~but not limited to:~~

- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the agricultural~~ale~~ale sector, ~~as appropriate;~~
- Attendance at key trade shows within the agricultural~~ale~~ale sector;
- ~~Utility-~~IOU-sponsored training events at the ~~utilities-~~IOU's Customer Training Centers and other convenient locations within the ~~utilities-~~IOU's service territory;
- Hosting of ~~utility-~~IOU-sponsored webinars that provide sub-segment training and program adoption; and
- Development of case studies, web pages, and marketing material that provide an overview of the ~~utilities'-~~IOU's energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program provides a significant challenge to integrating DSM initiatives to non-energy activities due to the general industry structure, the nature of market sector resource use, limited resource savings potential ~~with~~specific -smaller to smaller businesses, and limited ~~eds to small business owner and operator~~ bandwidth. Therefore, integrated audits across the various energy efficiency program offerings, with complementary options available through other entities (for example, water agencies) ~~will~~may identify the opportunities ~~to be~~ recommended to the specific ~~commercial~~agricultural customer.

~~The Water Efficiency Pilot Program provides potential opportunities to reduce water use and the potential for associated energy efficiency savings. Since some customers within the program sectors are major water users, this sector is well positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Program.~~

Agriculture facilities are recognized as large energy and water consumers. Utilities will develop proposals, as appropriate, to facilitate water energy nexus projects.

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Concerning water conservation, ~~utility~~ IOU program managers will contact the local water districts to share marketing collateral, attend trade shows, and mutually release notices for programs with interactive water and energy effects. IOUs will also offer Calculated sub-program incentives to ARB and Air Quality Management District customers. These incentives include energy efficient equipment that may also reduce both ~~air-water~~ and GHG emissions.

In addition, the program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, ~~CARB~~, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC ~~work on PIER~~

~~The program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects. Not applicable.~~

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As of June 2012, PIER no longer exists. However, the program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies.

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viii. CEC work on C&S

Planned enhancements to Title ~~20 and~~ 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The program will support and educate customers. It will also ~~enforce~~ facilitate initiatives (for example, AB_32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, and California Green Building Initiative). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

The ~~RCx-CEI~~ program builds upon the initial feedback from the current ~~RCx-CEI~~ program and expands its reach into the ~~Agriculture~~ Agricultural segment.

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d) Innovation

~~Innovative aspects of the program include improving major program performance indicators such as accuracy of energy saving calculation, higher realization rate, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrated energy management.~~

~~For the new program cycle, California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During the 2010-2012 program cycle, new incentive structures will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance.~~

~~For the 2013-2014 program cycle, California IOUs will implement an incentive structure that emphasizes advanced controls that enable demand response motivating customers to participate in energy efficiency and demand response incentive programs as well as signing up enrollment in demand response programs. An additional incentive will be provided, as a test, to customers that choose a certified installer of Advanced Lighting controls. The certified installer must be listed on the CALCTP (California Advanced Lighting Controls Training Program).~~

IOUs will continue working collaboratively to modify program policies and procedures to address ongoing changes in customer expectations, market conditions and program flexibility. These changes will improve program understanding and participation, promote measures eligibility, increase customer economical benefits, and reduce policy restrictions identified as barriers to participation. IOUs are implementing such processes based on market studies and policy discussions conducted on the subject. Among modifications that would be potentially discussed and implemented are incentive caps and redesign of early retirement measures and equipment in conformance with Commission guidelines.

IOUs are planning to elaborate and utilize positive experience obtained using the SBD Simplified tool to include energy efficiency retrofit projects. Such tools substantially reduce application processing and review time and minimize number of hand-offs without sacrificing accuracy of energy saving calculations.

IOUs will use an integrated approach to addressing DSM opportunities (for example, merging energy efficiency and demand response analysis, and converting recommendations to ~~Retrocommissioning and/or~~ Calculated programs). In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, and providing analytical information about applicable distributed generation solutions, will maximize customer adoption rates for the most cost-effective energy management opportunities.

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IOUs will consolidate various calculating software such as SPC Software, Engage and other measure specific calculating tools to standardize calculating methodologies. This will ensure that calculations will be more uniformed and consistent amongst all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures.

~~IOUs are planning to continue and expand their core RCx program in multiple target markets.~~

The IOUs are exploring innovative means of improving the Agricultural Calculated Incentive sub-program based on Energy Division direction. One possible method to comply with the Energy Division's guidance to "achieve deeper energy savings retrofits and packages of measures" and to "raise incentive levels for Emerging Technologies", is to institute a scaled incentive mechanism that would provide higher incentives for more comprehensive projects. The IOUs are soliciting input from stakeholders and may institute a scaled incentive mechanism for the Agricultural Calculated Incentive sub-program.

e) Integrated/Coordinated Demand Side Management

The IOUs have identified integrated Demand Side Management (IDSM) as an important priority. As a result they have proposed the establishment of a Statewide Integration Task Force (Task Force). The program plans to work closely with the Task Force to identify comprehensive integration approaches that feed into the overall statewide strategy and to implement best practices as rapidly as practical.

f) Integration across resource types (energy, water, air quality, etc)

California's agricultural sector faces a multitude of environmental and regulatory challenges that affect their survival and competitiveness. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to conventional businesses, and complying with these regulations may actually cause increased energy use.

To help deal with these challenges, the program will coordinate with the regulating agencies and their programs to support common program designs, customer incentives, marketing opportunities, and implementation opportunities. Utilities IOUs will continue to offer targeted trainings to customers who share common regulatory challenges in an effort to educate customers on impending regulatory requirements for their business operation, and the most efficient solution options to consider for compliance. Future workshops may look at small- and medium-sized water and wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 targets.

Utilities IOUs will partner with water agencies to offer joint energy and water conservation incentives to support projects that reduce both energy and water consumption. This partnering will reduce administrative costs and increase the program's societal benefits and impacts.

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~~The utilities currently participate in the Commission water/energy pilots with several water agencies. The results may spur more partnerships between the utilities.~~

The Program will integrate applicable topics such as GHG reduction and water conservation into targeted customer workshops, marketing efforts, and communications to build on efforts from the previous program cycle.

Water/Energy Nexus Strategy

SoCalGas supports improving the efficiency of water systems as one of the most critical strategies to capture water/energy nexus benefits in the energy efficiency programs. SoCalGas plans to focus its efforts in areas that use gas engines as the energy source to deliver and treat water. For water agencies within SoCalGas's territory, we plan to issue an RFP to utilize a contractor to implement leak-loss detection and remediation and pressure management services applicable to storage, pumping and distribution through SoCalGas's core or Third Party Program. SoCalGas will explore new project ideas for the water/energy nexus, as well as the calculation of ancillary water benefits (e.g. "embedded" energy savings). SoCalGas will accelerate the expansion of cost-effective water-energy nexus programs by coordinating with the other utilities, water agencies, and municipalities to study the cost effectiveness and the embedded energy savings for water/energy efforts. Our intent is to continue to offer measures and services to the water sector through the "calculated" and audit programs. SoCalGas will also explore for new direct energy measures that can be incented under the calculated program. Additionally, we will increase our efforts to capture the water-energy nexus and sustainability in the agricultural, industrial, and commercial segments.

g) Local Element (Negotiated Incentive Option)

SoCalGas will provide a local component which will include incentives for energy-efficient retrofits, systems new construction, or replacements of existing equipment at SoCalGas customer sites. Participants may be either customers or energy-efficiency service providers (EESP's) acting as project sponsors for activities at customer sites. To qualify, a project must save a minimum of 1,000,000 therms per year. Associated energy, resource such as water, sewerage and emissions, and GHG savings will be considered when evaluating a project for funding. A project may consist of a single project at a single site, or may be aggregated from multiple projects belonging to a single customer, and may include a variety of measures.

This local element is designed to serve the largest non-residential customers within the SoCalGas service territory. Non-residential customers in this group are comprised of but not limited to the following industry sub-segments: Government/Utilities, Manufacturing/Processing Industries and Institutional. Each sub-segment has distinct energy use patterns, differences in equipment and facility design, and various management structures and decision-making processes. Because each industry sub-segment is unique, this option will use a customized, customer-focused approach. Participating customers, taking

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into account their individual energy and resource conservation opportunities as well as internal hurdle rates, will propose or “bid” to SoCalGas the incentive level needed to enable large EE and Resource savings projects. This ensures that this option will be adaptable to the unique needs of each market segment.

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The program is designed to be flexible and cost effective: The project sponsor proposes a project and desired incentives. Incentives may cover up to 50% of the incremental project costs less any additional funding received from other sources. Measurement and verification (M&V) is required for all projects. As a performance-based incentive program, the approved M&V report will ultimately determine the energy savings for each project. The total sum of incentives paid for a project may not exceed the amount “bid” by the customer and agreed to by SoCalGas.

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hg) Pilots

~~The IDSM (Integrated Demand Side Management) for Food Processing Program partners with industry, trade allies and others to promote integrated energy management solutions to end-use customers in the food processing and refrigerated warehouse segments. The integrated approach combines traditional measures (energy efficiency retrofits/upgrades) with strategies to help customers manage and reduce their energy demand during peak afternoon periods, especially during the summer season. By combining these two approaches, customers manages energy costs and enables their facilities to respond to periods of high energy use and costs. While the primary program focus is energy efficiency, the program emphasizes integrated solutions in proper sequence (first energy efficiency, then demand response) to support the most cost effective and satisfactory energy and financial solutions for these stakeholders. The concepts of *Continuous Improvement* and *Best Practices* will be woven into the long term solutions provided by the program.~~

~~The program will deliver an integrated solutions driven approach while leveraging the offerings of IOU’s portfolio of incentive based programs.~~

~~Targeted customers include agriculture: post harvest processors (ginners, nut hullers, and associated refrigerated warehouses) and food processing: fruit and vegetable processors (canners, dryers and freezers), prepared food manufacturers, wineries and other beverage manufacturers. Not applicable.~~

ih) EM&V

~~The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation~~

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has begun, since the plans need to be based on identified program design and implementation issues.

Refer to the overarching PIP section

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7. Diagram of Program

Please see the [core program](#) diagram ~~presented earlier for the core program.~~

8. Program Logic Model

Please see the [Commercial Calculated Energy Efficiency Program](#) logic model ~~presented earlier for the core program.~~

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1. **Program Name:** AgricultureAgricultural Deemed Energy Efficiency Program
Program ID#: SCG3720
Program Type: Statewide Core Program

2. **Projected Program Budget Table**

Table 1 – reference the core program for budget details

a) **Projected Program Gross Impacts Table – by calendar year**

Table 2 - reference the core program for savings details

b) **Program Description**

a) **Describe program**

The purpose of the sStatewide AgricultureAgricultural Deemed Energy Efficiency Program is to provide services to improve the energy efficiency of agricultural facilities in California, including financial incentives based on deemed energy savings. The energy savings are deemed for installed measures. Integrated projects are encouraged to combine energy efficiency and demand response.

The AgricultureAgricultural Deemed Energy Efficiency Program is part of a suite of programs within the Statewide AgricultureAgricultural Energy Efficiency Program.

Key features of the program include:

- Information and technical assistance from SoCalGas on energy efficiency measures and savings potential.
- Application via mail, fax, internet and phone by customer for eligible measures.
- Reservation of financial incentives by SoCalGas, if requested by customer.
- Pre- and post-installation inspection by SoCalGas, as determined by SoCalGas based on prior participation and other factors; and
- Payment of incentives from SoCalGas.

b) **List measures**

Itemized retrofit measures have prescribed energy savings and incentive amounts. These measures are categorized under the following end uses:

- Lighting
- Air conditioning
- Food service
- Boilers and water heaters
- Pipe and tank insulation
- Greenhouse Curtain
- Infrared film
- Refrigeration

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- Industrial Agricultural Process
- Motors
- Plug loads

c) List non-incentive customer services Agricultural Energy Advisor Services

The deemed sub-program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical consultation and application preparation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

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5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Agriculture Agricultural Deemed Energy Efficiency Program is designed overcome several barriers. The program directly addresses key market factors that lead to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This element makes it attractive for customers to spend money in the short run in order to achieve lower energy costs in the long run.

Using itemized energy efficiency measures is intended to overcome barriers that inhibit many agricultural customers from adopting energy efficiency alternatives. The barriers are addressed by itemizing common energy efficiency measures and rebates, stimulating the supply of high efficiency equipment and products (through higher demand), and offering rebates that help offset higher start up and down payment expenses for energy efficient retrofits.

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Furthermore, to ensure equity to all business customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

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d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts.

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Table 5

<u>Program Name</u>	Program Target by <u>2010</u> <u>2013</u>	Program Target by <u>2011</u> <u>2014</u>
Projects	TBD <u>115</u>	TBD <u>140</u>

e) Advancing Strategic Plan Goals and Objectives

The Statewide AgricultureAgricultural Energy Efficiency Program supports all three goals in the Strategic Plan for the AgricultureAgricultural Sector. General advancement of the goals is presented in the program implementation plan for the Statewide AgricultureAgricultural Energy Efficiency Program.

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More specific support of the goals in the AgricultureAgricultural Deemed Energy Efficiency Program is presented here.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

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The AgricultureAgricultural Deemed Energy Efficiency Program supports strategies to develop a knowledge base of efficiency solutions, foster workforce education and training, and encourage applications of new technologies.

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Goal 2: California regulations, financing mechanisms, and incentives programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

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The program supports strategies to attain multi-resource management goals and to coordinate technical assistance, funding and incentive mechanisms.

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Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

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The program supports strategies to make information on efficiency solutions readily available as well as conduct marketing and outreach to stimulate efficiency actions.

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6. Program Implementation

a) Statewide IOU coordination

i. Program name: AgricultureAgricultural Deemed Energy Efficiency Program

ii. Program delivery mechanisms

~~Agriculture~~Agricultural Deemed Energy Efficiency Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and ~~utility~~IOU program interactions. The ~~Agriculture~~Agricultural Deemed Energy Efficiency Program will coordinate with the core ~~Agriculture~~Agricultural Energy Efficiency Program to provide mutual support.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the three year implementation cycle will be enabled.

iii. Incentive levels

Incentive levels are based on measure type and will be set at uniform amounts across the state. Higher incentive levels will be provided for Emerging Technologies to spur traction in the market as feasible. The scale of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, therms, equipment cost, other market factors and cost effectiveness.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

The ~~Agriculture~~Agricultural Deemed Energy Efficiency Program will be marketed through IOUs account executives, as well as through trade allies, educational, outreach and other marketing activities. Marketing activities will target agricultural customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by account executives, phone and e-mail support will be provided.

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the solutions in the program. Education, awareness and outreach efforts will rely on a combination of ~~mass-targeted multi~~-media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to create awareness, educate and motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

Market outreach to raise awareness of energy efficiency programs available will use a number of strategies, including:

- ⊖ Account representatives will make a regular and consistent customer calling effort to key customers within this sector;
- ⊖ Utility IOU representatives, program management representatives, and field engineers will be available to provide additional expertise;
- ⊖ Participation and membership in key trade associations affiliated with each high priority sub-segment within the agricultural market sector;
- ⊖ Attendance at the key trade shows for each high priority sub-segment within the agricultural market sector;
- ⊖ Utility IOU-sponsored training events at the utilities IOU's customer training centers and other convenient locations within the utilities IOU's service territory;
- ⊖ Hosting of utility IOU-sponsored webinars that provide sub-segment training and program adoption; and
- ⊖ Written collateral pieces that provide an overview of the utilities IOU's Energy Efficiency programs will be linked into the appropriate utility IOU's DSM web page.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated, to the extent possible, among the IOUs utilizing the statewide coordination process described above.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The Agriculture Agricultural Deemed Energy Efficiency Program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with commercial-agricultural customers, to the extent possible. Conventionally, each government agency and utility IOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

With respect to water conservation, utility IOU program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers program incentives for energy efficient equipment that may also reduce air and GHG-greenhouse gas emissions.

vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that are permitted to use the Agriculture Agricultural Deemed Energy Savings Program infrastructure. This will

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ensure a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program Delivery and Coordination

i. Emerging Technologies (ET) program

The long-term energy efficiency vision of California may be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the program is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff actively works to incorporate promising emerging technologies ~~from IOU or PIER funded projects.~~

ii. Codes and Standards program

The program relies on the Codes and Standards program to help maintain an updated and relevant list of measures that will support savings. As ~~C~~odes and ~~S~~tandards impact measures, the program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into ~~c~~Codes and Standards. The program will coordinate with the Codes and Standards Planning & Coordination sub-program. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 20 and 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will ensure the latest cost effective technologies/services (e.g., LEDs) are available. These technologies will begin as R&D, transition to Emerging Technologies, then to Incubation and finally to Mainstream.

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iii. WE&T efforts

Workforce Education & Training efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the near term, WE&T efforts will focus on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems training to lay the groundwork for certification level trainings. These education and training offerings take place through ~~utilities-IOU's~~ energy centers and technology centers.

iv. Program-specific marketing and outreach efforts

Marketing and outreach initiatives will include:

- Non-contracted vendors are a key delivery channel of the Deemed sub-program. Emphasis will be placed on building awareness with more vendors in the territory.

Training vendors how to participate effectively in the program will also be a focus in the new program cycle.

- Community Based Organizations (CBOs), Faith Based Organizations (FBOs), Non-Profit organizations, and Non-Government Organizations (NGOs) with unique access and following are expected to be emphasized as a delivery channel.
- Trade associations and industry networks.
- Enabling partners (financial institutions, trade associations, service providers, law firms, environmental organizations, etc.).
- Unique channels that offer complementary value propositions from the customers' perspective (for example, energy, water, materials management, recyclables, and corporate ~~citizenry~~ social responsibility).
- Utility-IOU-sponsored training events at the utilities-IOU's Customer Training Centers and other convenient locations within the utilities-IOU's service territory.
- Hosting of utility-IOU-sponsored webinars that provide sub-segment training and program adoption.
- Development of case studies, web pages, and marketing material that provide an overview of the utilities'-IOU's energy efficiency programs.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.

v. Non-energy activities of program

The program will offer customers educational information about the non-energy benefits associated with energy efficiency measures, such as improved safety, indoor air quality, productivity, comfort, and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC work on PIER

~~The program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects.~~

~~The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects. Not applicable.~~

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As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.

viii. CEC work on C&S

Planned Title 20 and 24 enhancements will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The program will educate and support customers, and/or facilitate/enforce such initiatives as AB 32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

To maximize program effectiveness, best practices in program design and implementation will be employed and shared amongst IOUs.

Best practices in Program Design:

- Regular communication among IOUs.
- Identify qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, FSTC website).
- Seek input from industry in the development of new programs. The IOU programs are trying to change how an industry operates from manufacturer design to the customers' purchasing and maintenance practices.
- Industry participation increases program volume and speeds market transformation.

Best practices in Program Implementation:

- Strive to simplify messaging and participation for the customer. (Look for the ENERGY STAR® label, purchase from a qualifying products list, etc.)
- Understand the key motivators that drive an industry and use that information to market the program. Make certain outreach efforts make the program visible to customers and the market catering to customers.
- Always communicate program marketing and advertising plans in advance to appropriate industry channels. Advanced notice allows industry partners an opportunity to leverage off of utility IOU marketing efforts and reinforce the program messaging.

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d) Innovation

Innovative aspects of the program include improving major program performance indicators (for example, increasing the accuracy of energy saving calculations, higher realization rates,

overcoming energy efficiency barriers, reducing application processing times and administrative costs, and integrated energy management).

For the new program cycle, California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During the 2013-2014 2010-2012 program cycle, the new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance, including measure bundling incentives. The IOU's will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper savings.

IOUs will continue working collaboratively on modifications to program policies and procedures to address ongoing changes in customer expectations, market conditions and program flexibility. These modifications include changes that have been and will be targeting ease of program understanding and participation, measures eligibility, increase of customer economical benefits and policy restrictions identified as barriers to participation. IOUs are implementing such processes based on market studies conducted on the subject and after discussion of the policy change. Among potential modifications are incentive caps, and redesign of early retirement measures and equipment.

Where possible, IOUs will use an integrated approach to addressing DSM opportunities. These approaches include merging energy efficiency and demand response analysis and converting recommendations to ~~Retrocommissioning and/or~~ Calculated program projects. In addition, streamlining programs through processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

e) Integrated/Coordinated Demand Side Management

The program will integrate the portfolio of ~~utility~~-IOU offerings to include energy efficiency, demand response and distributed generation and other resources, such as air and water as they connect to energy. This supports not only cost effectiveness of the portfolio and the CA Loading order, but also customer requirements. It also advances significantly the Strategic Plan's goals. On a broader scale, IDSM also includes the integration of third party programs and Local Government Partnerships (LGP) delivery channel with the statewide agricultural~~ale~~ program.

f) Integration Across Resource Types (energy, water, air quality, etc.)

California's agricultural~~ale~~ sector faces a multitude of environmental and regulatory challenges that threaten its survival and competitiveness. New regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual. Both these are impacting energy use and compliance.

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To help deal with these challenges, the agricultural program will coordinate with the regulating agencies and their programs to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities.

Utilities IOUs will continue to offer targeted trainings to customers who share common regulatory challenges to educate customers on impending regulatory requirements for their business operations, and the most efficient solution options for their compliance. Future workshops may look at ~~small- and--medium sized water and~~ wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 targets.

Utilities IOUs will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other utilities IOUs will help reduce administrative cost and has a greater impact on societal benefits. ~~Currently the utilities are participating in the Commission water/energy pilots with several water agencies. The results from this pilot may spur more partnerships among the utilities.~~

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The Program will integrate applicable topics (for example, GHG reduction and water conservation) into targeted customer workshops, and marketing communications, based on work done in the earlier program cycle.

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g) Pilots

~~N/A Not applicable.~~

h) EM&V

~~The IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader IOU and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the IOUs and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.~~

~~Refer to the overarching PIP section~~

7. Diagram of Program

Please see the core program diagram ~~presented earlier for the core program.~~

8. Program Logic Model

Please see the Commercial Deemed Energy Efficiency Program logic model ~~presented earlier for the core program.~~

4d

1. **Program Name:** AgricultureAgricultural Continuous Energy Improvement Program
Program ID#: SCG - 3718E-13-SW-004d
Program Type: Core

2. Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3. Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the overarching program for savings details

4. Program Description

a) Describe program

The purpose of the Statewide AgricultureAgricultural Continuous Energy Improvement (CEI) Program is to help agriculturalale customers engage in long-term, strategic energy planning. Target agriculturalale customers will be identified and approached selectively.

The program features:

- Management assessment of energy priorities;
- Integrated comprehensive energy audits with recommendations on energy efficiency, demand response, and self-generation;
- Benchmarking of energy usage and other resources;
- Development of a strategic plan with actions for implementation;
- Implementation including incentives from SCE each Utility-IOU; and
- Evaluation of performance leading to modifications for continuous improvement

The CEI Program is part of a suite of programs within the Statewide AgricultureAgricultural Energy Efficiency Program. The CEI will be designed to complement statewide agriculturalale energy audit and incentive programs, namely:

- Statewide AgricultureAgricultural Energy Efficiency Program;
- AgricultureAgricultural Deemed Energy Efficiency Program;
- AgricultureAgricultural Calculated Energy Efficiency Program; and
- Pump-Testing AgricultureAgricultural Customer Services Energy Advisor Program;

The audit and planning services of SCE the Utility-IOUs will be provided at no charge to the participating customer. Costs for capital investments by the customer will be shared by SCE the Utility-IOUs to the extent they are tied to measures installed under the agriculturalale programs.

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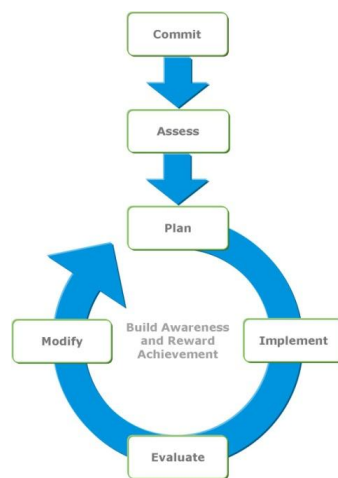
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The program seeks to help transform energy markets and reduce energy intensity. The program represents a comprehensive approach that addresses both technical and management opportunities. Background information on continuous improvement and details on implementation are provided below.

A CEI approach applies the six principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management: Commit, Assess, Plan, Implement, Evaluate, and Modify.



At each stage of customer engagement, there are a variety of utility IOU and non-utility IOU products and services that can be offered to fit different customer profiles and optimize the cost effectiveness of each utility IOU's portfolios.

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In implementation, ~~utilities~~IOUs will screen customers for certain CEI services based on factors such as customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment or demonstrated motivation to take action. Screening criteria and specific product offerings will be ~~utility~~IOU-specific.

In 2013-2014, CEI will be expanded to include select group of mid-sized non-residential customers. Available options to help target these customers may include an individualized, a small group, or a mass-market, remote deployment approach.

CEI will ~~offer~~coordinate its services ~~through~~ with the ~~Agriculture~~Agricultural Customer Services Energy Advisor ~~subprograms~~sub-program offerings. CEI offers customers what can be considered the pinnacle of audit offerings guiding senior management to instill energy considerations in all management/business operational decisions and in long-term energy planning.

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CEI Commitment

CEI begins with a high level management commitment by the customer to improving energy performance, combined with other environmental and regulatory commitments being developed by ~~large~~ energy users in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention. The message also paves the way for establishing the company resources required to implement the steps of CEI. These resources can include capital, personnel, i.e., energy champions or teams, or technical systems and software required for energy management.

Gaining true customer commitment can take time, but is critical. In implementation, ~~utilities~~IOUs will formalize the Commitment phase with ~~larger~~ or more intensive customers through a CEI participation agreement, which outlines the ~~utility~~IOU CEI services being offered as well as minimum customer expectations.

CEI Assessment

After the CEI Commitment, a comprehensive assessment identifies not only technical opportunities, but also systemic energy management practices and cultural shifts. This can improve overall facility management practices and sustain continuous improvements towards long-term company targets. A component to the assessment will also include tools to help identify Energy Efficiency (EE), Distributed Generation (DG), and Demand Response (DR) opportunities.

There are many tools and resources, both ~~utility~~IOU and non-~~utility~~IOU, free and licensed, available to support comprehensive customer energy assessment. They include ENERGY STAR®'s *Guidelines for Energy Management*, customer energy management assessment software products like those developed by Envinta, benchmarking tools, Integrated ~~Comprehensive~~ Energy Audits through the ~~Agriculture~~Agricultural Customer

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~~Services~~ Energy Advisor sub-program, and/or local and statewide third parties who can offer specialized technical expertise and assessment.

Based on screening criteria, ~~utilities~~ IOUs will offer comprehensive energy assessment services utilizing, but not limited to, vetted sources like those described below, to develop a customer specific strategic energy plan.

ENERGY STAR®'s Guidelines for Energy Management

ENERGY STAR®'s Guidelines for Energy Management is housed on the ENERGY STAR® website and provides step by step guidelines to customers to support CEI, and also guides customers to ENERGY STAR®'s numerous assessment tools. This option is a low cost resource for smaller and medium customers interested in CEI, with details available at http://www.energystar.gov/index.cfm?c=guidelines.guidelines_index.

Energy Management Assessment Tools

Envinta One-To-Five, Achiever, Challenger: A professionally facilitated energy management assessment with company decision makers. The assessment explores management practices and company priorities to develop a CEI roadmap for energy goals and actions. Available tools are:

- Each IOU's website tools
- EPA website tools
- DOE website tools

Integrated Comprehensive Energy Audits

Integrated Comprehensive Energy Audits provide an inventory of technical facility end-uses and energy efficiency, demand response and self-generation investment opportunities. For a full description, see ~~the Statewide Integrated Energy Audits Program~~ the Customer Services Agricultural Energy Advisor sub-program description plan.

Benchmarking

Benchmarking can measure energy performance of a company, building, process, or piece of equipment to industry standards or comparable groupings. Benchmarking is a natural first step for the CEI process. Customers with multiple facilities find benchmarking useful to prioritize efficiency projects, track progress toward energy or green house gas improvement goals, or drive competition among similar benchmarked facilities. Units of measurement vary widely. For commercial buildings, the unit is energy used/square foot for a unit of time. For agriculture or agricultural ale facilities, however, benchmarking utilizes energy/unit of production for a unit of time.

Benchmarking can also be applied to other resources and environmental issues, such as water use and CO2 emissions.

The statewide ~~utilities~~ IOUs can currently utilize a variety of benchmarking tools and resources including those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab with CEC funding:

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- ENERGY STAR® Portfolio Manager *Commercial* Benchmarking: Benchmarks customer facility against a national database of similar NAICS codes for an ENERGY STAR® score (0-100), kBTU/sq ft-yr, lbs CO2/yr;
- ENERGY STAR® *Cement Plant* Energy Performance Indicator;
- ENERGY STAR® *Auto Assembly Plant* Energy Performance Indicator; and
- LBNL BEST *Winery*: Benchmarks a winery’s energy and water use against a theoretical best practice winery and allows user to model efficiency improvements.

Other benchmarking tools are under development including:

- ENERGY STAR® *Food Processing* Energy Performance Indicator;
- ENERGY STAR® *Glass Manufacturing* Energy Performance Indicator;
- ENERGY STAR® *Pharmaceutical Manufacturing* Energy Performance Indicator;
- LBNL BEST *Dairy Processing*: Benchmarks a dairy processors energy and water use against a theoretical best practice facility allows modeling of improvements;
- Management Standard for Energy SME 2000-2008;
- DOE sponsored ISO Plant Certification; and
- LBNL Superior Energy Performance.

In implementation, the statewide agricultural program teams will continue to partner with energy industry peers, industry associations and DOE/Commission sponsored labs and consultants, to enhance the use of existing tools, and develop new tools for key California industries. Benchmarking will be coordinated with the Agriculture Agricultural Customer Services Energy Advisor sub-program.

CEI Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. Implementation of the Planning stage of CEI can be undertaken independently by the customer, or with utility support. Planning for larger complex customers will typically involve Account Representatives and/or consultants. As is discussed in the Strategic Plan and in the PIP Integration Section, strategic planning can also include complementary non-energy considerations as well, such as greenhouse gas reductions, water efficiency, and waste-stream minimization, all which have embedded energy components.

Data and findings from a comprehensive customer assessment are critical in developing any comprehensive energy plan, including the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information is analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (“Company X will reduce it’s overall energy intensity by 3% over the ~~2010-2012~~2013-2014 program cycle”), carbon reduction goals (“Company X will be carbon neutral by 2014²”), or management oriented goals (“Company X will implement energy teams by 2013⁰”). Goals

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can be internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as assistance with planning for the resources, staff and schedule for tracking. Action plans typically includes activities such as prioritizing process systems or facilities based on benchmarking or company drivers, identifying internal resources required to implement plans, develop project justification and incentive application documentation lists and detailed schedules.

CEI Implementation

In the implementation stage, ~~utilities~~ IOUs partner with customers to identify technical support and ~~utility~~ IOU and non-~~utility~~ IOU resources available to support implementation of projects, such as rebates, incentives, third party and government partnership programs, and state and national resources, including:

- Statewide Deemed rebates;
- Statewide Calculated incentives for new construction/tenant improvement, ~~and~~ retrofit ~~and retrocommissioning/repair~~;
- Third Party and Government Partnership programs (described in the statewide and local third party filings);
- ~~Utility~~ IOU and Non-~~utility~~ IOU financing options and owners engineer support; ~~and~~
- External and internal engineer support.

CEI Evaluation and Modification

In any continuous improvement program, evaluation is an ongoing process of evaluating actual performance against company goals, targets and action plans. It may include repeating the benchmarking and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward.

CEI ~~shall~~ will be available to all Non-Residential customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will include but not be limited to customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment and demonstrated motivation. Marketing and outreach plans include training of the IOU in-house staff and customer groups. Collateral materials such as fact sheets, how-to documents, and Power Point slides will be produced and distributed during sales calls, public events or trade shows.

b) List measures

Integrated energy audits under the CEI program will include the full range of applicable end-uses and measures for those end-uses. This will include process changes. The energy audit

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provides a tool that will lead customers to the measures and incentives offered in the other agricultural programs. However, depending on the outcome of the 2012 process evaluation, customer incentives may be offered.

c) **List non-incentive customer services Agricultural Energy Advisor**

Activities conducted under the CEI Program are non-resource activities with no associated incentives. These activities include: marketing and outreach, savings calculation assistance, retrofit project scoping, technical assistance, and incentive application assistance.

5. **Program Rationale and Expected Outcome**

a) **Quantitative Baseline and Market Transformation Information**

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) **Market Transformation Information**

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) **Program Design to Overcome Barriers**

CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers include:

- Lack of information – The CEI evaluation and modification process provides data that customers can use to reevaluate their commitment and/or modify their energy goals.
- Performance uncertainties – Through CEI’s comprehensive baselining and benchmarking assistance, customers will have access to real-time data that demonstrates how their facility is performing relative to their established goals.
- Organizational customs – The high-level customer commitment that is at the core of CEI increases the likelihood that corporate cultures that prevent successful implementation of comprehensive energy policies will be changed.

d) **Quantitative Program Targets**

The targets provided herein are best estimates, but nonetheless are forecasts.

Table 5

Program Name	Program Target by 2013 0	Program Target by 2014 1
Square Footage Benchmarked Number	TBD 864,000 xx	TBD 1,192,000 xx

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of Engagements

e) **Advancing Strategic Plan Goals and Objectives**

The AgricultureAgricultural Energy Efficiency Program supports all three goals in the Strategic Plan for the AgricultureAgricultural Sector. General advancement of the goals is presented in the program implementation plan for the AgricultureAgricultural Energy Efficiency Program. More specific support of the goals in the AgricultureAgricultural Deemed Energy Efficiency Program is presented here.

Goal 1: Establish and maintain a knowledge base sufficient to support development of all available, cost-effective, reliable, and feasible energy efficiency, demand reduction (and renewable) energy resources.

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The AgricultureAgricultural CEI Program supports strategies to develop a knowledge base of efficiency solutions, foster workforce education and training, and encourage applications of new technologies.

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Goal 2: California regulations, financing mechanisms, and incentives programs affecting the management of energy, air and water resources, solid waste, and climate change will be coordinated to mutual advantage.

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The program supports strategies to attain multi-resource management goals and to coordinate technical assistance, funding and incentive mechanisms.

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Goal 3: Achieve significant increases in the efficiency of electricity and natural gas use and on-site renewable energy utilization, including setting a specific target for irrigation efficiency.

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The program supports strategies to make information on efficiency solutions readily available as well as conduct marketing and outreach to stimulate efficiency actions.

6. **Program Implementation**

a) **Statewide IOU coordination**

i. **Program name:** AgricultureAgricultural ~~Comprehensive-Continuous~~ Energy Improvement Program

ii. **Program delivery mechanisms**

The AgricultureAgricultural CEI Program will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, marketing and outreach plans, and ~~utility-IOU~~ program interactions. The AgricultureAgricultural CEI Program will coordinate with the core AgricultureAgricultural Energy Efficiency Program to provide mutual support.

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The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the ~~three~~two-year implementation cycle will be assured.

iii. Incentive levels ~~N/A. (CEI This is a non-resource program).~~

~~Not applicable. (CEI is a non-resource program.)~~

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

As with other information and education programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other channels of delivery may be developed.

The IOUs are currently developing an in-depth segmentation of the agricultural market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers, based on their needs and preferences. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs.

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v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The program will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with agricultural~~le~~ customers.

vi. Similar IOU and POU programs

Over the next ~~three~~two years, the IOUs will seek to increase their interactions with the POU~~s~~, as applicable, to promote the CEI concept throughout the state. This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the STRATEGIC PLAN and how programs could/should be designed to help meet its aggressive targets.

b) Program Delivery and Coordination

i. Emerging Technologies (ET) Program

The audit program management team will stay abreast of and incorporate relevant emerging technologies into audit recommendations. In addition, IOU field engineers, who deliver IEAs, are active contributors to the Emerging Technology process by their participation in ET Roundtable/Information meetings and continually seek to offer new technologies to customers.

ii. Codes and Standards Program

The program will work with the Codes and Standards Program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected recommended measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream. CEI implementation will include information about pending new Ccodes and Sstandards program that may affect planning or prioritization of retrofit or new construction projects.

iii. WE&T efforts

CEI can support Statewide Workforce Education & Training efforts by including educational information about Certified Energy Manager (CEM) programs and requirements in the audit reports. Such materials could suggest to customers that passing the CEM exam will allow them to conduct facility audits at other facilities that they may have. In addition, increased retrocommissioning activities will create opportunities for third party providers who deliver commissioning services such as project scoping, investigations and assessments, air balancing, HVAC quality maintenance, etc. CEI implementation will integrate with WE&T efforts by providing CEI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches. Program costs will be shared with WE&T.

iv. Program-specific marketing and outreach efforts

A broad range of marketing activities will be used to promote audits and elevate customer engagement. The Agriculture/Agricultural CEI program will be promoted via direct communication between customers and Account Executives with support of Project Managers from individual programs, as well as through traditional advertising activities, such as internet, bill inserts, brochures, trade shows, etc. Marketing activities will be coordinated between IOUs, Demand Response and Distributed Generation departments within SCE each Utility IOU.

Integrated and program-specific marketing efforts will complement and work in coordination with SW Marketing, Education and Outreach (ME&O) Program to increase awareness, provide education, and drive ongoing engagement and participation in DSM

~~programs and services among nonresidential customers. The statewide effort will provide the first level with IOU specific programs providing reinforcement at a local level.~~

~~Third Party activities will be expanded, when feasible, to improve awareness of non-incentive utility services, such as CEI.~~

v. Non-energy activities of program

Integrated Comprehensive Energy Audits are a key tool for identifying non-energy opportunities for specific customers. The energy audits can identify non-energy benefits associated with recommended measures, such as improved safety, productivity, indoor air quality, comfort and appearance.

vi. Non-IOU programs

The program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

vii. CEC work on PIER

~~CEI will include the CEC's PIER EPIC and Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA ENERGY STAR Portfolio Manager benchmarking and other programs, USGBC LEED certification, local and other government incentive programs as applicable. Not applicable.~~ As of June 2012, PIER no longer exists. However, the Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and project in coordination with the applied research of CEC.

viii. CEC work on C&S

The program will not be implemented with a direct linkage to codes and standards efforts

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-~~utility~~IOU information and guidance that CEI will provide customers. In addition, the IOUs will participate in national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

c) Best Practices

A CEI approach applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management: Commit, Assess, Plan, Implement, Evaluate, and Modify.

d) Innovation

The program seeks to help transform energy markets and reduce energy intensity. The program represents a comprehensive approach that addresses both technical and management opportunities.

Depending on the outcome of the 2012 process evaluation, CEI may pilot consider customer incentives to accelerate project implementation (including IDSMS projects), and reward customer for implementing strategic energy management.

e) Integrated/Coordinated Demand Side Management

The IOUs have identified integrated Demand Side Management (IDSMS) as an important priority. As a result they have proposed the establishment of a Statewide Integration Task Force (Task Force). The program plans to work closely with the Task Force to identify comprehensive integration approaches that feed into the overall statewide strategy and to implement best practices as rapidly as practical. CEI includes project analysis and implementation support of recommendations of Statewide Integrated Comprehensive Energy Audits, which provide customers with an inventory of facility end-use breakdown and energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other, similar programs, but because of siloing – thinking of programs as separate, unrelated efforts – this has proved difficult. To overcome this, the CEI sub-program will leverage lessons learned from IDSMS efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other's financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program's incentives are based upon. Since benefits from long-term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the CEI sub-program will offer additional support and services for energy efficiency measures that enable demand response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable.

Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.

To support the integration of energy efficiency and demand response programs, the sub-program will focus on several tactics:

- Promotion and incentives for demand response in such a way as to stimulate energy efficiency first;
- Integrated and coordinated year-round marketing (e.g. applications, collateral, web sites, and events);
- Linking of program eligibility requirements (e.g. customer size);
- Provide unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities;
- Integrated presence on ~~utility~~IOU websites; and
- Regular coordination meetings between energy efficiency and demand response program management

CEI is recognized as an “integrated pilot” element of strategy to advance by supporting the statewide IDSM program’s goals and objectives geared towards IDSM. T, and the IOUs will increase IDSM messaging and coordination with in CEI.

f) Integration Across Resource Types (energy, water, air quality, etc)

CEI implementation ~~shall~~will include information on non-IOU Programs to expose customers to available funding, such as from air or water agencies to support efforts. IOU CEI sub-program managers will partner, as appropriate, with CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral and financial incentive analysis with customers. Conventionally, each government agency and utilityIOU has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will inform the customer about the mutual benefit of combining complementary resource programs.

To promote the CEI, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. Concerning water conservation, utilityIOU program managers will partner with the local water districts to produce co-branded marketing collateral, attend trade shows, and co-release notices for programs with interactive water and energy effects.

g) Pilots

N/A Not applicable. Depending on the outcome of the 2012 process evaluation, CEI may pilot customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

~~Based on Energy Division feedback, a potential pilot that will be explored in the 2010-2012/2013-2014 program cycle is that of a Resource Energy Manager (REM). REMs are essentially energy managers who are placed at the customer’s facility to be a project champion and shepherd energy efficiency projects through to completion. Their salary is typically paid for through the energy savings they generate. REMs have been successfully used by IOUs in the government sector (typically military bases) in past program cycles. A~~

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~~similar program has been available for commercial customers in the Pacific Northwest. The concept of using REMs in the commercial segment will be explored to determine the viability and cost effectiveness of such an approach. An appropriate EM&V plan will also be required prior to launching an REM pilot such that the affects of the pilot on achieving higher levels of energy efficiency can easily be determined.~~

h) EM&V

~~Refer to the overarching PIP section. The utilities IOUs are proposing to work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 after the program implementation plans are filed. This may include process evaluations and other program-specific studies within the context of broader utility IOU and Energy Division studies.~~

~~More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.~~

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~~Once results of the 2010-2012 evaluations are ready, recommendations will be reviewed for modifying the CEI PIP accordingly.~~

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7. Diagram of Program

Please see the core program diagram ~~presented earlier for the core program.~~

8. Program Logic Model

Please see the Commercial Continuous Energy Improvement program logic model ~~presented earlier for the core program.~~

2013-2014 PIP Addendum

Program Name	Codes and Standards	Date Submitted	July 2, 2012
Subprogram Name	Various	Utility Name	SoCalGas
Program ID	SCG 3724, SCG 3725, SCG 3726, SCG 3727, SCG 3728	IOU Program Contact	Ron Gorman
		Program Cycle	2013-2014

This form is to be used to document any required changes to the Program Implementation Plans (PIPs).

The following are triggers that will require a PIP change:

1. Changes to eligibiity rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. **Portfolio Budget and Other Commission-Directed Changes**
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change:

6. Addition or elimination of programs and/or sub-programs (indicate approved advice letter) ▼

Driver of Change:

Decision 12-05-015 May 10, 2012. DECISION PROVIDING GUIDANCE ON 2013-2014 ENERGY EFFICIENCY PORTFOLIOS AND 2012 MARKETING, EDUCATION, AND OUTREACH.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

<ol style="list-style-type: none"> a) Consolidation of all compliance improvement activities into one subprogram. b) Addition of statewide planning and coordination subprogram. c) Responses to ordering paragraphs.
--

PIP Section and/or Wording to be Changed or replaced:

See red-lined PIP attached

Replacement Language or Information

See red-lined PIP attached

Revised Energy Savings (If Any):

See red-lined PIP attached

Other PIP Changes Required:

See red-lined PIP attached

**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

- 1. Program Name:** Statewide Codes and Standards Program
Program ID(s): SCG3724
 SCG3725
 SCG3726
 SCG3727
 SCG3728
Program Type: Statewide Core Program

2. Projected Program Budget Tables

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Codes & Standards Program					
3724	SW C&S-Building Codes & Compliance Advocacy	\$41,040	\$0	\$376,212	\$0	\$417,252
3725	SW C&S-Appliance Standards Advocacy	\$32,403	\$0	\$300,370	\$0	\$332,773
3726	SW C&S-Compliance Enhancement	\$47,573	\$0	\$451,554	\$0	\$499,128
3727	SW C&S-Reach Codes	\$16,287	\$0	\$153,365	\$0	\$169,652
3728	SW C&S-Planning Coordination	\$25,146	\$0	\$230,277	\$0	\$255,423
	TOTAL:	\$162,450	\$0	\$1,511,778	\$0	\$1,674,228

3. Projected Program Impacts Tables

Table 2

	Building Codes Advocacy			Appliance Standards Advocacy			Compliance Improvement			Reach Codes		
	GW h	MW	MTh erms	GWh	MW	MTh erms	GW h	MW	MT herms	GW h	MW	MTh erms
SCG	0	0	6.7	0	0	3.8	0	0	0.4	0	0	0.24

Table 3: Total Projected Program Savings (Gross)

	SCG (MTherms)
Building Codes Advocacy	6.7
Appliance Standards Advocacy	3.8
Compliance Improvement	0.4
Reach Codes	0.2
Total	11.2

**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

Tables 2 and 3 include savings from the following California Energy Commission (CEC) proceedings.

- 2003 Title 24 (Building regulations adopted in 2003 and effective in 2005, we have previously referred to these as 2005 Title-24.)
- 2004 Title 20 (Appliance regulations adopted in 2004 and effective in 2006, 2007 or 2008, we have previously referred to these as 2005 Title 20.)
- 2006 Title 20 Tier II Lighting (Adopted in 2006, effective in 2008.)
- 2008 Title 24 (Adopted in 2008, effective in 2010.)
- 2008 Title 20 (Lighting standards adopted in 2008, effective in 2010, 2011, 2012, and 2013.)
- 2009 Title 20 (Television standards adopted in 2009, effective 2011 and 2013.)
- 2011 Title 20 (Battery charger standards adopted 2012, effective 2014.)
- Various Federal appliance standards (motors, vending machines, commercial refrigeration, ASHRAE products, etc.)
- 2013 Title 24 (Building regulations adopted in 2012, effective 2014.)

Table 2 and 3 savings are calculated from the sum of first-year gross savings from each CEC proceeding in 2009, 2010, and 2011. Gross savings are calculated from projected statewide installations, compliance, energy use baseline, and unit energy savings, prior to correcting for naturally occurring market adoption and attribution.

Savings in Table 2 and Table 3 are based on actual installation of measures, consistent with the rest of the portfolio that savings are real and in existence; therefore, 100% credit is assumed for savings from all proceedings, including those from pre-2006 adoptions.

Table 4: Total Projected Program Savings by Subprogram (Net)

	Building Codes Advocacy			Appliance Standards Advocacy			Compliance Improvement			Reach Codes		
	GWh	MW	MTherms	GWh	MW	MTherms	GWh	MW	MTherms	GWh	MW	MTherms
SCG	0	0	3.5	0	0	1.5	0	0	0.2	0	0	0.2

Table 5: Total Projected Program Savings by IOU (Net)

**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

	SCG (Therms)
Building Codes Advocacy	3.5
Appliance Standards Advocacy	1.5
Compliance Improvement	0.2
Reach Codes	0.2
Total	5.4

Table 4 and Table 5 savings are calculated from the sum of first-year net savings from CEC proceeding that produces savings in 2013 and 2014.

4. Program Mission

The Codes and Standards (C&S) program saves energy on behalf of ratepayers by influencing continuous improvements in energy efficiency regulations, improving compliance with existing codes and standards, and working with local governments to develop ordinances that exceed statewide minimum requirements. Both the C&S program advocacy and compliance improvement activities extend to virtually all buildings and potentially any appliance in California.

The C&S program conducts advocacy activities to improve building and appliance efficiency regulations. The principal audience is the California Energy Commission (CEC) which conducts periodic rulemakings, usually on a three-year cycle (for building regulations), to update building and appliance energy efficiency regulations. C&S also seeks to influence the United States Department of Energy (DOE) in setting national energy policy that impacts California.

In some cases we may seek to influence the state legislature and other state agencies like California Air Resources Board (CARB) to influence policy regarding buildings and appliances. We may explore ways to influence the US Congress outside the traditional means of negotiating through Federal partners such as American Council for an Energy Efficient Economy (ACEEE) or Appliance Standards Awareness Project (ASAP).

Codes And Standards Enhancement (CASE) studies, focused on energy efficiency improvements, are developed for promising design practices and technologies and presented to standards- and code-setting bodies. Advocacy also includes affirmative expert testimony at public workshops and hearings, participation in stakeholder meetings, ongoing communications with industry, and a variety of other support activities.

The program participates in DOE proceedings and legislative negotiations leading to federal regulations that are passed through to California; in particular, Title 20 appliance efficiency regulations that are the same as Federal regulations.

**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

Following adoption, C&S supports compliance improvement with both Title 24 building codes and Title 20 appliance standards. Compliance improvement activities complement the advocacy work by maximizing verified savings from codes and standards that are realized and persist over time. The Compliance Improvement subprogram targets market actors throughout the entire compliance chain, providing education, outreach, and technical support and resources to improve compliance with both the building and appliance energy standards. Compliance improvement responds to the CPUC's interest in robust implementation of existing standards and support for the California Long Term Energy Efficiency Strategic Plan's HVAC Big Bold strategies.

The program carries out strategic activities that support or shape future codes and standards. In addition to mandatory minimum-level codes, the C&S program advocates for the development and implementation of "reach codes" that exceed minimum state code requirements and may be adopted by local jurisdictions or agencies. The program monitors and/or participates in a wide range of activities or proceedings that have direct or indirect impacts on California regulations including, but not limited to American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), international activities involving Europe, Asia, Canada, and Australia, voluntary standards such as green building codes, and ratings organizations such as the Cool Roof Rating Council (CRRC), National Fenestration Rating Council (NFRC), and the United States Green Building Council (USGBC). Additionally, the program intervenes in Energy Star and other voluntary activities, as necessary, to shape future regulations or support coordination with voluntary programs.

The new Planning and Coordination subprogram expands the coordination role of the C&S program in the market adoption cycle for energy efficiency technologies and practices. As many of the measures offered through voluntary programs are adopted into the standards, C&S will coordinate both internally and externally to support a dynamic approach to portfolio planning with the objective of accelerating market acceptance and ultimately the adoption of successful, cost-effective technologies or practices into code. C&S will directly support the goals and objectives of both the CA Long Term Energy Efficiency Strategic Plan and the Codes and Standards Action Plan currently under development, subject to budget constraints.

A glossary of acronyms used in this document is provided at the end of the document.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric

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Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Codes and Standards Statewide Program (Resolution E-4385, Appendix A):

SW PROGRAM/ Sub-program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
CODES AND STANDARDS		
<i>Building Standards Advocacy</i>	1. Number of Residential and Commercial CASE studies, as defined in Building Standards Objectives 1 & 2 for which adoption by the CEC is anticipated by the IOUs, targeting efficient technologies practices and design in each of the following areas: lighting; HVAC; envelope; water heating; and cross-cutting measures in support of the following : (a) Integrated Design, including data management and automated diagnostic systems, with emphasis on HVAC aspects of Whole Building, (b) ZNE technologies, practices, and design in Residential Sector, (c) Peak efficient technologies including plug loads and HVAC technologies, (d) Advanced Lighting Technologies	2b
<i>Appliance Standards Advocacy</i>	1. Number of draft CASE Studies, as defined in Appliance Standards Objective 1, developed as mutually agreed upon by the CEC and IOUs in support of plug loads, refrigeration, advanced lighting, and/or other technologies that are adopted by the CEC, within authorized budget.	2b
<i>Compliance Enhancement</i>	1. Number of role-based, Title 24, training sessions delivered.	2a
<i>Reach Codes (RC)</i>	1. Number of jurisdictions in IOU Service territories with CEC approved Reach Codes in residential and/or commercial sectors as a result of the RC sub-program activities.	2b

b) Market Transformation Information

Market Transformation Indicators (MTIs)

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on

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November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment “H” are approved for this sub-program as applicable.

c) Program Design to Overcome Barriers

The statewide Codes and Standards Program has five subprograms including:

- i.** Building Energy Codes Advocacy
- ii.** Appliance Standards Advocacy
- iii.** Compliance Improvement
- iv.** Reach Codes
- v.** Planning and Coordination

Building Code and Appliance Standards Advocacy Subprograms

Codes and standards advocacy comprises a portfolio level strategy that complements incentive and information offerings in several ways. Since IOU incentive and rebate programs typically capture only a small percentage of the market, a transition to regulatory intervention is essential to maximize portfolio energy savings. This transition to code causes a once high-margin product to become an industry standard; thereby reducing the overall cost to society for energy efficiency. This commoditization effect, in turn, spurs innovation for new high-margin products since most manufacturers and other industry practitioners seek to compete in part on high-margin differentiated products.

As involuntary interventions, codes and standards are effective at breaking down market barriers such as split incentives between building owners and tenants that are difficult to overcome through incentive and information programs. Minimum code requirements direct consumers’, builder’s and renovation contractor’s choices of materials and appliances to higher efficiency products, thereby reducing monthly energy bills to tenants. Regulations also improve equity in benefits from IOU customer investments in energy efficiency through rates. Through codes and standards, positive changes initiated through voluntary programs targeting early adopters are extended to all customers. Hence, hard-to-reach groups that do not participate in voluntary offerings benefit through codes and standards.

Baselines for building and appliance advocacy activities are developed in two ways. If the objective of a code proposal is to update an existing standard, the baseline is simply the existing standard. If the objective is a new standard, which expands the scope of building or appliance efficiency regulations, the baseline is established through market characterization studies prior to or during the development of the CASE study unless a recent preexisting market characterization study can be found. Hence, baselines for new standards often do not exist until a draft CASE study is complete.

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IOU support for recent CEC code upgrade cycles – in particular, the 2003, 2004, 2006, and 2008 CEC proceedings – for new building codes and appliance standards has significantly increased the rate of change in regulations compared to previous code cycles. Moreover, the scope of regulations has grown to include Title 24 alterations for measures such as duct sealing when replacing HVAC system components, and numerous appliances have been added to Title 20. These changes have created a significant need to support the successful implementation of the standards by improving industry awareness and understanding of California regulations.

As compliance improvement efforts are carried out to improve the rate-of-compliance -- with building codes or appliance standards, the benefits of the increase in compliance are captured in the Advocacy subprogram savings, as part of the verified C&S program energy savings. Determination of compliance improvement savings requires that program savings be recalculated periodically based on recurring CPUC evaluations of compliance rates.

Compliance Improvement (CI) Subprogram

Compliance improvement is increasingly important to the energy efficiency industry in California. Having supported the commercialization of efficient technologies and practices through IOU incentive and rebate programs, achieving satisfactory compliance is a crucial requirement for capturing market change for the long-term benefit of society. Broad compliance is necessary to level the playing field for well-intentioned suppliers and contractors who are otherwise faced with a competitive disadvantage when complying with regulations. Greater compliance strengthens voluntary program baselines, provides a solid foundation for future robust advocacy efforts, and improves throughput of California's energy efficiency industry by removing an industry bottleneck.

The primary barriers to compliance with the building standards include the complexity of the standards and limited resources available for enforcement by local governments and the CEC. Although education and training are not substitutes for enforcement, they increase compliance rates by generating awareness and improving understanding of regulations, and by equipping key market actors in the compliance supply chain with the tools and knowledge necessary for compliance. The CI subprogram will offer training and resources to market actors throughout the compliance delivery chain, which may include, but is not limited to energy consultants, building department staff, contractors, and design professionals.

In addition, the CI subprogram will work with local government and other industry partners to provide technical support and other resources, such as process improvement tools. The CI subprogram will document best practices and lessons learned from the Best Practices study completed in 2012, and will work with California Building Officials (CALBO), CEC, and local government partners to encourage other jurisdictions to adopt successful practices and tools identified during the pilot project. By encouraging more jurisdictions to use the same or similar processes, tools and forms where possible, compliance will be simpler for market actors, as enforcement will become more consistent.

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The CI subprogram supports proactive building departments that seek general improvements to operations and compliance improvement processes. The rationale is based on the recognition that building departments are facing increased economic pressures and resource constraints, with no reduction in the required workloads. Given that this trend is unlikely to change in the near future, utility assistance in improving the efficiency of building department enforcement processes will effectively provide the jurisdiction with more resources to increase compliance rates. The CI subprogram will identify and create tools to help optimize existing processes and simplify enforcement and work with staff to test and modify the tools as necessary. Tools might include, but are not limited to, electronic forms, tracking software, or implementing online permitting and payment methods.

In addition to supporting the CPUC's impact evaluation, which will involve establishing pre- and post-program compliance rates per participating jurisdiction, the IOUs will document training and other efforts employed, administer pre- and post-tests to gauge training participants' knowledge swing, and gather and measure implementation of action plans from participating building departments.

Reach Codes (RC) Subprogram

The RC subprogram will focus primarily on developing and/or supporting the development of reach codes, or locally adopted ordinances, that exceed statewide minimum requirements. Reach codes are typically codes adopted by local governments and provide a means to test new codes as well as testing the efficacy of increasing the stringency of existing codes at a local level prior to disseminating the code on a statewide basis. Each jurisdiction's experience with local codes can be used to inform the state's process by documenting both the successes and barriers faced for both adoption and implementation. The RC subprogram will encourage local governments to first optimize compliance with existing codes, and will provide training and resources where applicable.

The IOUs have worked with local jurisdictions (cities, counties, school districts, colleges and universities, etc.) to implement a more coordinated approach to development and implementation of local ordinances to minimize market actor confusion. In addition, IOUs have and will continue to promote regionally consistent ordinances where possible to reduce the duplication of efforts that results when individual government entities develop the language and technical supporting documentation independently. This duplication can even occur in regional government organizations whose geographical boundaries aren't consistent with the CEC's climate zone designations. Lastly, coordinated development provides better staging for statewide adoption, leverage for local jurisdictions to encourage adoption, and increases the likelihood of adoption and compliance.

Working with local jurisdictions and other market actors, the IOUs will develop a package of climate-zone based reach codes for new construction as well as some existing buildings. The IOUs will continue to work closely with the CEC to expedite the CEC review and approval process and to drastically reduce local government development costs and

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facilitate subsequent adoption of the code(s). Reach codes may also include codes targeting government-owned buildings or particular activities such as commissioning.

The main enabling assumption for the RC subprogram is a continuation of the CPUC policy directive that allows constituents in jurisdictions with local ordinances to participate in voluntary programs without being classified as free riders. The CPUC, along with utilities and local governments recognize that this policy is necessary, especially in light of the long-term strategic policies that must be implemented to reduce California's Green House Gas (GHG) emissions sufficiently to meet statewide reduction goals as set forth by AB32. Otherwise, the effective result "punishes" innovators and market leaders by eliminating access to incentive and rebate programs to assist these leaders in achieving additional energy savings. In most cases, reach codes are adopted based upon the expectation of continuing eligibility for incentives and rebates.

The program assumes that citizens of a jurisdiction or agency that passes a reach code continue to be deemed eligible participants in incentive and rebate programs administered under the auspices of the CPUC, consistent with the treatment of California-owned buildings responding to Governor's Executive Orders (S-20-04 and B-18-12) requiring state buildings to reduce energy usage by 20% by 2015. This interpretation can set up a positive energy efficiency feedback loop wherein participation in incentive and rebate programs increases because of the reach code, and the availability of incentives and rebates to assist code compliance encourages more local governments to adopt a reach code.

Baselines: For new construction (including renovations, additions, and replacements) reach codes, the IOUs assume Title 24 as the baseline. A Title 24 baseline provides a conservative savings estimate, is consistent with new construction incentive programs, and eliminates any potential overlap with the Compliance Improvement savings claims.

Time-of-Sale (TOS) reach codes for existing buildings assume that no energy actions are undertaken absent the code. There are currently only two TOS codes that the program is aware of in California. The scopes are both very limited, and in at least one case, the code is not routinely enforced. Therefore, assuming that building owners do not undertake any energy efficiency retrofits at TOS absent a specific requirement is a reasonable assumption consistent with the rationale for the proposed new construction reach code baseline.

Enabling assumptions include a "shared savings" claim mechanism for attributing savings impacts resulting from reach codes. In a jurisdiction with a reach code, savings resulting from participants in the relevant incentive or rebate program (new construction or retrofit) will be claimed by that program, consistent with current practice. Savings resulting from completed projects that do not participate in an incentive or rebate program will be claimed by either the Codes and Standards or Government Partnership programs if one is extant.

In addition to local governments, various agencies such as school districts, colleges, universities, and industry groups are adopting reach-code policies. Examples include:

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- CHPS (Collaborative for High Performance Schools) as adopted by school districts
- Green building requirements adopted by the UC, CSU, and community college districts
- LEED and GreenPoint Rated as adopted by various agencies, builders and jurisdictions
- ASHRAE Standard 189: High Performance Green Buildings, is expected to be adopted by agencies and local jurisdictions

In many cases, the IOUs were involved in the development, adoption, and deployment of these reach code programs. The primary intent of the IOUs involvement was to increase participation in EE programs. The impact of these programs needs to be recognized in the evaluation process as they tend to raise the baseline for code compliance for program participants and non-participants. For example, the baseline for schools in a district with a CHPS policy resolution may have a much higher efficiency baseline as a result of the efforts of the IOU from participation in both the Savings By Design program and CHPS even though there was no legal requirement to exceed the code.

Going forward, the C&S program will be working on the development of new and updated reach code rating systems, standards, guidelines, most of which be based upon the new Title 24 standards. These reach codes are expected to be adopted and implemented with the support of the C&S program by various agencies, institutions, and building associations. Although there have been cases where the mere adoption of reach code programs have little to no impact, there have been a number of cases where significant savings have been verified.

Examples of where verification processes are in place include the CHPS Verified program and the CHPS deployment at Los Angeles Unified School District (LAUSD). The CHPS Verified program (http://chps.net/chps_schools/Verified.htm) provides project review, design review, and construction review of school projects to verify compliance with CHPS requirements. This is a fee-for-service program that provides a rigorous review of the project prior to Department of State Architect (DSA) plan review which generally results in the overall reduction in time and cost for the school design and construction process. In the case of LAUSD, the District worked with consultants (including Global Green) to integrate CHPS into their internal quality assurance process that involved the design teams and all LAUSD design, construction review, and maintenance and operations staff. The C&S program proposes to review these and similar compliance improvement programs and processes and will implement them accordingly to maximize the energy savings associated with the reach code programs.

To the extent that the C&S program is able to increase compliance with these reach code programs, the resulting savings should be reflected in buildings that result in above-code performance. In addition, to the extent that the IOUs were and will be involved with the development and deployment of these reach-code programs, the energy savings should be treated similarly to the reach code ordinances adopted by local government jurisdictions.

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Based upon precedents that allow eligibility for above-code incentives for state and federal agencies with executive orders (e.g., Governor's Executive Order (S-20-04, recently replaced by B-18-12) requiring state buildings to reduce energy usage by 20% by 2015) for mandatory above code construction of their buildings, the IOUs propose continuing the policy of treating these reach code policies in a similar manner.

Planning and Coordination Subprogram

The ambitious goals set by the CPUC and CEC require the participation of many different entities. Without proactive coordination, it will be difficult if not impossible to fully realize the savings from the C&S program activities as well as other programs. The C&S program will facilitate coordination and develop and implement a strategic vision to promote and advance cost-effective technologies.

The Planning and Coordination subprogram will work with the CEC, CPUC, emerging technologies, as well as voluntary programs to create a strategic approach for key measures and technologies in support of the Zero Net Energy (ZNE) and other policy goals. For those key technologies, the C&S program will strive to work with other programs to commercialize them for adoption into a relevant code or standard.

The Planning and Coordination subprogram will also work with other programs and market actors to improve code compliance, conduct more outreach and solicit additional input on code enhancement proposals from impacted industries. As part of the expanded outreach and communications efforts, the C&S program will establish and maintain a codes and standards collaborative, and will continue to facilitate the Compliance Advisory Group. In addition, the C&S program will maintain regular contact with state and federal code-setting agencies to minimize duplication of efforts and coordinate activities.

d) Advancing Strategic Plan Goals and Objectives

Through the C&S program, SoCalGas, SDG&E, SCE and PG&E will combine advocacy, compliance improvement and reach code development efforts to meet the codes and standards goals defined in the Strategic Plan in Section 7. Please see Section 6 for the specific action strategies the IOUs will employ in order to meet the Strategic Plan's codes and standards goals.

Due to the long code upgrade cycle, the process of developing CASE and research studies may extend past the end of the program cycle; therefore, funding committed prior to the end of 2011 will be available for four years thereafter to fund these studies. This might entail moving the committed funds forward into subsequent program cycles until these studies are completed.

6. Program Goals, Objectives and Action Strategies

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a) Subprogram Descriptions

The C&S program consists of five subprograms: Building Codes Advocacy; Appliance Standards Advocacy; Compliance Improvement; Reach Codes; and, Planning and Coordination.

i. Building Codes Advocacy Subprogram

The Building Energy Codes Advocacy subprogram primarily targets improvements to Title 24 Building Efficiency Regulations that are periodically updated by the California Energy Commission (CEC). The subprogram also seeks changes to national building codes that impact CA building codes. Advocacy activities include, but are not limited to, development of code enhancement proposals and participation in public rulemaking processes. The subprogram will coordinate or engage with ratings organizations that are referenced in Title 24; for example, the National Fenestration Rating Council, and the Cool Roof Rating Council.

ii. Appliance Standards Advocacy Subprogram

The Appliance Standards Advocacy subprogram targets both state and federal standards and test methods: improvements to Title 20 Appliance Efficiency Regulations by the CEC, and improvements to Federal appliance regulations by the US Department of Energy. Advocacy activities include, but are not limited to, development of code enhancement proposals and participation in the public rulemaking process (Title 20), and comment letters based on IOU research and analysis (USDOE), participation in direct negotiations with industry, and development of quasi-mandatory appliance standards reach codes. Additionally, the subprogram monitors state and federal legislation and intervenes, as appropriate.

iii. Compliance Improvement

The Compliance Improvement subprogram is a new subprogram that combines the previous Extension of Advocacy and Compliance Enhancement subprograms. It provides education, training, and other activities targeting building departments and other industry actors responsible for compliance with Building Energy Code and Appliance Standards requirements. Activities may include development of “best practices tools” and other infrastructure elements that serve multiple compliance improvement objectives.

iv. Reach Codes

The Reach Codes subprogram provides technical support to local governments that wish to adopt ordinances that exceed statewide Title 24 minimum energy efficiency requirements for new buildings, additions, or alterations. Support for local governments includes research and analysis for establishing performance levels relative to Title 24 and cost effectiveness per Climate Zone, drafting of model ordinance

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templates for regional consistency, and assistance for completing and expediting the application process required for approval by the CEC. The subprogram also supports local governments that seek to establish residential or commercial energy conservation ordinances for existing buildings.

v. **Planning and Coordination**

The Planning and Coordination Subprogram supports planning activities that improve alignment across the IOU energy efficiency portfolio with respect to future C&S program activities. This subprogram supports efforts to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving zero net energy.

b) **Program Goals and Activities**

In general, the goals of the C&S program are the same as the two C&S goals defined in the C&S section of the Strategic Plan. Through the Advocacy subprograms, the IOUs will strive to continually strengthen and expand building and appliance codes and standards as IOU efforts reveals greater efficiency opportunities and compelling economic benefits. Through the Compliance Improvement subprogram, the IOUs will strive to improve code compliance through education, outreach, and other technical resources. IOUs will also develop local ordinances and facilitate their adoption and implementation in motivated communities.

- Strategic Plan Codes and Standards Goal #1: Continually strengthen and expand building and appliance codes and standards as market experience reveals greater efficiency opportunities and compelling economic benefits. (Subprograms 1 and 2: Building Codes and Appliance Standards Advocacy).
- Strategic Plan Codes and Standards Goal #2: Improve code compliance and enforcement. (Subprograms 3 and 4: Compliance Improvement and Reach Codes).

The following sections provide a description of the proposed C&S subprogram activities which will lead to achieving the program goals.

Building Codes Advocacy

The Building Codes Advocacy program will continue conducting many of the same activities as were conducted in the 2010 – 2012 program cycle, but will focus on the upcoming 2016 Title 24 Energy Building Code cycle. In addition, the Building Energy Codes Advocacy subprogram will expand activities at the national level. Primary activities for 2013-2014 include the following:

2013 Title 24 Building Codes

- Support implementation of adopted 2013 Energy Building Code:
 - Complete revisions to compliance manuals and forms.

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2016 Title 24 Building Codes

- Prepare CASE studies in coordination with CEC:
 - Conduct research for 2016 building code advocacy to advance State policy goals.
 - Support activities to address Department of Finance review requirements.
 - Research residential ventilation / IAQ requirements to reduce and control infiltration while maintaining and improving indoor air quality.
 - Research and advocate methods to remove code barriers to the increased use of renewable energy in support of ZNE goals.
 - Support development of 2016 compliance software.

Appliance Standards Advocacy

The Appliance Standards Advocacy subprogram will continue conducting many of the same activities as were conducted in the 2010–2012 program cycle, but will focus on preparing new measures pursuant to CEC’s adopted Order Instituting Rulemaking (OIR) for Title 20 Appliance Standards and U.S. Department of Energy’s ongoing rulemaking for Federal Appliance Standards. Primary activities for 2013-2014 include the following:

Title 20 Appliance Standards Rulemaking

- Prepare CASE studies pursuant to CEC’s adopted OIR:
 - Advocate and provide public testimony in State public proceedings
 - Conduct research and testing and submit supporting market and technical data to the CEC
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which CEC eventually adopts)
 - Develop quasi-mandatory reach codes that are voluntary with respect to participation, but require CEC certification if a supplier chooses to participate.

Federal Appliance Standards Rulemaking

- Provide support to DOE rulemaking process:
 - Advocate and provide public testimony in Federal public proceedings.
 - Submit supporting market and technical data to the Department of Energy (DOE).
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which DOE eventually adopts).
 - Develop voluntary agreements or reach standards.

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Compliance Improvement

For the 2013-2014 program cycle, the combines the former Extension of Advocacy and Compliance Enhancement Program activities into one Compliance Improvement subprogram to enhance understanding of program objectives and activities. The subprogram will strive to improve compliance with Title 24 and Title 20 standards while implementing an effective sector strategy with the Workforce Education and Training (WE&T) Program. Primary activities for 2013-2014 include the following:

Title 24 Compliance

- Title 24 Standards Essentials Role-Based training for building inspectors:
 - Continue delivering training to plans examiners and energy consultants. Update curriculum to cover what is new in the 2013 code.
 - Expand role-based training curriculum to additional compliance improvement market actors such as the building trades and design professionals as guided by needs assessment.
- HVAC Quality Installation and Other Programs with Direct Code Requirements
 - Identify opportunities to insert code compliance modules in existing curriculum, such as training required for technicians.
- Online Compliance Training:
 - Explore training delivery mechanisms beyond the traditional classroom to include live webinars, activity-based online training, and in-field demonstrations.
- Tools and Process Improvements:
 - Implement tools and process improvements as identified through the building department best practices study and the Compliance Improvement Advisory Group (CIAG).
- Forms and Compliance Documents:
 - Support development of improved forms and compliance-related documentation for 2013 Title 24.
- Compliance Improvement Incentives:
 - Explore a pilot project designed to improve compliance by providing incentives to local governments, contractors, or other key market actors. The pilot will be based on the CIAG's guidance and may include nonmonetary incentives such as

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training or provision of tools designed to streamline the permitting and inspection processes for building additions and alterations.

- Target Low Compliance Problem Areas:
 - Collaborate with the CEC to identify problem areas and potential compliance improvement solutions through white papers developed by CIAG members.
 - Consider pilot project to improve compliance for measures with known challenges, which may include providing incentives to contractors for pulling permits, or motivation for other market actors.

- Develop and Conduct Outreach Campaign to Improve Compliance:
 - Collaborate with the CEC to develop and implement an outreach campaign designed to improve compliance with Title 24 and Title 20 standards. The campaign will be based on the CIAG's guidance and may include activities such as developing flyers for contractors to provide to potential customers explaining the code requirements and benefits, mini measure-based code seminars for big box store employees, etc.

- CEA exam development, facilitation support, and maintenance
 - Collaborate with the California Association of Building Energy Consultants to improve the working knowledge, skills, analytic ability and accountability of individuals using energy compliance software and preparing the appropriate Title 24 documentation for permit submittal. The C&S program will support updating the beta Residential and Nonresidential CEA examinations developed in 2010-2012 to properly test applicant CEAs under the 2013 standards and facilitating the roll out of the new certification process.

Title 20 and Federal Standards Compliance

- Surveys and Technical Support:
 - Conduct surveys and provide technical support to CEC and industry to facilitate compliance.

- Education and Outreach:
 - Collaborate with CEC on implementing an education and outreach campaign targeted to distributors, retailers, contractors, and possibly consumers.

Reach Codes

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For the 2013-2014 program cycle, the IOUs will continue to collaborate with the CEC and Local Government Partnership Program to identify, and provide technical assistance to, local jurisdictions interested in adopting reach codes. In addition, the IOUs will continue to collaborate with CEC to provide support for developing voluntary standards to encourage buildings to achieve exemplary performance in the areas of energy efficiency. Primary Reach Code subprogram activities for 2013-2014 include the following:

Reach Code Technical Assistance

- Cost Effectiveness Studies:
 - Prepare Cost Effectiveness studies for each of the California climate zones (to be updated for 2013 Energy Building Code) that have been vetted with the CEC, resulting in expedited CEC review of reach code application submittals.
- Policy Guidelines:
 - Provide a “Road Map” of Policy Guidelines for adopting Reach Code including an overview of some of the implications and important choices in writing and adopting these types of ordinances, and recommendations intended to improve implementation and compliance.
- Ordinance Template:
 - Provide a Reach Code Ordinance “template” that establishes clear definitions of when the ordinance is triggered, including CEC-required language which states that all buildings shall meet all applicable requirements of the Building Energy Code.
- Workshops & Presentations:
 - Facilitate public workshops and presentations to interested stakeholders including elected officials, city staff, industry organizations, and community groups that address the following:
 - Critical role that energy efficiency plays in reducing greenhouse gas emissions
 - Understand how Reach Codes and complementary new construction incentive programs such as the California Advanced Homes (CAHP) program help meet CalGreen’s voluntary Tier 1 and Tier 2 Energy requirements, accelerate advancement of zero net energy building practices, and mitigate project-level GHG impacts pursuant to CEQA requirements.
 - Explain the process for developing and adopting a legally enforceable reach code pursuant to CEC requirements
 - Work with industry organizations and other market actors to conduct outreach to local governments to inform them of available reach code assistance.

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Local ordinances may be structured in several ways, and often vary in scope, requirements, and triggers. The C&S team will encourage local governments to adopt regionally consistent ordinances where feasible to reduce potential market confusion. However, differing circumstances in each jurisdiction may require them to pursue different avenues. For example, ordinances may be limited to energy issues only, or may be more comprehensive, also including other green building measures. Some examples of typical variations in ordinances include the following:

- **Scope and Triggers:** Local ordinances may include residential, nonresidential, or municipal buildings, or any combination of the above. Many local ordinance requirements apply to new construction only, while others also include remodels. Triggers may include project size, scope, or value.
- **Requirements:** Local ordinances typically specify a particular level of performance, allowing builders and designers to achieve the desired performance using a combination of measures and technologies that are appropriate for the project. Many local ordinances specify that covered projects exceed state requirements by a specific percentage (15% was the most common requirement relative to the 2008 Standards). In addition, local ordinances may require projects to meet CalGreen Tier 1 or Tier 2 advanced efficiency levels as well as the non-energy portions of CALGreen. Another common structure employed by many local governments is to require buildings to obtain certification from a relevant green building rating system such as LEED or Build It Green. This structure allows the jurisdiction to leverage the documentation and verification requirements inherent in these systems, thus reducing the verification burden on the building department.

Planning and Coordination (Non-Resource Subprogram)

The Planning and Coordination subprogram supports planning activities that improve alignment across the IOU energy efficiency portfolio with respect to future C&S program activities. The C&S staff will coordinate with IOU energy efficiency portfolio programs to support efforts to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving zero net energy.

This subprogram will consist of four elements: 1) Strategic planning and coordination; 2) Outreach within each IOU to other program areas; 3) Statewide planning and coordination; and, 4) Workforce education and training. Primary activities for 2013-2014 include the following:

Strategic Planning

- **Codes and Standards Collaborative:**
 - Maintain a Codes and Standards Collaborative to conduct strategic planning.
- **Code Readiness:**

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- Establish cross-functional teams, including representatives from voluntary programs (incentive, emerging technologies, and education and training), the CPUC, and the CEC, will be established to identify code readiness priorities relative to policy goals, for example: zero net energy, AB 1109, and other Action Plan objectives.

Internal Coordination and Communications

- Periodic Meetings:
 - Conduct a variety of internal coordination activities based on respective needs of each IOU, including periodic meetings with program leads in other areas as well as management teams.
- Ongoing Communication:
 - Inform planners and support groups regarding future code changes, collaboration on evaluation and regulatory matters.
 - Solicit input from other groups re advocacy efforts, aligning education and training activities with incentive programs.

Statewide Collaboration

- Integrated Dynamic Approach to Portfolio Planning:
 - To support the state's zero net energy objectives, the C&S team will work closely with new construction programs to develop an integrated approach to align new construction program offerings with base code requirements as well as reach codes where possible.
 - The C&S team will work with core retrofit programs as well as local government partnerships and third parties to coordinate offerings with anticipated code changes.
- CPUC Communication:
 - Conduct monthly calls with CPUC personnel to share progress and discuss issues.
- CEC Communication:
 - Maintain statewide weekly calls with CEC staff regarding building codes and appliance standards.
- National Stakeholders Communication:
 - Conduct regular conference calls with national stakeholders regarding appliance standards.

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- Compliance Advisory Group Communication:
 - Host quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities.
- Local Government Partnership Communication:
 - Provide quarterly updates to Local Government Partnership Program regarding reach code adoption progress and delivery of training to building departments.

Workforce Education and Training (WE&T)

- Sector Strategies for WE&T:

The C&S and WE&T teams will meet periodically to coordinate activities that will enhance support for the appropriate market actor roles responsible for new and emerging codes and standards implementation according to priorities established by needs assessments. The C&S program will collaborate with the WE&T Centergies subprogram to not only prepare contractors and technicians to implement current codes, but to also prepare them with technical training on advanced technologies that are projected to become part of reach codes and then the statewide code.

c) **Program objectives (more specific milestones to be achieved to accomplish the goals)**

See Codes and Standards Alignment with Strategic Plan narrative and table below.

d) **Program action strategies that will be used to implement the goals**

See Codes and Standards Alignment with Strategic Plan narrative and table below.

e) **Program outputs (measurable results of the program linked to the action strategies)**

See Codes and Standards Alignment with Strategic Plan narrative and table below.

Codes and Standards Alignment with Strategic Plan

The following narrative and table details the specific actions the C&S program will use to carry out the C&S goals defined in the Strategic Plan and the program outputs linked to each action strategy.

In addition to striving to meet the two C&S goals defined in the Strategic Plan, the IOUs will work in concert with other programs within the energy efficiency portfolio to help

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meet associated goals such as those defined for HVAC, local governments and WE&T as described in Section 8 of this PIP.

Strategic Plan Codes and Standards Goal #1: Continually strengthen and expand building and appliance codes and standards as market experience reveals greater efficiency opportunities and compelling economic benefits. (Subprograms 1 and 2: Building Codes and Appliance Standards Advocacy)

The C&S program will provide a direct response to the CPUC's goal by specifically addressing each near-term strategy in the Strategic Plan. Through the advocacy activities, the program will:

- Continue to expand Title 24 Building and Title 20 Appliance Efficiency Regulations through improved research to identify current code and compliance shortcomings, new technologies and processes, and latest thinking on breadth (scope) and depth (stringency) of possible standards
- Develop aggressive proposals to accelerate regulations for both Title 20 appliance efficiency standards and Title 24 building standards
- Support leading activities such as statewide reach standards (e.g., codes that include California Green Building Standard) and the coordinated development and adoption of advanced local government ordinances.
- Coordinate with both internal and external organizations on an ongoing basis, including voluntary programs and national standards organizations

The Strategic Plan outlines five strategies to strengthen and expand building and appliance standards. The C&S program intends to address each strategy through the advocacy subprograms as follows.

Strategy 1-1: Develop a phased and accelerated approach to more stringent codes and standards.

The C&S program seeks to accelerate the adoption of increasingly stringent building and appliance standards. To this end the program will develop proposals to increase the scope and stringency of Title 20 and Title 24. The C&S program will also develop or support development of more stringent codes, such as the California Green Building Standard, ASHRAE Standard 189, and other model code ordinances, which would significantly exceed the current Title 24 requirements and could potentially become a model for local green building ordinances.

The use of discrete, above minimum code tiers of efficiency standards (e.g. reach codes) have been proven to be an effective way to promote energy efficiency, prepare the market for high efficiency equipment in an orderly way and smooth the transition for more stringent future standards. However, the proliferation of many standards for the same product renders confusion in the market place and hinders compliance. The C&S program

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will work with local governments that currently have or are considering adopting advanced energy codes to identify common themes among their primary objectives and develop a set of model reach codes and standards that form the path for subsequent statewide adoption. The C&S program will help local governments improve compliance by developing compliance forms, modify performance software, and provide code compliance training to practitioners and building departments

Historically, approximately 100,000 single family (SF) homes and 50,000 multi-family (MF) dwelling units are constructed each year. Estimated construction for 2009 is projected to be much lower: SF 30,000 SF units and 33,400 MF units.¹⁸ These buildings are within the scope of the Title 24 energy code. There are about 8 million existing single family homes and 4 million existing multi-family dwelling units in California.¹⁹ Since homes are sold on average every seven years in California²⁰, approximately 1.4 million existing homes and (assuming same turn-over for rental properties) 570,000 existing multi-family units are sold each year. Thus requirements for the most basic efficiency measures (attic insulation, weather sealing) installed at time of sale would have a huge impact – potentially impacting 10 times as many residential buildings as do the current residential standards. The C&S program will work with local governments to identify existing barriers and develop model time-of-sale (TOS) requirements such as Home Energy Rating System (HERS) audits, and commissioning for commercial buildings that do not unnecessarily hinder real estate transactions or financing. Ultimately, if the pilot program with local governments is successful, it will make the case for a statewide time-of-sale requirement.

HVAC. The efficiency of heating and cooling systems is central to building energy efficiency standards and has become an even more significant component of the standards through the adoption of time-dependent valuation. Energy losses from ducts can be a large fraction of heating and cooling loads. The Title 24 standards have mandatory requirements for duct sealing and prescriptive requirements for duct testing and verification by a HERS rater. Feedback from duct tests to HVAC contractors and home builders is a very important mechanism for transforming the market. Thus, the C&S program will be pursuing the concept of mandatory requirements for duct testing and self-certification of the test while still including the prescriptive requirement for a HERS rating. Similar to the acceptance tests in the nonresidential market, a self-certified duct pressurization test would be required for all residential duct systems in unconditioned spaces that are not obtaining a HERS verified duct test.

The systems not receiving HERS duct sealing verification would receive the same energy penalty in the performance approach and the systems would not be allowed in the

¹⁸ Construction Industry Research Board, California Construction Review, Private Building Construction, January 22, 2009.

¹⁹ <http://www.dof.ca.gov/HTML/DEMOGRAPH/ReportsPapers/Estimates/E8/E-8.php>

²⁰ Median duration at residence is 7 years for homeowners and 1 year for renters. Jason P. Schachter and Jeffrey J. Kuenzi. US Census. Seasonality of Moves and The Duration and Tenure of Residence: 1996, data extracted from Figure 4. Duration of Current Residence by Current Tenure: 1996.

<http://www.census.gov/population/www/documentation/twps0069/twps0069.html>

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prescriptive method approach. This requirement would reduce enforcement uncertainty – every duct system would be required to be tested. Since all duct systems are required to be tested, this lowers the incremental cost barrier for a HERS verified duct test and assures that mechanical contractors and homebuilders receive the feedback from duct testing on every job. This same approach would be taken for relatively new requirements for measurements of airflow, fan power, duct pressure drop and refrigerant charge.

The C&S program will prepare CASE studies to evaluate the cost-effectiveness, market status and availability of the equipment to determine the potential for revising the building efficiency standards so they are based on enhanced efficiency HVAC systems such as: radiant cooling with a dedicated outside air system, evaporative condensing, direct/indirect evaporative cooling and ground coupled heat pumps. These and other cooling technologies have the potential to be significantly more efficient than the federal air conditioning regulation but may be exempt from federal pre-emption. For federally-regulated cooling equipment, the C&S program will continue working with the federal DOE to develop regional air conditioning standards that would be more appropriately suited to California's warmer and drier climate.

Envelope performance testing. Similar to the requirements for performance testing of HVAC installations, the performance testing of the envelope of homes and other residential dwelling units provides direct feedback on the level of infiltration. Thus, testing could transform the building industry. The C&S program will evaluate the feasibility of adding mandatory requirements for blower door tests for all new homes. Similar to the requirements for duct testing, the prescriptive baseline would retain the HERS verification requirements, but for those homes wishing to avoid the HERS requirements through a performance trade-off the blower door test would still have to be performed.

Strategy 1-2: Expand Titles 24 and 20 to address all significant energy end uses

The C&S program will pursue additional energy savings by broadening the scope of the Title 20 appliance standards and the Title 24 building efficiency standards. Title 20 proposals will be developed and supported through the public stakeholder process for both current and future proceedings. Current proposals include: battery chargers, portable lighting fixtures, set top boxes, televisions, computer monitors, game consoles. Future proposals will include office equipment and other miscellaneous and plug loads. Integration activity with voluntary codes and program activities will be increased to expand potential for new product categories to be added to the measure list. The C&S program will continue to support the Title 20 proposals after their adoption by providing ongoing technical assistance to the CEC to fend off post adoption maneuvering by oppositional stakeholders, which has increased in recent years. This will reduce post adoption exemption of product classes.

For the 2008 revisions to Title 24, the C&S program successfully proposed a bold increase in scope to include refrigerated warehouses. For 2013, the C&S program again advocated increasing the scope of the standards, this time to include the refrigeration plant small

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walk-in refrigerated coolers and refrigerant plants serving display cases in supermarkets. The C&S program is also pursuing other opportunities with computer room cooling, and other process measures such as compressed air systems.

In the past, energy codes have focused only on the efficiency of the equipment installed and not on how that equipment functions, and recent field studies have found that a significant number of controls do not work correctly. Thus the C&S program will be reviewing the efficacy of fault detection and diagnostic (FDD) controls to determine their effect on operators taking subsequent action to correct the problem when notified. The C&S program will also investigate barriers to submetering tenant units and major building energy consuming systems such as lighting, chiller plants, and boiler plants. Pending approval from the CPUC that water savings are within the scope of IOU energy and resource conservation programs and should be pursued, the C&S program will research requirements for water meters on all new buildings.

With the current federal administration's focus on energy efficiency we can expect, at a minimum, more opportunities to increase the stringency of Title 20 standards through Federal proceedings. If the new administration increases the budget for DOE staff, we can expect an even greater acceleration in activities than the already rapidly increasing number of DOE proceedings. Increased DOE funding would provide the opportunity for states to petition DOE for new rulemakings and/or waiver petitions in support of California energy savings.

The C&S program will work in conjunction with national organizations to align California's reach goals with LEED, Green Globes, and CHPS. Ideally, satisfying California's Green Building Standard would become the minimum threshold to apply for a LEED rating. Likewise, the C&S program will work with ResNet and California HERS Providers on the development of further home rating system upgrades and rating techniques.

Strategy 1-3: Improve code research and analysis.

Research and analysis is the basis of upgrading energy codes. In some cases this research is forward-looking and identifies technologies that have sufficient market experience, cost-effectiveness and broad applicability to be deemed "code-ready." This research can also be retrospective for two major categories of energy savings opportunities:

1. Review of code proposals that were unsuccessful in past code cycles, but appear to have promise due to changes in the market, refinements in the technology or new information.
2. Evaluation of current standards for loopholes, inconsistencies, enforcement barriers. The savings from these issues can be substantial and must be actively researched.

More generally, the program will seek to improve C&S advocacy by developing new approaches to determining incremental costs, availability, and reliability. In particular, cost

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information is considered confidential by industry representatives who generally oppose code upgrades, so the success or failure of a standards proposal often turns on the perceived accuracy of incremental costs.

Due to the increasing complexity of the targeted measures and increasing sophistication of oppositional stakeholder tactics during the public process under both Title 20 and 24, a greater emphasis on more thorough market research, product performance measurement and technical production data is necessary. Existing studies may be expanded, new studies may be designed and implemented, and additional market research may be purchased to facilitate future standards development. New or updated test methods are required to pursue significant savings opportunities left stranded by current incomplete test methods (e.g., high temperature performance metrics for cooling systems and variable speed capability of commercial refrigeration equipment).

Codes research also needs to consider more than just technologies but also design methods. A “big bold” research topic for Title 24 is a whole building approach to building design. This concept is in support of a requirement for compressorless or “hybrid” cooling systems in the homes in the more temperate California climate zones. Well-designed homes in the mild coastal regions of California do not need air conditioners. These homes often have thermal mass to dampen the diurnal temperature swings when it is hot outside, so the thermal comfort of the home isn't solely dependent on the air temperature of the home, but also the radiant temperature. The C&S program will pursue the potential of providing Title 24 compliance credit to homes that do not have air conditioners as long as it can be reasonably expected that occupants in these homes will be comfortable enough that these homes will not be retrofitted with air conditioners later on. This approach would likely require an enhancement of the existing performance method simulation tools, or require newer simulation tools such as Energy Plus, that has a thermal comfort model. This would require a significant investment in resources. However, if this concept were implemented, it would move new homes in coastal regions significantly closer to the 2020 zero net energy goal.

This same concept can also be applied to commercial buildings with greater attention given to comfort due to tasks being conducted in fixed positions and locations, and greater attention to internal heat gains resulting from plug loads and lighting loads. However, better thermal mass and comfort models will advance low energy commercial buildings as this would also benefit the characterization and ultimately the design of passive solar commercial buildings assisted with radiant heating and cooling. Energy Plus also promises the capability of modeling airflow which should provide improved confidence in specifying two other low energy HVAC systems: positive displacement ventilation and natural convection.

Initially, advanced tools require advanced users. Thus training in low energy design principles and methods of predicting building performance training is needed for the next generation of architects and engineers starting out in practice and currently attending California architecture and engineering schools. Training is needed in a number of

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different venues: for existing practitioners, training opportunities at utility training centers, and at professional conferences. Student training would be most efficiently conducted as part of their normal curriculum. Sponsored curriculum development and sponsored research in the design of efficient buildings results in career long impacts when combined with other broader society-wide incentives for low energy design.

Even more advanced interfaces to these tools expand the scope of potential users by simplifying the user's inputs, but requiring sufficient detail in the nomenclature used by designers so these tools can predict the energy impact of design choices with reasonable levels of accuracy. These program interfaces must have enough flexibility so the breath of applications is wide enough to affect a sizable portion of the possible building applications and the scope of measures is sufficiently broad. Training is still needed for these simplified tools but is accomplished in less time and is given to more people as there are more people likely to use the tool. Easier to use tools expands likely users to sales people, manufacturer representatives and facility managers.

In addition to the fairly sophisticated tools to support these advanced designs, a segment of the market will be drawn to design approaches that are formulaic. These approaches may not optimize energy savings, but if the prescriptive cookbook method is well designed, they can yield significant levels of reliable savings. This requires a significant effort in exercising the design tools, comparing the simulated results to actuals and synthesizing the results into design standards. These design patterns then must be transmitted in a number of ways including resource documents, training materials and presentations.

The energy consumption of buildings is not purely a function of their components but is impacted by occupant behavior and actual equipment installation and performance. Field studies are an important method of feedback on how much energy is really saved by a measure. In some cases this research can leverage information from CPUC EM&V studies and CEC load forecasting studies.

Another significant source of market and technology data is the utility energy efficiency programs. The C&S program will periodically poll the program managers for information concerning market share, technology cost and verified energy savings. The energy efficiency programs will likely identify technologies that may be ripe for code adoption and can help develop the market experience that differentiates those products that are truly code ready.

The importance of the statewide utility Emerging Technology (ET) program will increase as source of information and potential measures for voluntary reach-code tiers. Although available in the market, the measures that are assessed in the ET program may be neither cost-effective nor fully applicable for mandatory standards. In some cases, it may be appropriate to have measures simultaneously included in utility energy efficiency programs as well as a reach code tiers.

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Also related to field studies are process evaluations of how the code is administered from the designer and specifier, to Title 24 analyst, to plan check, to bidding, through construction to inspection to occupancy. The delivery of efficient buildings relies on each step of this process. Transferring this information to the CEC and code proposal developers increases the likelihood that compliance will increase with the next energy code.

Strategy 1-4: Improve coordination of State energy codes and standards with other state and Federal regulations.

The development of the California energy efficiency standards does not occur in a vacuum. Much of the technical basis of Title 24 rests on consensus standards developed by ASHRAE (American Society of Heating, Refrigerating and Air-conditioning Engineers) and IESNA (Illuminating Engineering Society of North America.). The measurements of product properties rely on test standards developed by DOE; American Society for Testing and Materials now referred to as ASTM International (ASTM); Air-Conditioning, Heating and Refrigeration Institute (AHRI); National Fenestration and Rating Council (NFRC); Cool Roof Rating Council (CRRC). Although the C&S program works most closely with the CEC, other California state agencies are also involved with the development of efficiency standards. Examples of coordination with other state agencies may include, but are not limited to, the California Air Resources Board (CARB) as codes relate to greenhouse gas (AB 32) and other emissions, Department of Toxic Substance Control (DTSC) as codes relate to toxic waste from lamps, and California Department of Water Resources (DWR) as codes relate to the water use in HVAC systems. In addition, there is much to be learned and many benefits derived from coordinating with ASHRAE and other states that are developing their own energy codes. Thus, the C&S program will be coordinating with other entities in the development of test standards and other consensus standards.

The C&S program will also participate in the development of other standards that can then be applied in California. The most notable of these is the Federal appliance efficiency regulations and international standards, which are likely to have bigger impacts on Federal and state appliance standards in the future. If the C&S program continues to influence the outcome of these regulations, nominal savings in California will be achieved. Since the Federal regulations apply to all sales in the US, compliance enforcement is easier. The program will continue to take a leadership role in advocating for new legislated standards (often based on Title 20 standards in the past) and in both negotiated and contested DOE appliance standards rulemakings. In view of the increasing international coordination in the codes and standards arena, the program will take a more influential role in influencing international test methods and standards framework developments where there is significant opportunity to affect federal and CA appliance standards. We fully expect the need to travel to other countries to conduct effective collaboration and coordination of standards activities that potentially affect California. Increased coordination with national voluntary program frameworks including CEE and ENERGY STAR are also likely to increase codes and standards efficacy.

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Federal appliance efficiency standards limitations have been a hindrance to more stringent codes in California. These Federal standards preempt the state from requiring additional labeling, higher appliance efficiency standards, and prevent building efficiency standards from requiring higher efficient equipment than equipment that are minimally compliant with the Federal appliance standards. Given that the Federal regulations cover the largest energy consuming devices (lighting, air conditioners, and water heaters), this has seriously constrained the effectiveness of California's appliance and building efficiency standards in California. The C&S program will be developing a research plan to address Federal pre-emption including, but not limited to, waiver petitions, federally legislated standards, and development of new coalitions.

The CARB's proposal in response to SB 97, which requires rules be developed to address the California Environmental Quality Act (CEQA) requirements for greenhouse gas emissions, expands the possible scope of energy consumption that could be regulated. Well-defined efficiency measures and performance trade-off options would be in the interest both of CARB and the entity submitting a new industrial, commercial or residential project.

In addition to the coordination with the DWR for the water use in HVAC systems noted above, there is an ongoing CPUC proceeding to determine the amount of energy embedded in water use. Therefore, the C&S program will further coordinate with the DWR as studies are initiated to examine potential reductions in water use. Since the CEC was given jurisdiction over water use starting in 2008, it is anticipated there will be new sections in Title 24 regulating the use of water.

Also as mentioned earlier, the C&S program will pursue developing reach codes in coordination with the California Green Building Standards. To do this the C&S program will coordinate with the BSC (Building Standards Commission), the CEC (California Energy Commission), HCD (Housing and Community Development), OSHPD (Office of Statewide Health Planning and Development), Local Governments, and others.

Strategy 1-5: Improve coordination of energy codes and standards with utility programs

Coordination between C&S and other utility programs may occur in various ways: existing or newly adopted standards, future standards, direct linkages between incentive programs and a specific standard, and long-term integrated planning. This is a rapidly evolving area, so planning is necessarily at an objectives level for now. The C&S team will periodically meet with other utility program staff to facilitate ongoing coordination.

Newly adopted standards. On an ongoing basis, C&S team communicates with IOU incentive program managers regarding potential adoptions of new standards. Depending on the opportunity, program managers may decide to provide incentives for measures in advance of the effective date to prepare the market.

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Education and training between adoption and effective dates of a particular standard represents another way to prepare industry. The C&S program will provide Title 24 training to both market actors and internal program staff in advance of the effective date for the Title 24 Standards. The training will help identify opportunities for ongoing coordination between incentive programs and C&S activities. Another activity under development is to require program participants to complete and submit the applicable acceptance tests required by Title 24 to receive an incentive for HVAC and lighting controls equipment. This will increase compliance with the acceptance tests and help assure the incented equipment is installed according to code intent.

Although all utility programs are impacted by codes and standards, particular focus will be placed on coordinating with the Local Government, HVAC, and WE&T programs. Please refer to Section 8 for how the C&S program will coordinate efforts to help meet shared goals defined in the Strategic Plan.

Future standards. Having selected topics for potential CASE study proposals for the next code cycle, for example, 2011 building and appliance standards, energy efficiency program managers may be able to include measures in programs to improve code readiness. The C&S program may also work with statewide ET program staff to identify new technologies for which to develop alternative calculation methods (ACM). CASE studies can be developed for new technologies to propose Title 24 credit towards achieving compliance, thereby reducing one barrier to market acceptance. Moreover, a Title 24 ACM provides an approved method for calculating energy savings for incentive programs.

The C&S program will continue to improve coordination with the statewide new construction programs. Since the success of these programs are dependent on exceeding the current Title 24 codes, they serve as a useful “test-bed” to inform the development of future Title 24 proposals by highlighting the more cost effective measures, flagging problem areas with compliance, and demonstrating the extent to which the current code can be exceeded.

On a longer term basis, it is sometimes possible to identify code objectives two code cycles into the future. This will be particularly critical for developing an appropriate trajectory for reaching the Strategic Plan’s zero net energy goals, AB 1109 Huffman Bill goals²¹, and state policy initiatives indicated in the previous section. For these opportunities, the C&S program will complete a gap analysis to identify distance between code readiness attributes and the current market status of the technology, which will inform the creation of an integrated long-term coordination plan. Long term information repositories may be developed to collect information that will support adoption in a future code cycle.

Direct linkages. The C&S program seeks to directly link, as has been done for the current Title 20 television proposal before the CEC, code proposals with incentive programs. When faced with industry resistance, this linkage constitutes a stronger argument before the

²¹ AB 1109 Huffman directs the CEC to implement strategies to reduce residential lighting by 50% and commercial and outdoor lighting by 25% by the year 2018.

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commission. Moreover, linking a standard with an incentive program creates a synergy in which the push of a widely recognized future standard reinforces the pull of near term incentive programs, thereby increasing participation in a complementary incentive program.

Albeit weaker compared to direct linkages, the synergy between standards and incentive programs exists more generally through indirect linkages.

Strategic Plan Codes and Standards Goal #2: Improve code compliance and enforcement. (Subprograms 3 and 4: Compliance Improvement and Reach Codes)

The C&S program is committed to improving code compliance and enforcement. To demonstrate this commitment, C&S is expanding the CI subprogram. The program will leverage existing, and develop new education and outreach activities to equip both building and appliance industry market actors with the knowledge and tools needed to comply with Title 24 building energy efficiency standards and Title 20 appliance efficiency regulations. Expanding the program to include compliance improvement will help ensure that the full potential of the state's codes and standards efforts are realized, and results in a comprehensive C&S program.

The C&S strategies and activities listed in the Strategic Plan are focused primarily on Title 24 building energy efficiency standards, noting that appliances are principally regulated at the federal level rather than the state level. As the CPUC Strategic Plan also notes, there remains huge potential savings at the state level for appliances and equipment not regulated by the federal government. With this in mind, the C&S program has added activities to capture Title 20 compliance savings as well and added a sixth implementation item for this program cycle in the Strategic Plan Table below to document planned Title 20 efforts.

Strategy 2-1: Improve code compliance and enforcement.

The Strategic Plan identifies one strategy and five activities targeted to improve compliance and enforcement with Title 24 building energy efficiency standards. Each activity is addressed in order below.

Activity 2-1 a): Conduct research to determine high-priority tactical solutions for code compliance and focus efforts accordingly.

As a first step in launching compliance improvement efforts, the C&S team will interview the building industry market actors included in the compliance supply chain to determine how their current performance compares to the desired performance, the reasons for the gap, and which performance improvement solutions the C&S program may employ to improve code compliance. Additionally, the team will interview experts who have been providing training, software and regulatory support to industry practitioners over the years to identify best practices, possible points of collaboration and gaps the C&S program can help fill. Furthermore, the C&S program will conduct a process pilot with several local

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governments to investigate code enforcement processes in detail, identify opportunities to streamline enforcement practices and improve consistency across jurisdictions. Results of these research efforts will inform the total package of performance improvement solutions the program will implement to help improve code compliance rates. In addition, the results of the compliance improvement process study that included a stakeholder roundtable discussion will be compared with the interviews.

Activity 2-1 b): Increase training and support for local building code officials.

Building code officials are the primary key to improving compliance with Title 24 standards and certain Title 20 regulations such as residential air conditioning equipment. Building department personnel must enforce several different building codes simultaneously, with limited resources. Given the limited time available, officials correctly prioritize those codes related to life-safety, which often results in extremely limited time and resources dedicated to enforcing energy-related codes. In addition to resource limitations, energy codes have undergone much more significant changes in each of the recent code updates than most other codes, thus creating a challenge for officials to maintain their expertise.

The CI subprogram will focus a significant percentage of the code education resources on providing training and support to building code officials. Based on research results, the CI subprogram will develop role-based training courses and abbreviated code guidelines for plan checkers, inspectors and counter staff specifically targeting only those sections of the code related to each particular position. This work will be closely coordinated with the CEC and third party efforts to ensure that it supports and is in alignment with the CEC's compliance improvement efforts.

In addition, in response to the needs assessment to be conducted as part of the local government process pilot, the CI subprogram will develop and test process improvement tools, and will work with CALBO, the International Code Council (ICC), and CEC to conduct outreach to other jurisdictions to encourage adoption of those tools. The CI subprogram will conduct outreach and encourage other jurisdictions to adopt tools and processes that help building officials increase compliance. The CI subprogram will support more consistency across jurisdictions, in processes, documentation requirements and enforcement practices, and will encourage the expansion of submitting online permitting paperwork for HVAC replacements as well as other measures. These online submittals allow for the creation of customized inspection checklists that also simplify enforcement.

The CI subprogram will also work with the CEC and HERS providers to ensure the new HERS documentation and data management systems are consistent and serve to streamline the compliance process.

Activity 2-1 c): Investigate regulatory tools such as licensing/ registration enforcement.

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Currently, although Title 24 documentation must be signed by a licensed professional, the actual calculations can be prepared by anyone. Anecdotal evidence from rebate programs and building departments indicates that the lack of training and/or professional certification requirements results in sub-par documentation being submitted to building officials, thus requiring more time to review documents and determine compliance. The CI subprogram will work with the California Association of Building Energy Consultants (CABEC), CEC and CALBO to increase the stringency of the Title 24 Certified Energy Analyst test, initiate a certification process for Title 24 consultants, and begin requiring energy education for building officials as part of CALBO's existing continuing education requirements.

The CI subprogram will also work with the CSLB (California State License Board) and the DCA (California Department of Consumer Affairs) to conduct outreach to members regarding the importance of the standards to the state and to their customers, and to encourage the CSLB to enforce the HVAC permitting requirements with their members.

Activity 2-1 d): Evaluate proposed changes to the code and compliance approaches to simplify and expedite compliance.

Feedback from building officials indicates that they are overwhelmed by the volume, complexity, and rapid changes to the energy codes. As a complement to the role-based training, the CI subprogram will work with industry experts, CEC, and building officials to develop and test role-based and context-sensitive code guidelines. The guidelines will target specific compliance items and common measures that must be addressed at each stage in the permitting and inspection processes.

The CI subprogram will conduct research to identify specific areas of the code that can be simplified by reducing the number of trade-offs and compliance options and/or transitioning to a greater number of mandatory measures.

In addition, the CI subprogram will work to increase the availability of online permitting resources and the consistency of requirements and documentation across all jurisdictions, with an initial focus on geographically contiguous regions. Online permitting makes obtaining permits more convenient and less costly, and geographic consistency provides a more stable and easier-to-understand process for building designers and contractors, as well as building officials.

Activity 2-1 e): Work with local governments to improve code compliance, adopt above code ordinances, and provide training/education.

The primary goal of the compliance improvement subprogram elements is to improve code compliance. As discussed in activities a) through d) above, CI subprogram will be dramatically expanding and enhancing efforts in support of this goal, launching several different outreach and training offerings and activities.

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The C&S RC subprogram has adopted a demand-side philosophy to local code adoption, consistent with the general philosophy of energy efficiency. California has a very robust energy efficiency code that can, if fully enforced, result in a tremendous amount of savings and reduction in both energy usage and peak demand. The RC subprogram will conduct outreach to local governments and green communities through Government Partnerships Programs, Build It Green, and others industry partners to educate interested participants about the potential savings that could be realized through optimizing compliance with existing codes prior to adopting a new code. The RC subprogram will inform local governments that optimizing compliance with existing codes is one of the most immediate and significant steps a city or county can take toward reducing the jurisdiction's carbon footprint, and will request a commitment from each participant to take documentable steps toward that end.

Many local governments, in their eagerness to take action in the absence of federal leadership, have individually developed and adopted unique local codes to reduce the climate change impacts of the building activities in their jurisdictions. Unfortunately, codes are developed and adopted without any real overall coordination with other jurisdictions, resulting in a plethora of local ordinances and code requirements throughout the state that are changing frequently, making it impossible to easily track what code applies in which jurisdiction at any given time. The RC subprogram will encourage local governments to work with neighboring jurisdictions to adopt consistent requirements and to remain consistent with current Title 24 climate designations to reduce potential market confusion.

One of the RC subprogram goals for local codes is to promote consistency with the current Title 24 climate zone structure, with which market actors are used to working. The RC subprogram will work with local government partners to identify and document their objectives for a local code and also with the CEC and Building Standards Commission (BSC) to make the next generation of the State's Green Building Standards meet those objectives for most, if not all local governments. First, the RC subprogram will work with local governments to support development of a package of cost-effective local energy codes that exceed Title 24 minimum requirements for residential and nonresidential new construction. The RC subprogram will support efforts to obtain CEC pre-approval to simplify the approval and adoption process at the local level. In addition, to begin harnessing the tremendous savings potential from existing homes, the RC subprogram will support development of a package of standards that are applicable at time-of-sale or major remodels. Local ordinances will serve as an opportunity to test the efficacy of the codes and inform regulators as to the readiness of the codes for statewide adoption.

Activity 2-1 f): Conduct outreach and education efforts to improve compliance with Title 20 Appliance Standards.

The IOUs' experience working with industry actors on Title 20 advocacy indicates that there are two primary paths for equipment covered by Title 20 to move through the supply chain from manufacturers to consumers. The first is via manufacturers, distributors and

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contractors, while the second is via retailers directly to consumers. Similar to the Title 24 outreach, the IOUs plan to target each actor in the supply chain for selected measures with significant savings potential and for which compliance rates are relatively low.

Given the wide range of industries and the organization of their distribution channels, compliance improvement activities for appliances will be conducted on an industry-specific basis. For example, compliance improvement outreach for manufacturer-dominated industries logically begins with manufacturers since top down efforts will affect most product sales in California. If major manufacturers are located overseas, as is the case of consumer electronics for example, we fully expect the need to travel to other countries to conduct effective outreach and training.

Different approaches will be used to educate and train retailer-dominated and contractor-dominated industries. In the retailer-dominated case, for example, compliance efforts must target the stocking practices of these retailers. In the contractor dominated case, where contractors are largely responsible for the purchase and installation of the product, compliance efforts must focus on outreach to contractors.

The C&S program will coordinate with the CEC to conduct outreach to equipment manufacturers to inform them of existing code requirements, and to facilitate their compliance from both a technical and administrative perspective. Assistance will be provided to manufacturers to support their efforts to ensure equipment sold in California meets the minimum technical requirements, and to successfully complete the certification process with the CEC.

For measures such as pool pumps, where most are sold through distributors and installed by contractors, in addition to working with the pump manufacturers, the program will work directly with distributors to educate their representatives. The IOUs will also conduct outreach to contractors directly, and will work with trade organizations to leverage their existing communications networks. Outreach activities may include attending trade conferences and regional meetings, authoring articles for industry newsletters or publications, or direct contact via email or printed materials.

Other measures, such as incandescent lamps and consumer electronics are often purchased directly by consumers through retail establishments. Though the market actors are different for these measures, the C&S program will use similar methods to reach as many market actors as possible. Trade associations are expected to be important stakeholders in this effort and will be leveraged as much as feasible. The IOUs will coordinate with regulators and other providers to identify gaps and opportunities to collaborate.

7. List of Measures & CASE Studies

Following are tables of possible IOU CASE study topics. For a number of reasons, these lists are not static. After further planning, IOUs may decide to swap leads, co-fund, or make other

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changes, as appropriate. During the CASE study development process, it is sometimes found that there is insufficient market data or economic information to justify a standard. During rulemakings, industry representatives may inject sufficient uncertainty to derail a proposal. The CEC may indicate that they are more interested in some proposals and delay others. Sometimes new ideas occur that were overlooked during the planning process.

The CASE study projects develop feasibility and cost-effectiveness evaluation for a variety of code improvement opportunities. These CASE projects are not a purely technical exercise, advocacy is an important part of moving an idea into energy codes and this requires a significant amount of consensus building and negotiation.

Table 6 includes a preliminary list of measures from the CEC to be evaluated for the 2016 Title 24 Building Efficiency Standards cycle. These will inform IOU planning.

Table 6: 2016 Title 24 Building Codes - Preliminary Measures

2016 Title 24 Preliminary Measures	
Preliminary Nonresidential Measures	
Measure	Description
Flicker specification for all dimming systems	Flicker is a function of the lighting source (ballast, driver) and the dimming control
Task/ambient lighting for offices	
Low W/sf HVAC systems	Prescriptive performance-based requirement, cap on total installed watts.
Optimized Window Area, Update Window VT's	Reduce WWR from 40% to 30% while maintaining visual comfort. Estimate that 0.11/WWR reduced VT reduced daylighting savings by 25%. See ASHRAE ECB reduced WWR by building type.
Nat ventilation, dedicated O/A, + chilled beam or radiant system	Drive down fan energy. Window sensors interlocked with fan system
Dual path approach PV vs High Eff HVAC	Base case has 1W/sf of roof area, alternate has high eff HVAC
Eliminate reheat	Through zoning of systems or designs such as dual duct design, reheat can be mostly eliminated.
Daylighting control dimming plus off.	Ballasts can use 20% of power when fully dimmed. In primary zone no light can be needed much of the day. Added savings.
Opaque envelope U-factors	ASHRAE roof values are significantly lower
Retail lighting including occupancy controls	Fix general lighting in tailored method. Further LPD reductions, trade-offs with occupancy sensing controls
Skylighting in lower ceiling heights	Skylighting required in spaces > 15 ft, related to cost of lighting well and spacing of skylights. Technologies to reduce cost of light wells and to spread light so skylights can be further apart.

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Egress lighting	Turn all the way off when space is unoccupied. Effort involves working with state fire marshal and perhaps NFPA.
Economizers	Catch up to IECC - required down to 33 kBtu/h, FDD updates
Façade and landscape lighting	ASHRAE has lower LPDs
Parking lot lighting (tall pole motion sensing?)	Motion controlled bi-level expanded to above 24 ft if technology ready. Consider expanding to other applications.
Solar pool heating for hotel/motels	Scoped out as cost-effective application of solar pool heating (year round operation)
Lab fume hoods, Occupancy sensing control of sash	Sash can be closed when no one is in front of fume hood. Saves energy and increases IAQ
Streamline and remove exceptions	Simplify and expand scope when possible
Plug-in hybrid and EV charging circuit	Reduces transportation costs and emissions, coincident with PV output
Plug for trucks at refrigerated warehouses	
Nonresidential ACM	
Refrigeration model in ACM	Allow trade-offs
Whole building (BEARS) model including deemed plug loads.	Software also generates BEARS rating and ZNE rating
Improved Natural Ventilation simulation	
PV model offsets consumption	Also useful; for ZNE rating
Radiant model including comfort	Provides accurate estimate of benefit of radiant cooling methods
Improved VRF simulation	Current model may be inaccurate. May require added manufacturer data for credit
Base case WWR by building type	ASHRAE 90.1 has reduced WWR for dome building types (i.e. 22% for schools, 11% for retail, 7% for grocery store, 19% for small office etc.)
Solar absorption air conditioning	
Combined heat and power	
Process Loads	
Evap fan speed control for walk-ins	Saves fan energy and compressor energy
Pipe sizing for compressed air systems	Pressure drop losses reduced
Specific efficiency requirements for refrigeration equipment	
Air dryer efficiency for compressed air	Modulating systems versus on/off systems
Capacity controls for centrifugal compressors	Remove exception from compressed air system requirements

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Preliminary Residential Measures	
Low-rise multi-family prescriptive package	
QII - Quality Insulation Installation inspection	
All high efficacy lighting	Show availability of high quality high efficacy products for all sockets. Trade-off with PV
Ducts in conditioned space or ductless HVAC	Variety of methods, cathedral ceilings, scissor truss, mini-splits etc.
Tested Infiltration < 3 ACH 50	Catch up with IECC, have to show IAQ is OK, may be done in conjunction with mandatory CALGreen to reduce source pollutants
Compact water distribution	Measured length of pipe between water heater and fixture
Controlled supply mech ventilation	Better air quality, cleaner house
Dual path PV with high efficiency HVAC and DHW	
Coastal compressorless comfort	White paper for 2013 standards
Walls - R-21 + R5 in all CZs	Also consider R-15+ R-8 exterior insulation
Windows 16% of floor area	Highly controversial, should be based on survey
Heat recovery ventilator	Heat recovery in very hot or very cold climates
Simplify and remove exceptions	
Plug-in hybrid and EV charging circuit (MF)	
High efficiency white goods	Credit in model perhaps prescriptive trade-off
Residential ACM	
Multi-family modeling	
Evaporative cooling modeling	
Ductless AC system modeling	
Sealed attic modeling	
Whole building (HERS) model including deemed plug loads.	Basis of HERS rating and ZNE
PV model offsets consumption	Supports ZNE goal
Locational efficiency credit when solar access is low	Prepare for ZNE or equivalent

Table 7 includes a preliminary list of Title 20 measures under consideration by the CEC for the 2012-2015 Title 2- cycle. These will inform IOU advocacy work .

Table 7: Title 20 Appliance Standards – Preliminary Measures.

Title 20 Measure	Description (all subject to change)
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<i>Lighting</i>	
Dimming ballasts	Minimum efficiency standards for dimming ballasts, and possible limits on standby wattage. Standard would likely use the Relative System Efficacy (RSE) or the Ballast Luminous Efficiency (BLE) metric, with minimum performance requirements at full light output only or at several light levels.
Multifaceted-Reflector lamps	Minimum efficiency standards for multifaceted-reflector lamps, possibly with tiered standards. May also require minimum light quality/lamp performance standards.
LED lamps	Require LED lamps to meet minimum performance requirements (e.g. dimming and lamp life), minimum light quality standards (e.g. CRI), and modest efficiency (lpw) requirements.
EISA exempt lamps	Apply existing T20 general purpose light bulb standards to EISA exempt bulb types, including: 3-way, 2,601 – 3,000 lumen, shatter-resistant, candelabra base, intermediate base. All can accommodate halogen capsules for reduced power. Consider coverage at similar stringency as non-exempt bulbs (approx. 30% lower power)
Lighting Accessories	Maximum energy use and standby power for nightlights (NL), maximum power/bulb requirements for decorative string lights (DSL), and maximum power requirements for illuminated house numbers (IHN).
Outdoor Lighting	Sets minimum performance requirements for pole-mounted outdoor lighting, including street, highway, parking, and area fixtures with “controls-ready” requirements in some cases.
Linear fluorescent fixtures	Propose test and list requirement for Energy Effectiveness Factor (EFF) and listing on product documentation resulting Target Efficacy Rating (TER) values from a combination of lamp lumens and ballast factors.
Illuminated street number signs	Set an efficacy standard (active power limit) to effectively require LEDs. Recommend requiring that all illuminated address numbers utilize photo-switches. Finally, recommend a standby power limit of 0.75 W.
Plug-in luminous signs	Set a standard establishing maximum power per square foot of illuminated area, and additional control requirements (required integral on/off switch, supplemental control for signs with face area(s) greater than 4 sqft).
Computers	Propose maximum energy requirements and power management enablement upon shipment for desktops and laptops; minimum power supply unit efficiencies for desktops. Exploring energy use limits or power limits in different operating modes.
Servers	Propose minimum power supply unit efficiencies and power proportionality for servers.
Game consoles	Set standard to require an auto power down feature and establish a maximum allowable standby power level.
Computer/video displays	Set maximum On Mode and Sleep Mode power consumption levels, as a function of screen size. Consider luminance and automatic brightness

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	control requirements.
Set top boxes (terrestrial, cable and satellite)	Propose an energy use limit for new STBs. May include prescriptive requirements such as auto-off feature and performance-based maximum power demand per defined feature set (e.g., per tuner). Develop test and list requirements for small networking equipment.
Imaging Equipment	Propose maximum total energy consumption (TEC) levels for imaging equipment, which includes copiers, fax machines, printers, scanners, and all-in-one devices.
Low power modes	May propose required low-power modes, with maximum power levels, for various equipment. Low power modes include sleep, standby, idle, off.
Power Factor Interactive Effects	Appliance energy efficiency performance is influenced by power factor, such that losses in distribution circuits can be reduced by improving poor power factor. This is currently being studied in PIER research. This proposal would bring PIER findings into code as a consistent policy for appliances where merited
<i>Water and Miscellaneous</i>	
Toilets and Urinals	This standard proposal revises the current standards in Title 20 regulations to conform to the legislatively enacted performance standards of AB715, by having toilets have 1.28 gallons per flush and urinals have 0.5 gallons per flush effective January 1, 2014.
Air Filter Labeling	Require a label for air filters (a consumer version of the existing AHRI 680 label) so that consumers and designers can select the appropriate filter for the system.
Pool and Spa Equipment	Update current regulations to better align with APSP 15. Add performance efficiency requirements for new and replacement motors and pool heater hydraulic performance. Require labeling of efficiency performance and compliance information on portable electric spas to better inform consumers.
Faucets	This standard proposal sets the maximum flow rate for lavatory faucets and lavatory replacement aerators at 1.5 gpm at 60 psi, effective January 1, 2014. It also expands the definition of lavatory replacement aerator to include all flow restricting accessories, to encourage design best practices.
Water Meters	Propose requiring testing for accuracy of residential water meters at levels indicative of household leaks, to better identify and prevent leaks.
Landscape Irrigation Equipment	Set performance standards and labeling requirements for landscape irrigation controls and sensors; require a rain shut-off device and a test and list for landscape irrigation controllers (and add-on devices) for standby mode power.
Commercial Clothes Dryer	Commercial gas dryers are regulated by neither federal nor California regulations; there exists the opportunity to establish new Title 20 standards for commercial gas dryers to be sold in California. The C&S program will develop the testing procedure for Energy Factor of

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	commercial clothes dryers, and establish a minimum performance requirement.
Refrigeration Condensing Units	Develop test procedure for EER for fixed output refrigeration condensing units and part load EER for variable output refrigeration condensing units. Establish a minimum performance requirement. Require either floating head control; require systems operate at 70°F or lower min. condensing temp.

Table 8 shows a preliminary list of federal appliance standards rulemaking events. IOUs will respond to rulemaking events carried out by USDOE, and possibly others, that impact California.

Table 8: Federal Appliance Standards

Product Category	DOE Proceeding Event Description	Anticipated Date
3-Phase CAC	Standard Preliminary Technical Support Analysis	Dec-13
	Standard Notice of Proposed Rulemaking	Dec-14
ASHRAE Products	Standard Final Rule	Nov-13
CACs, HPs (air-cooled)	Standard Final Rule	Jul-13
Ceiling Fans	Standard Final Rule	Jul-13
CFL (Medium Base)	Test Procedure Final Rule	Jun-13
Commercial Boilers	Standard Framework	Jul-14
Commercial Clothes Washers	Standard Preliminary Technical Support Analysis	Jul-13
	Standard Notice of Proposed Rulemaking	Jul-14
Commercial Ice Makers	Standard Final Rule	Jul-13
Commercial Refrigeration	Standard Final Rule	Jan-13
	Test Procedure Final Rule	Jan-13
Commercial Unit Heaters	Standard Final Rule	Jul-13
Dehumidifiers	Standard Preliminary Technical Support Analysis	Dec-13
	Standard Notice of Proposed Rulemaking	Dec-14
Dehumidifier (Active Mode)	Test Procedure Notice of Proposed Rulemaking	Jan-13
	Test Procedure Final Rule	Jul-13
Direct Heating Equipment	Test Procedure Final Rule	Sep-13
Dishwashers	Standard Preliminary Technical Support Analysis	Jul-13
	Standard Notice of Proposed Rulemaking	Jul-14

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Exit Signs	Test Procedure Final Rule Standard Final Rule	Jun-13 Jul-13
Furnace Fans	Test Procedure Final Rule Standard Notice of Proposed Rulemaking Standard Final Rule	Apr-13 Dec-13 Dec-13
General Service Lamps	Standard Framework	Jan-14
GSFLs	Standard Notice of Proposed Rulemaking Standard Final Rule	Aug-13 Apr-14
HIDs	Standard Final Rule	Jan-13
IRLs	Standard Notice of Proposed Rulemaking Standard Final Rule	Aug-13 Apr-14
Microwaves (Active)	Standard Framework Standard Preliminary Technical Support Analysis	Jan-13 Jul-14
Pool Heaters	Test Procedure Final Rule	Sep-13
Pre-rinse spray valves	Standard Final Rule	Jul-13
PTACs, PTHPs	Standard Framework	Sep-13
Ranges, Ovens	Standard Framework	Mar-14
Residential Boilers	Standard Preliminary Technical Support Analysis Standard Notice of Proposed Rulemaking	Dec-13 Dec-14
STBs	Test Procedure Final Rule Standard Final Rule	May-13 Jun-13
Televisions	Standard Final Rule	Jan-13
Torchieres	Standard Final Rule	Jul-13
Traffic Signals	Standard Final Rule	Jul-13
Vending Machines	Standard Framework	Jul-14
Water Heaters	Test Procedure Final Rule	Sep-13
Wine Chillers	Standard Preliminary Technical Support Analysis Standard Notice of Proposed Rulemaking	Aug-13 Aug-14

8. Coordination & Integration

At the CPUC’s direction, the C&S program is adding a non-resource Planning and Coordination Subprogram to improve the integration of portfolio program offerings. The C&S team will coordinate with both internal and external entities to establish a dynamic and integrated planning and implementation process to methodically and purposefully accelerate the movement of successful, cost-effective measures from the ET program through voluntary offerings and ultimately to adoption into standards. The three primary functions of the planning and

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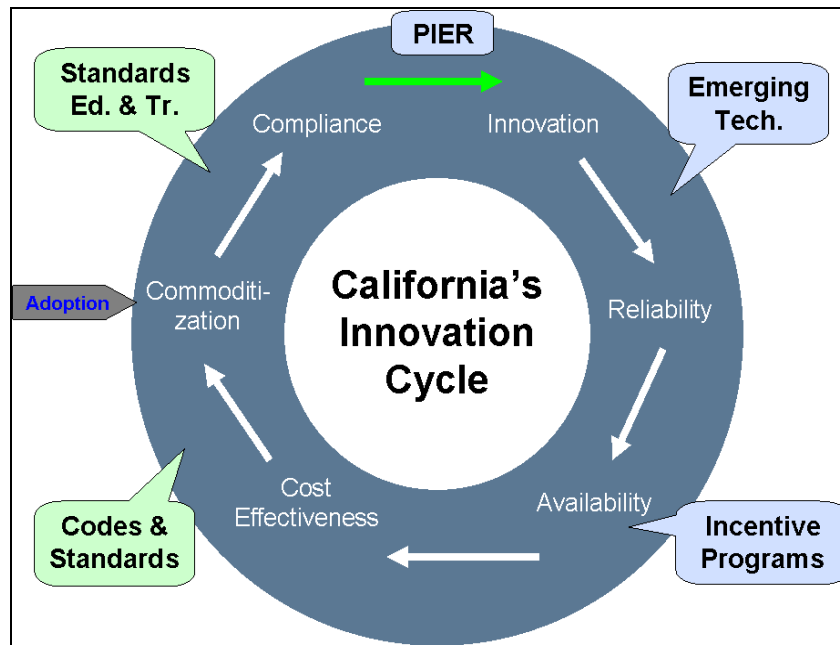
coordination subprogram include strategic planning, internal coordination and communication, and statewide collaboration.

a) C&S State wide Coordination

Many requirements for C&S coordination are derived from the CPUC’s objective to mitigate climate change through regulatory objectives, including Title 20 and Title 24. While the C&S program comprises the primary intervention to achieve these objectives, it must be considered within the context of California’s innovation cycle:

- Adoption causes commoditization in the sense that a once high margin product becomes the industry standard.
- Commoditization spurs companies to innovate.
- Innovation creates new, differentiated, high-margin products for the competitive market.
- Voluntary programs commercialize new innovations.
- Commercialization creates code readiness leading to adoption.

Innovation Cycle



Since the primary purpose of the C&S program is to propose and support adoption of code enhancements, it is essential that IOUs collectively respond to all significant energy savings opportunities identified for a future code update cycle. For example, IOUs are now planning how best to coordinate efforts to address a long list of potential Title 24 code

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enhancements for the 2011 code cycle. In general, planning is conducted on an as needed basis.

Codes and standards operations are conducted relative to a multi-year time horizon, so statewide meetings organized on a quarterly basis are sufficiently frequent to coordinate activities. Some CASE studies are developed through co-funding agreements when multiple IOUs are interested in or have specific value-added knowledge, perhaps through previous research. More typically, however, code proposals are developed by one IOU on behalf of the statewide since each proposal is a fraction of the program budget. During these meetings, the primary objectives are to discuss CASE study objectives and develop mutual support for public proceedings.

The C&S program will enhance coordination and integration of codes and standards with other energy efficiency programs to maximize energy savings and demand reducing by coordinating training programs and utilizing the experience gained in resource programs to inform the development and advocacy of new codes. The C&S program will work with the Government Partnerships to improve code compliance, adopt above code ordinances, and provide training and education. The C&S compliance improvement subprogram will focus efforts on HVAC new installations and replacements in coordination with the HVAC program. The C&S program will also meet periodically with HVAC program staff to discuss compliance improvement strategies, training, and other program needs.

Coordination between C&S and other parts of the portfolio falls into one of two categories: existing standards and future standards. Compliance with code is essential to completing the commoditization process and capturing the benefit of commercialization efforts for the benefit of society, so the CI subprogram leads efforts to implement existing standards through development of core activities that can be delivered either through, or in coordination with, other programs. Opportunities are identified through small group meetings between C&S and each target group such as workforce education and training, local government partnerships, new construction programs. In addition, the IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

Small group meetings mentioned above, are particularly useful, as they serve to identify incentive program opportunities to leverage the pull of existing standards that have effective dates far enough in the future to accommodate program changes. For example, an appliance standard adopted with an effective date two years hence would provide an opportunity to develop an incentive program pull that complements the C&S push.

Coordination activities around future standards are, likewise, developed through individual targeted meetings. Once the C&S team has identified potential code enhancement opportunities for a future code proceeding, the team meets with Mass Market, Targeted Market, Emerging Technologies, HVAC, demand response, or general education and training leads to discuss gaps between adoption needs and current code readiness. As

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appropriate, new measures may be added to incentive programs, new projects may be added to the ET portfolio. Sometimes, when ongoing CEC proceedings coincide with incentive program planning, incentive offerings can be integrated with code enhancement proposals to increase influence on proceedings.

Coordination with external organizations falls into a few broad categories. A particular code proposal typically attracts directly affected industry stakeholders. If an industry employs associations organized to oppose energy efficiency standards – which is usually the case – IOUs will seek support from other advocates and share information that enables their advocacy, as well as ours. Sometimes IOUs are able to work directly with industries that are not, in principal, opposed to all regulations.

b) C&S Coordination with External Organizations & Entities

As Federal preemption continues to grow, and as DOE continues to increase federal proceedings activities, it is necessary for California IOUs to increasingly engage with national organizations such as ACEEE, ASAP, and the NNRDC. In particular, since the innovation engine, as pictured above, turns over once every three years in California and once every eight to ten years at DOE, the C&S program needs to work with national organizations to relax federal preemption policies to better help California meet AB 32 energy efficiency targets. California IOUs have ramped up operations to contribute materially DOE proceedings through analysis, letters, and negotiations.

At a statewide and local level, the C&S program will develop training and compliance improvement activities with entities that include, but are not limited to, California Building Industry Association, local chapters of the Building Industry Association, Build it Green, Institute of Heating and Air Conditioning Industries, International Brotherhood of Electrical Workers, National Electrical Contractors Association, California League of Cities. Additionally, outreach and communications for Title 20 will include industry associations such National Electric Manufacturers Association, American Lighting Association, California Retailers Association, and the International Pool and Spa Association.

**How the Codes & Standards Program will Coordinate with
Other Energy Efficiency Programs**

Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms
HVAC	<ul style="list-style-type: none"> ➤ Research possible scenarios to help improve HVAC quality construction ➤ Develop a whole 	<ul style="list-style-type: none"> ➤ Research the HVAC permitting tools available on the market, select permitting tools to test during the local government

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms
	<p>building comfort metric that is the basis of compressorless homes in the coastal climate zones</p> <ul style="list-style-type: none"> ➤ Review mandates to increase the use of FDD and improvements to FDD technologies 	<p>process pilot, and determine which best practices and tools to incorporate into the building official and HVAC contractor role-based training curriculum the program will develop.</p> <ul style="list-style-type: none"> ➤ CI will work with the CEC, CALBO and the CSLB to identify possible penalties that may be applied to contractors who do not pull required permits or operate without the appropriate licenses. The program will investigate potential penalties during the local government process pilots and incorporate those penalties that prove effective during the pilot into the role-based training curriculum that the program will develop and roll out to additional jurisdictions. ➤ CI subprogram personnel will work with HVAC Quality Installation and Workforce Education and Training program staff, utility education centers, and regulatory agencies to develop a brand, incentive mechanism, and consumer campaign, and technician training and certification programs. CE will evaluate the recently completed ACCA (Air Conditioning Contractors of America) Quality Installation Specification that has been adopted by the EPA ENERGY STAR Program to determine how to incorporate this into role- and measure-based training to be provided by the IOUs.

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms
		<ul style="list-style-type: none"> ➤ Investigate the feasibility of an HVAC serial number tracking process to increase compliance. Various HVAC industry groups and HVAC distributors have expressed an interest in pursuing this as a way to increase the quality of installations and better ensure Title 24 compliance.
Government Partnerships		<ul style="list-style-type: none"> ➤ CI subprogram personnel will conduct a holistic process pilot in select building departments in addition to developing and delivering role-based tools and training to building department personnel. ➤ RC subprogram personnel will encourage local governments to lead by example, and to adopt codes for government buildings that match or exceed the requirements for the private sector within their jurisdiction. Those local governments that do not wish to adopt reach codes for the private sector will be encouraged to at least adopt more stringent codes for their own buildings. ➤ Initial C&S efforts will focus on encouraging and supporting local governments, designers, and builders/contractors to implement and enforce existing acceptance testing requirements. CI will work with the CEC, CA Commissioning Collaborative, and industry organizations such as SMACNA to conduct outreach and provide acceptance testing education at all levels of the supply chain.
Workforce		<ul style="list-style-type: none"> ➤ CI will work with Workforce

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms
Education and Training		<p>Education and Training program managers, CABEC, Sonoma State University, CalPoly San Luis Obispo and others throughout the state to develop a curriculum that can be implemented at the state and community college level to expand current energy-related offerings and train building energy analysts in the theory and concepts of energy-efficient building design, simulation and construction.</p> <p>➤ CI is working with IBEW, NECA, California Community Colleges, and others to develop and implement an electrical contractor’s training program for advanced lighting controls. This is a critical step in facilitating the installation of the sophisticated lighting controls that are essential to meeting the AB1109 Huffman Bill and zero net energy goals.</p>
Targeted Markets/Mass Market/Emerging Technologies	<p>➤ Through small group meetings, C&S will work with the Mass Market, Targeted Market and Emerging Technologies programs to identify incentive program opportunities to leverage the pull of existing standards that have effective dates far enough in the future to accommodate program changes. For example, an appliance standard adopted with an effective date two years hence would provide an opportunity to develop an incentive program pull that</p>	<p>➤ CI will work with fellow energy efficiency program managers to identify and fulfill code-related training needs in order to keep program managers up to date on current and future codes, and to help prepare IOU sales reps with the knowledge they need to effectively market incentive programs.</p>

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms
	<p>complements the C&S push. For promising measures that are evaluated by the ETP, the C&S program may propose that they are included in reach codes in parallel with EE incentive programs.</p> <ul style="list-style-type: none"> ➤ C&S will work with the targeted and mass market program managers to require program participants to complete and submit the applicable acceptance tests required by Title 24 to receive an incentive for HVAC and lighting controls equipment. This will increase compliance with the acceptance tests and help assure the incented equipment is installed according to code intent. 	

9. Marketing & Outreach/Education & Training

Outreach for advocacy activities occurs through telephone calls and e-mails to industry stakeholders throughout the CASE study development process, leading up to commencement of a CEC rulemaking. After commencement of CEC rulemaking proceedings, CASE studies are presented during public workshops and hearings conducted by the CEC that are typically attended by building or appliance industry representatives, environmental groups, compliance industry representatives including local government officials, advocates from other states. In response to industry issues and concerns, the IOUs and their consultants will contact specific representatives or conduct stakeholder meetings to address specific issues more broadly. Following adoption hearings, the IOUs participate in developing compliance manuals.

Compliance improvement encompasses numerous industries engaged in supplying buildings and appliances to California; hence, outreach and marketing activities will be conducted through a variety of channels. IOU's training centers will conduct direct outreach to industry associations such as the Contractor State Licensing Board, California Building Officials Association, California Association of Building Energy Consultants, Consumer Electronics Association, and National Electrical Manufacturers Association. E-mail solicitations and paper

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calendars are sent to individuals notifying them of upcoming classes. Local governments will also be contacted through local government partnerships and circuit riders assigned to provide consulting services.

10. Quality Assurance & Evaluation Activities

To help ensure quality assurance and effective evaluation, the IOUs will continue their ongoing efforts to track and assess the effectiveness of the C&S Program in advocating for new codes, and for increasing compliance with existing codes.

The C&S program will continue to support the impact evaluation efforts of the CPUC and its contractors by documenting code advocacy efforts, and documenting compliance improvement efforts and education and training efforts and their effects on participant behavior. The IOUs will coordinate with the CPUC and their impact evaluation contractors to ensure that the sufficient type and level of data are being collected at the appropriate level of detail to enable an estimation of energy savings related to codes and standards activities. This includes supporting the CPUC in their research effort to establish Title 20 and Title 24 baselines, and track changes in adoption and compliance over time. This includes providing appropriate program data, as well as encouraging the participation of vendors, contractors, building officials and others, as appropriate, in providing information for establishing baselines and changes in penetration over time.

For the purpose of quality assurance in carrying out and improving the C&S program, the IOUs will be conducting various qualitative evaluation activities to establish IOU effectiveness in various market transformation activities. These include but are not limited to:

- Code adoption - Research with participants in the code adoption process to assess the level and quality of participation by the IOUs and other stakeholders. This includes interview-based research, as well as review of documentation of participation.
- Compliance Improvement – Effectiveness of various education and training activities, based on pre- and post- participation assessment of ‘knowledge swing’ of participants, and commitments to action made by participants and participant organization that stem from compliance improvement activity. Initial assessments will be succeeded by assessments in the post period to identify changes in code-related activity resulting from the CI subprogram.
- Reach Code Assistance – Effectiveness of IOU efforts to assist local governments in establishing, implementing and enhancing compliance with reach codes. Initial assessments of energy codes and code compliance, local code support capability and other factors will be followed by an ongoing assessment of the effects of IOU reach code assistance.

For compliance improvement, the IOUs will be using this assessment process to identify changes in awareness, capability and behavior change among individual CI participants, and participant organizations, resulting for the various compliance improvement activities. The

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IOUs will also look into calibrating our assessment of compliance improvement through evaluations of non-participant awareness, capability and behavior changes. For example, if there is a compliance improvement effort focused on building officials, the research could include an assessment of awareness, capability and behavior of building officials who did not participate in the training.

Additional, formative research will be conducted to provide insight into emerging issues related to current and pending codes and standards. Specifically, research will be carried out to identify issues and trends appearing along the delivery chain for appliances as well as for building practices.

11. Program Theory & Logic Model and Performance Indicators

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below are the approved logic models for the C&S program.

- a) Building Codes
- b) California Appliance Standards
- c) Federal Appliance Standards
- d) Compliance Improvement
- e) Reach Codes
- f) Planning and Coordination

Logic models will be improved based on experience and finalized based on application to specific industries, local governments.

Logic Models and the accompanying Program Theory and Program Indicators are tools designed to illustrate program structure and operation for the purpose of program management. This logic model is a schematic of the program as planned.

A program theory is the basis of a logic model. Effective program management applies program theory, and related performance indicators are used to determine whether program theory is correct. Indicators enable informed management responses that improve programs.

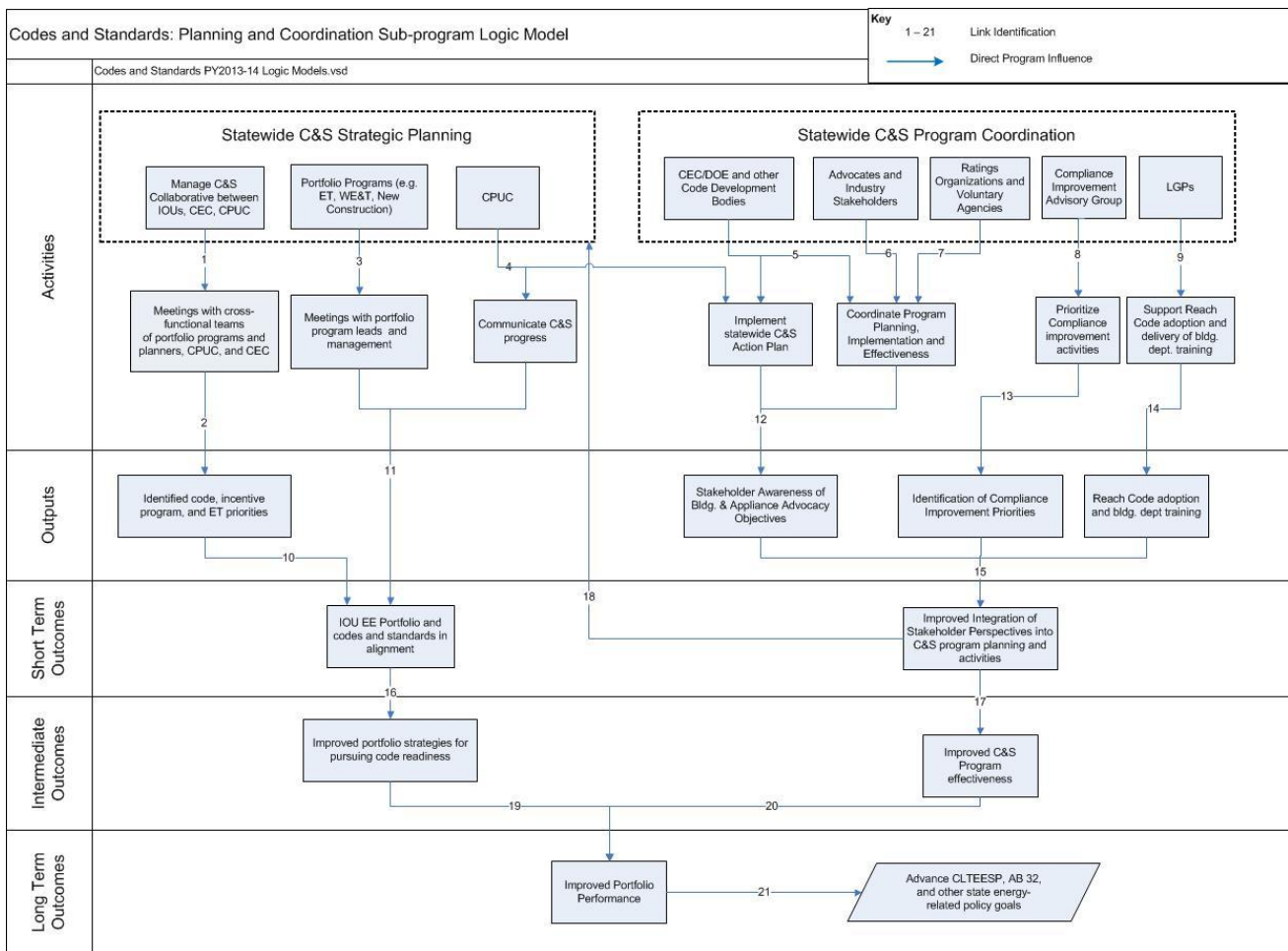
Performance indicators are intended to serve as a program's 'dashboard'; displaying information necessary for effective program operation. As with automobile dashboards; indications are neither good nor bad, but enable appropriate management responses that maintain and/or improve program performance.

Logic models, program theories, and performance indicators can provide evaluators an understanding of program activities, outputs and outcomes. However, they are not intended as

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the basis for estimating, valuing, or attributing program savings as they focus on program operation rather than program results. Revised logic models and program theory tables will be included in a future addendum to the PIP.

Revised logic models and program theory tables will be included in a future addendum to the program implementation plan.



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Codes and Standards: Planning and Coordination Program Theory and Indicators

Link	Program Theory/Activity	Potential Indicators
1	IOUs P&C Subprogram provides a process that maintains a Codes and Standards Collaborative with CEC and CPUC for strategic planning and aligns portfolio planning activities to advance long term strategic goals	<ul style="list-style-type: none"> • P&C subprogram holds quarterly statewide strategic planning meetings with CEC and CPUC • Communication with CEC and CPUC Collaborative members • IOUs document subprogram activities' alignment with California Long Term Energy Efficiency Strategic Plan (CLTEESP)
2	IOUs establish cross-functional teams with portfolio programs, the CPUC, and the CEC, to identify codes readiness priorities and other C&S priorities relative to policy goals.	<ul style="list-style-type: none"> • Coordination meeting with portfolio programs including incentive, emerging technologies, and workforce education and training (WE&T) programs to identify C&S readiness priorities • Coordination meeting with CEC to identify C&S priorities • Coordination meeting with representatives from CPUC, and CEC to review C&S priorities relative to policy goals, for example: zero net energy (ZNE), AB 1109, and other Action Plan objectives.
3	<p>C&S Program coordinates with other portfolio programs to develop an integrated, forward-looking approach to align new construction program offerings with base code and reach code.</p> <p>C&S program collaboration with the WE&T will prepare contractors and technicians to implement current codes, and prepare them with technical training on advanced technologies to improve code implementation</p>	<ul style="list-style-type: none"> • Coordination meeting with new construction program managers • Integrated plan that documents how new construction programs are aligned with base code and reach code requirements • Coordination meeting with WE&T program managers • Integrated plan that documents how WE&T training aligns with base code and reach code requirements.
4	C&S program on-going communication with the CPUC will improve implementation of the C&S Action Plan	<ul style="list-style-type: none"> • C&S program monthly calls with CPUC personnel to share progress and discuss issues • Progress report on implementing C&S Action Plan.

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5	C&S program on-going collaboration with state and federal code development bodies including CEC, DOE, ASHRAE, IECC and other code bodies will improve implementation and effectiveness of the C&S Action Plan and other building and appliance related code efforts	<ul style="list-style-type: none"> • C&S program meetings with CEC and DOE personnel and ASHRAE and IECC committee members to share progress and discuss issues • Progress report on implementing C&S Action Plan • C&S program periodic calls and meetings with other code development bodies to share progress and discuss issues • Progress report on coordination with other C&S efforts
6	C&S program on-going collaboration, and negotiation with building and appliance related code advocates and industry stakeholder will improve implementation and effectiveness of the C&S Action Plan and success of other C&S efforts	<ul style="list-style-type: none"> • Periodic calls and meetings with national industry stakeholders regarding building and appliances standards • Progress report on collaboration and negotiation efforts, implementation of C&S Action Plan and work on other code efforts
7	C&S program on-going collaboration and coordination with national ratings organizations and voluntary high performance programs will improve implementation and effectiveness of the C&S Action Plan and other C&S efforts	<ul style="list-style-type: none"> • Periodic calls and meetings with national ratings organizations (e.g. NFRC, CRRC) and voluntary programs (e.g. EnergyStar, CHPS, LEED) regarding building and appliances standards • Progress report on collaboration and negotiation efforts, implementation of C&S Action Plan and work on other code efforts
8	Creation and activity of Compliance Improvement Advisory Group will increase compliance activities coordination to improve compliance	<ul style="list-style-type: none"> • Quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities
9	Communication and coordination with Local Government Partnership (LGP) will increase compliance activities coordination to improve compliance	<ul style="list-style-type: none"> • Quarterly updates to LGP Program regarding reach code adoption progress and delivery of training to building departments
10	IOUs' cross-functional teams' coordination and agreement result in statewide codes and standards activities and proposals consistent	<ul style="list-style-type: none"> • Communication among team members including documentation of agreed upon goals and plans.

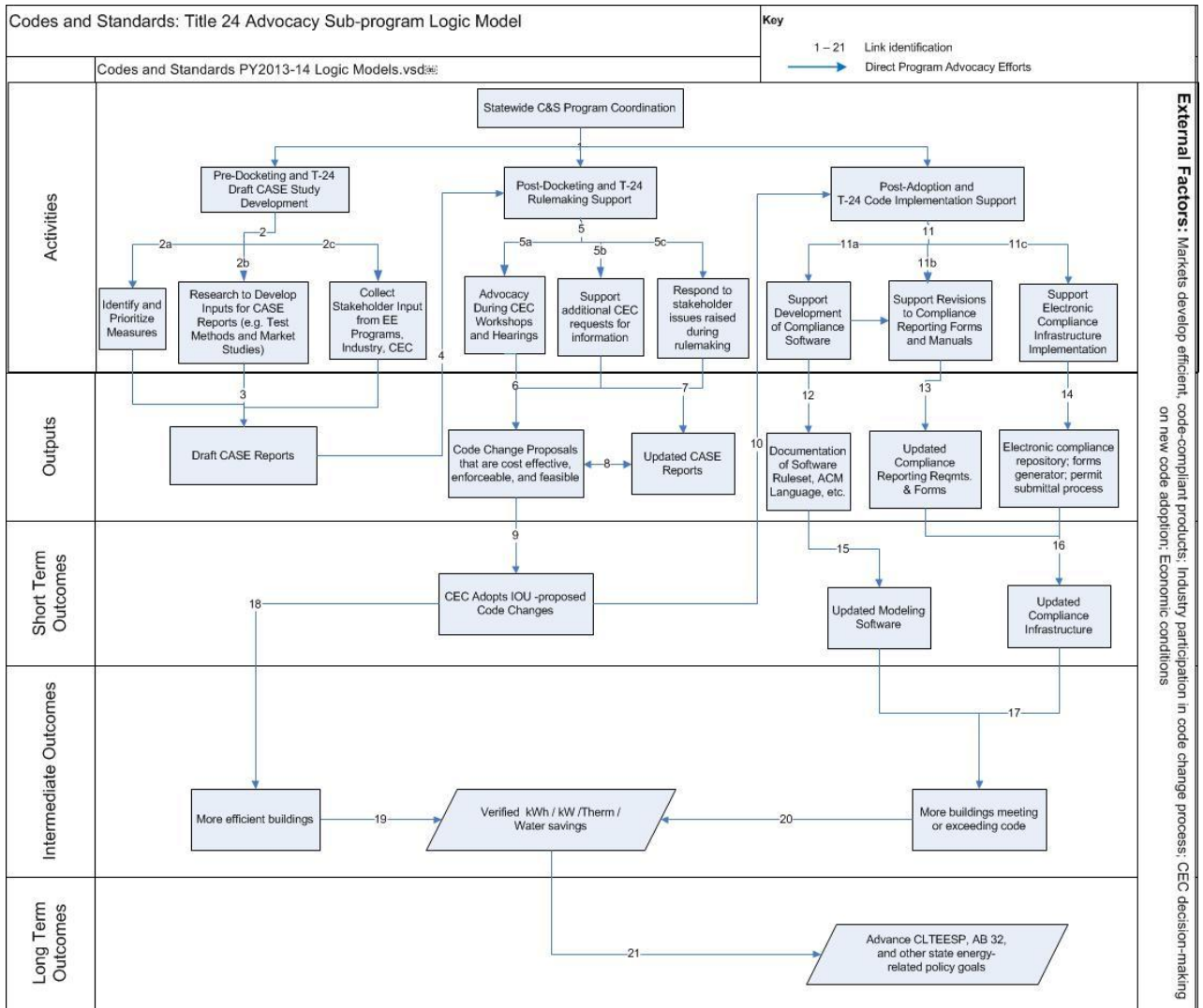
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	with IOUs' portfolio program goals	<ul style="list-style-type: none"> • Increased feasibility and code readiness of efficient products and practices • IOU program portfolio goals alignment with statewide codes and standards (CEC) plans and activity, for example: ZNE, AB 1109, and other Action Plan objectives
11	C&S Program coordination and collaboration with other portfolio programs, and communication to CPUC result in portfolio program goals consistent with statewide codes and standards activities and proposals	<ul style="list-style-type: none"> • Documentation of agreed upon goals and plans • IOU program portfolio goals alignment with statewide codes and standards (CEC) plans and activity, for example: ZNE, AB 1109, and other Action Plan objectives
12	C&S program on-going communication and coordination with all stakeholders leads to stakeholder awareness and understanding of the C&S Action Plan and advocacy, planning and activities.	<ul style="list-style-type: none"> • Progress report on implementing C&S Action Plan • Documentation of agreed upon objectives, goals, and plans
13	CIAG compliance improvement discussions and activities will result in prioritized code compliance improvement.	<ul style="list-style-type: none"> • Progress report on implementing C&S Action Plan • IOU compliance improvement activities are aligned with statewide codes and standards (CEC) plans and activity, for example: ZNE, AB 1109, and other Action Plan objectives
14	<p>C&S program coordination with LGP Program training to building departments will improve understanding of reach code activities</p> <p>Communication and coordination with Local Government Partnership (LGP) will increase compliance activities coordination and improve compliance</p>	<ul style="list-style-type: none"> • Quarterly updates to LGP Program regarding reach code adoption progress and delivery of training to building departments • Reduction in time for building officials to process paperwork • Reduction in number of compliance mistakes due to resources and training
15	Communication and coordination with CIAG, LGP and other stakeholders will improve integration of various perspectives into C&S planning and activities	<ul style="list-style-type: none"> • CIAG, LGP and other stakeholders recognition of C&S benefits, leading to support of activities to optimize codes through enforcement

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	Stakeholder awareness of C&S program advocacy objectives and goals leads to improved coordination and integration of planning and activities	<ul style="list-style-type: none"> • Documentation of integration of stakeholder perspective and objectives in C&S plans
16	Portfolio program goals consistent with statewide codes and standards activities results in improved strategies for pursuing code readiness	<ul style="list-style-type: none"> • IOU EE programs support test method development and provide collected test data • Increased market presence and acceptance of efficient products and practices based on IOU portfolio programs
17	Coordination with all stakeholders will improve C&S program effectiveness	<ul style="list-style-type: none"> • Technical responses to comments and concerns voiced by stakeholders • Improved program performance metrics including lower TRC and greater energy savings.
18	Integration of various stakeholder perspectives into C&S planning and activities enhances statewide strategic planning	<ul style="list-style-type: none"> • Progress report on implementing C&S Action Plan • Documentation of agreed upon goals and plans • IOUs document subprogram activities' alignment with Strategic Plan
19	Improved portfolio strategies lead to improved portfolio performance	<ul style="list-style-type: none"> • Increased awareness and understanding of codes and standards by stakeholders • Reduction of noncompliant practices and appliances
20	Improved program effectiveness leads to improved portfolio performance	<ul style="list-style-type: none"> • Increased awareness and understanding of codes and standards by stakeholders • Reduction of noncompliant practices and appliances • Improved program performance metrics including lower TRC and greater energy savings
21	Improved portfolio performance leads to advancement towards long term strategic goals	<ul style="list-style-type: none"> • State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits

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Codes and Standards: Title 24 Advocacy Program Theory and Indicators

Link	Program Theory/Activity	Potential Indicators
1	C&S Program managers coordinate their program activities to present a united, statewide IOU C&S Program and conduct activities from pre-docketing through post-adoption of T-24 building standards.	C&S Program managers meetings and on-going communication
2	C&S Program conducts full range of advocacy efforts during pre-rulemaking processes to support successful code change development through outreach and advocacy to stakeholders	<ul style="list-style-type: none"> • 2a. Initial IOU assessment of measures/products indicates level of measure code-readiness • 2b. C&S Program documentation of market feasibility and cost-effectiveness • Documentation of test methods and required test results • 2c. C&S Program stakeholder meetings, outreach and on-going communication with IOU EE program managers, CEC staff and industry stakeholders • Documentation of IOU run stakeholder meetings, including invitee list, attendee list and meeting notes
3	C&S Program conducts initial assessment of code change opportunities based on feasibility, cost-effectiveness, market readiness and acceptance, availability of test methods and data, etc.	<ul style="list-style-type: none"> • Documentation of compliance research, market feasibility, potential energy savings, and cost-effectiveness • C&S Program stakeholder meetings, outreach and on-going communication • C&S Program supported test method development and test data • Communication with CEC, standard organizations committee members and other stakeholders
4	C&S program advocacy is presented at public CEC code proceedings	<ul style="list-style-type: none"> • Codes and Standards Enhancement (CASE) reports filed with CEC docket
5	C&S Program conducts full range of advocacy efforts to support rulemaking processes and successful code change development	<ul style="list-style-type: none"> • 5a. Communication with CEC, standard organizations committee members and other stakeholders • 5b. CASE reports include additional

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		<p>data, analysis and documentation based on comments raised during rulemaking</p> <ul style="list-style-type: none"> • 5c. Code enhancement support documents including compliance research, market feasibility, potential energy savings, and cost-effectiveness • Written response to stakeholders' comments and questions
6	C&S program provides technical responses to stakeholder issues raised in public rulemaking proceedings, including responding to comments and concerns voiced by stakeholders	<ul style="list-style-type: none"> • Communication with CEC, standard organizations committee members and other stakeholders • C&S Program input to stakeholder and CEC staff comments and questions on proposed code changes • CASE reports documenting code change proposals that are cost-effective, feasible and enforceable
7	CASE reports are revised and updated during the code proceeding process.	<ul style="list-style-type: none"> • CASE reports documenting code change proposals that are cost-effective, feasible and enforceable • CASE reports include additional data, analysis and documentation based on comments raised during rulemaking
8	CASE reports are updated to include proposed code change language and additional information presented during the public rulemaking proceedings	<ul style="list-style-type: none"> • CEC analysis and workshop discussions, public notices and scheduling of workshops • Updated CASE reports filed with CEC docket
9	IOU-proposed code change language is included in the CEC adopted Title 24 (T24) Standards	<ul style="list-style-type: none"> • Final published CASE reports • Updated T24 Standards adopted and published by CEC
10	After new T24 Standards are adopted C&S program initiates efforts to support the CEC in updating code compliance materials	<ul style="list-style-type: none"> • Communication with CEC, standard organizations committee members and other stakeholders
11	C&S Program conducts full range of advocacy efforts to support successful code change implementation	<ul style="list-style-type: none"> • 11a. C&S Program supported compliance software development
		<ul style="list-style-type: none"> • 11b. C&S Program developed revisions to compliance reporting forms and

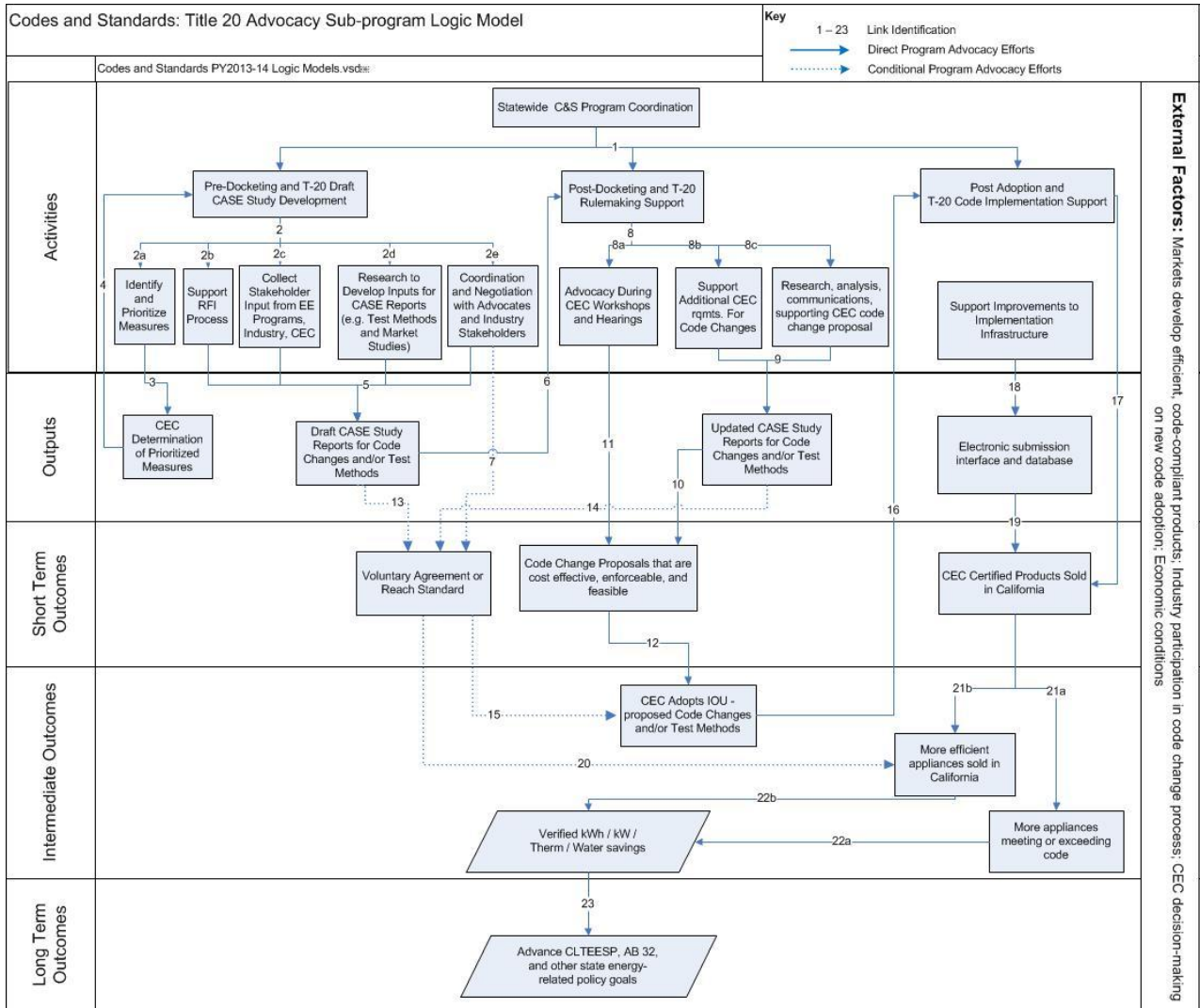
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		<p>manuals</p> <ul style="list-style-type: none"> • 11c. C&S Program supported compliance electronic infrastructure development, including electronic repository, pre-processing of electronic documents, and electronic input to the permit process
12	C&S program develops documentation to revise compliance software requirements to reflect the most recent code updates based on CASE Studies	<ul style="list-style-type: none"> • C&S program provides compliance software revisions documentation to the CEC
13	C&S program develops updated compliance reporting requirements and forms to reflect the most recent T24 updates based on CASE Studies	<ul style="list-style-type: none"> • C&S program provides revisions to T24 Standards manual and forms to the CEC
14	C&S program supports the CEC in developing a permit repository system, which generates and stores compliance forms	<ul style="list-style-type: none"> • Communication and meetings with CEC and other stakeholders on repository system development, including electronic repository, pre-processing of electronic documents, and electronic input to the permit process
15	C&S program documentation of code compliance software revisions is accepted and approved by the CEC	<ul style="list-style-type: none"> • CEC approves and implements updated compliance software
16	CEC compliance infrastructure is updated with new compliance manuals and forms, reporting requirements, and a new permit repository system	<ul style="list-style-type: none"> • CEC approves revised compliance reporting requirements • CEC approves revised compliance manuals and forms • CEC develops an electronic compliance repository and new electronic permit submittal process
17	Improved compliance infrastructure, system and modeling software leads to more buildings meeting or exceeding T24 requirements	<ul style="list-style-type: none"> • Energy savings calculations submitted for permit approval with compliance rates
18	New building efficiency (T24) standards lead to more efficient buildings	<ul style="list-style-type: none"> • Energy savings calculations submitted for permit approval

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19	More efficient buildings result in electric and gas energy savings, demand reduction, and water savings	<ul style="list-style-type: none"> • Energy savings calculations or building energy and water usage
20	More buildings meeting or exceeding code result in electric and gas energy savings, demand reduction, and water savings	<ul style="list-style-type: none"> • Energy savings calculations or building energy and water usage
21	Adopted and implemented codes lead to advancement towards long term strategic goals	<ul style="list-style-type: none"> • State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits

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Codes and Standards: Title 20 Advocacy Program Theory and Indicators

Link	Program Theory/Activity	Potential Indicators
1	C&S Program managers coordinate their program activities to present a	<ul style="list-style-type: none"> C&S Program managers meetings and on-going communication

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	united, statewide C&S Program and conduct activities from pre-docketing through post-adoption of T-20 appliance standards.	
2	C&S Program conducts full range of advocacy efforts during pre-rulemaking processes to support successful code change development through outreach and advocacy to stakeholders	<ul style="list-style-type: none"> • 2a Initial IOU assessment of measures/products indicates level of measure code-readiness • 2b. C&S Program support to CEC T20 RFI process • 2c. C&S Program stakeholder meetings, outreach and on-going communication with IOU EE program managers, CEC staff and industry stakeholders • 2d. C&S Program documentation of market feasibility and cost-effectiveness • Documentation of test methods and required test results • 2e. Negotiation meetings with advocates and industry stakeholders
3	IOUs share the code change screening results with the CEC and coordinate code change proposals with the CEC	<ul style="list-style-type: none"> • C&S program communications with CEC staff • C&S program assessments and recommendations presented to CEC
4	Initial CEC vetting of measures produces list of measures for consideration during the public rulemaking proceedings	<ul style="list-style-type: none"> • CEC analysis and workshop discussions of initial measures, public notices and scheduling of workshops • Supporting documentation from C&S Program
5	C&S Program conducts initial assessment of code change opportunities based on feasibility, cost-effectiveness, market readiness and acceptance, availability of test methods and data, etc.	<ul style="list-style-type: none"> • Documentation of compliance research, market feasibility, potential energy savings, and cost-effectiveness • C&S Program stakeholder meetings, outreach and on-going communication • C&S Program supported test method development and test data • Communication with CEC, standard organizations committee members and other stakeholders

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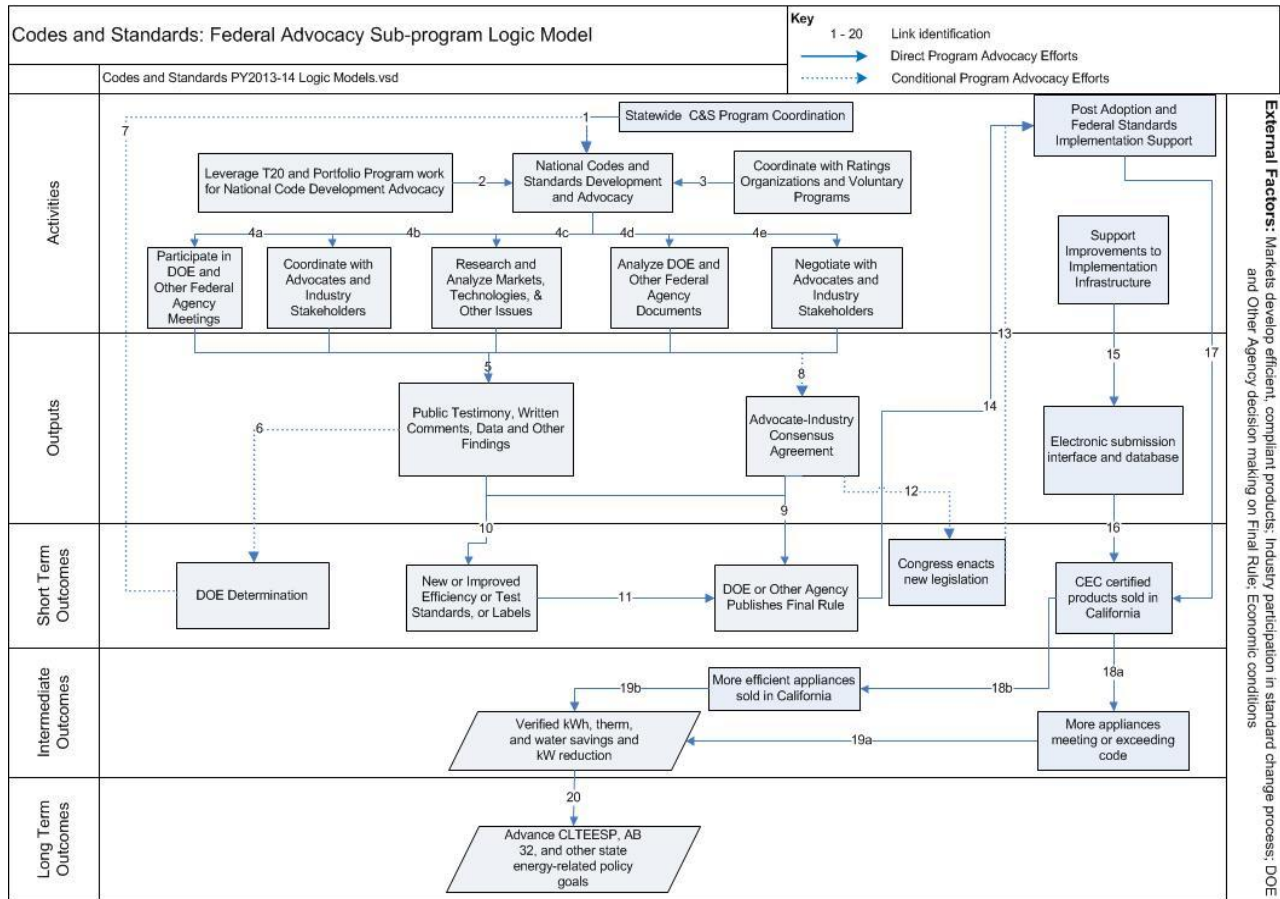
6	C&S program advocacy is presented at public CEC code proceedings	<ul style="list-style-type: none"> • CASE reports filed with CEC docket
7	C&S program advocacy is adopted voluntarily by industry or into local reach code ordinances	<ul style="list-style-type: none"> • Industry voluntary agreements and/or adoption of reach code standard based on IOUs C&S program negotiations
8	C&S Program conducts full range of advocacy efforts to support rulemaking processes and successful code change development	<ul style="list-style-type: none"> • 8a. Communication with CEC, standard organizations committee members and other stakeholders
<ul style="list-style-type: none"> • 8b. CASE reports includes additional CEC requirements 		
<ul style="list-style-type: none"> • 8c. Code enhancement support documents (compliance research, market feasibility, stakeholder outreach, and cost-effectiveness analyses) 		
9	CASE reports are revised and updated during the code proceeding process	<ul style="list-style-type: none"> • CASE reports documenting code change proposals that are cost-effective, feasible and enforceable • CASE reports include additional data, analysis and documentation based on comments raised during rulemaking
10	CASE reports are updated to include proposed code change language, test method requirements and additional information presented during the public rulemaking proceedings	<ul style="list-style-type: none"> • CEC analysis and workshop discussions, public notices and scheduling of workshops • Updated CASE reports filed with CEC docket supporting code change proposals and test methods that are cost effective, feasible and enforceable
11	C&S program provides technical responses to stakeholder issues raised in public rulemaking proceedings, including responding to comments and concerns voiced by stakeholders	<ul style="list-style-type: none"> • Communication with CEC, standard organizations committee members and other stakeholders • C&S Program input to stakeholder and CEC staff comments and questions on proposed code changes
12	IOU proposed code change language is included in the CEC adopted Title 20 standards	<ul style="list-style-type: none"> • Final published CASE reports • Updated Title 20 Standards adopted and published by CEC
13	IOUs draft CASE report recommendations is adopted	<ul style="list-style-type: none"> • Industry voluntary agreements and/or adoption of reach code standard based on

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	voluntarily by industry or into local reach code ordinances	draft CASE reports
14	C&S program provides technical responses to stakeholder issues raised in public rulemaking proceedings, including responding to comments and concerns voiced by stakeholders, which are then adopted voluntarily by industry or into local reach code ordinances	<ul style="list-style-type: none"> • Industry voluntary agreements and/or adoption of reach code standard based on docketed, revised CASE reports
15	Development of locally adopted reach code ordinances leads to integration of more efficient building practices into future CEC Rule-making	<ul style="list-style-type: none"> • Future CEC Title 20 code change proposal and IOU code enhancement proposals based on reach code influenced appliance standards
16	After new Title 20 standards are adopted C&S program initiates efforts to support the CEC in updating code compliance materials	<ul style="list-style-type: none"> • Communication with CEC, standard organizations committee members and other stakeholders
17	The adoption of stringent energy efficient standards accelerates market adoption of efficient technologies	<ul style="list-style-type: none"> • Increased market presence and acceptance of certified products • Initial compliance rates
18	C&S Program promotes development of infrastructure to ensure successful code change implementation	<ul style="list-style-type: none"> • C&S Program-supported electronic infrastructure development including electronic repository, pre-processing of electronic documents, and electronic input to the permit process
19	Compliance electronic infrastructure is accepted and adopted by the CEC	<ul style="list-style-type: none"> • CEC approves and implements compliance electronic infrastructure
20	Market adoption, accelerated by industry voluntary agreements and/or reach codes, leads to market acceleration	<ul style="list-style-type: none"> • Increased feasibility and market presence of efficient products and practices
21	The adoption of stringent energy efficiency standards accelerates market adoption of efficient technologies	<ul style="list-style-type: none"> • 21a. Increased market presence and acceptance of efficient certified products • 21b. Initial compliance rates
22	As market presence of high efficiency models increases, more products sold	<ul style="list-style-type: none"> • 22a. Increased market presence of efficient products improved compliance

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	automatically meet the code requirement and compliance increases	rate
23	Adopted and implemented codes lead to advancement towards long term strategic goals	<ul style="list-style-type: none"> • 22b. Energy and water savings calculations with compliance rates • State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits



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Codes and Standards: Federal Advocacy Program Theory and Indicators

Link	Program Theory	Potential Indicators
1	<p>C&S Program leverages the experiences and expertise of portfolio programs and Title 20 activities to identify areas for federal appliance standard improvement opportunities</p> <p>Portfolio programs leverage C&S Program’s federal standards knowledge and expertise to identify new opportunities for programs</p>	<ul style="list-style-type: none"> • Obtain market and technical information from portfolio programs • Obtain market and technical information from the Title 20 sub-program • Portfolio programs obtain federal appliance standards information from C&S Program
2	<p>C&S Program leverages the experiences and expertise of portfolio programs to identify areas for state appliance standard improvement opportunities</p> <p>Portfolio programs leverage C&S Program’s state standards knowledge and expertise to identify new opportunities for programs</p>	<ul style="list-style-type: none"> • Obtain market and technical information from portfolio programs. • Portfolio programs seek and obtain state appliance standards information from C&S Program
3	<p>C&S Program coordinates with national ratings organizations (e.g. FTC) and voluntary programs (e.g. ENERGY STAR), including the development of test standards or labeling requirements</p>	<ul style="list-style-type: none"> • Coordination with ratings organizations such as FTC • Coordination with voluntary programs such as ENERGY STAR
4	<p>As part of C&S Program advocacy to DOE, C&S Program conducts research and testing, analyzes DOE documentation for key technical and policy issues, and coordinates with both energy-efficiency advocates and industry stakeholders on issues related to the federal appliance standard including the development of new industry test methods</p>	<ul style="list-style-type: none"> • 4a. Participation in meetings, including providing public testimony • 4b. Communication, including email and phone calls, with manufacturers, industry groups, and efficiency advocates • 4c. Research documentation and

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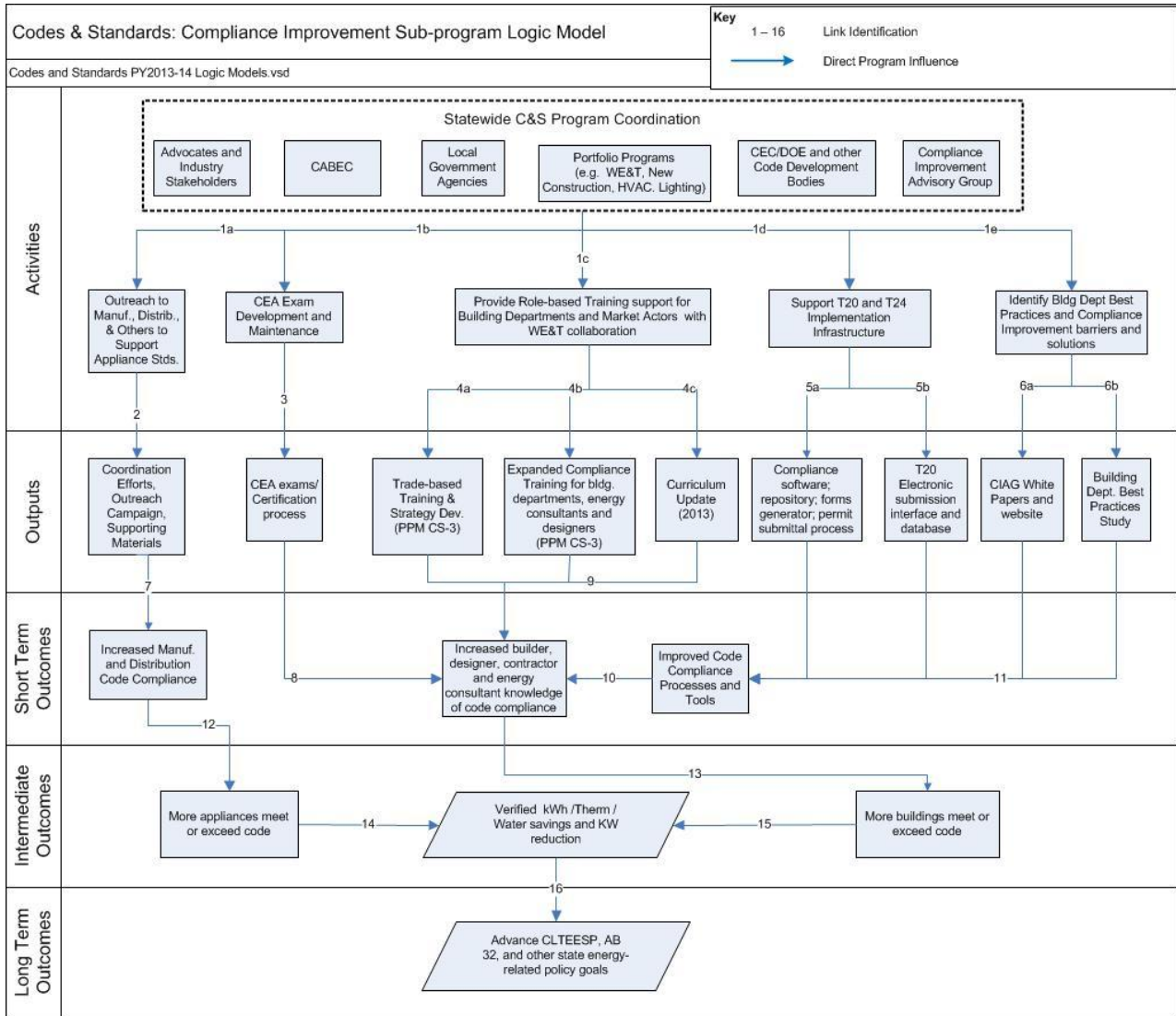
		<p>analysis in reports and internal communications</p> <ul style="list-style-type: none"> • 4c. Participation in the development of industry test methods • 4d. Notes on key issues and internal communication regarding DOE documentation • 4e. Negotiation meetings with advocates and industry stakeholders
5	C&S Program drafts IOU written comments submitted to DOE in advocacy of standards, participates in DOE public meetings, provides public testimony, and communicates with DOE staff and their consultants during the rulemaking.	<ul style="list-style-type: none"> • Percentage of DOE rulemakings for which written comments are submitted by IOUs • Percentage of DOE meetings with IOU participation • Communication, including email and phone records, with DOE staff and their consultants. • Public testimony to DOE
6	C&S Program comments and findings lead to DOE determination of which standards to consider for rulemaking	<ul style="list-style-type: none"> • DOE determination notice of standards considered for rulemaking • Acknowledgment of IOU contributions in DOE determination notice
7	DOE determination to pursue standards for rulemaking	<ul style="list-style-type: none"> • DOE determination notice • DOE proceeds with rulemaking
8	<p>C&S Program coordinates with other energy efficiency advocates and industry stakeholders to develop a consensus agreement on new standards and/or testing requirements, through a negotiation process</p> <p>C&S Program conditionally supports this pathway when it leads to quicker, greater energy savings than traditional rulemaking</p>	<ul style="list-style-type: none"> • Communications, including email, phone records, conference calls and in-person meetings, with stakeholders • Internal review, research, analysis and communication on potential negotiation positions • Draft negotiation positions and final consensus agreement
9	DOE uses consensus agreement from efficiency advocates and industry as the basis of their final rule	<ul style="list-style-type: none"> • DOE sets new federal standards based on standard levels and other provisions of consensus agreement
10	C&S Program data, findings, comments and testimony support DOE appliance standards rulemaking to establish new or amended federal appliance standards, test procedures and/or labels.	<ul style="list-style-type: none"> • DOE Federal Register publications, technical documentation, and public meetings. • C&S Program public testimony, written comments, and data in support of new or amended federal appliance standards, test procedures and/or labels

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11	DOE publishes final rule with new or amended appliance standards, or new or amended test procedure	<ul style="list-style-type: none"> • DOE Final Rule is published in the Federal Register
12	Advocate- industry consensus agreement is finalized and provided to Congress for possible enactment through energy legislation	<ul style="list-style-type: none"> • Submittal of final consensus agreement to Congress
13	<p>Congress passes final energy legislation and President signs legislation into law</p> <p>C&S Program initiates efforts for post adoption implementation support</p>	<ul style="list-style-type: none"> • Final enacted legislation • Communication with standard organizations committee members and other stakeholders to identify implementation support needs
14	<p>DOE publishes a Final Rule to integrate new standards and/or test procedures established by Congress, and related provisions, into the Code of Federal Regulations.</p> <p>C&S Program initiates efforts for post adoption implementation support</p>	<ul style="list-style-type: none"> • DOE Final Rule published in the Federal Register • Communication with standard organizations committee members and other stakeholders to identify implementation support need
15	C&S Program promotes development of, and improvements to, infrastructure to ensure successful code change implementation	<ul style="list-style-type: none"> • C&S Program supported electronic infrastructure development and improvement including electronic repository, pre-processing of electronic documents, and electronic input to the permit process
16	Compliance electronic infrastructure is accepted and adopted by the CEC	<ul style="list-style-type: none"> • CEC approves and implements compliance electronic infrastructure
17	The adoption of stringent energy efficient standards accelerate market adoption of efficient technologies	<ul style="list-style-type: none"> • Increased market presence and acceptance of certified products • Initial compliance rates
18	<p>The adoption of stringent energy efficient standards accelerates market adoption of efficient technologies</p> <p>The adoption of stringent energy efficient standards leads to more appliances meeting or exceeding code</p>	<ul style="list-style-type: none"> • 18a. Initial compliance rates • 18b. Increased market presence and acceptance of efficient certified products
19	As market presence of high efficiency models increases, more products sold automatically meet the code requirement and compliance increases	<ul style="list-style-type: none"> • 19a. Increased market presence of efficient products demonstrates improved compliance rate • 19b. Energy and water savings calculations with compliance rates
20	Adopted and implemented codes lead to advancement towards long term strategic	<ul style="list-style-type: none"> • State policy objectives are met to

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goals	achieve environmental, macroeconomic, and other non-energy benefits
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**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

Codes and Standards: Compliance Improvement Program Theory and Indicators

Link	Program Theory	Potential Indicators
1	C&S Program coordinates with advocates and industry stakeholders, CABEC, local government agencies, CEC/DOE/other code development bodies, Compliance Advisory Group (CIAG), other IOU portfolio programs, and other organizations	<ul style="list-style-type: none"> • Communication with collaborative members
1a	<p>C&S program coordinates efforts with the appliance industry in improving code compliance through outreach to manufacturers, distributors and others to support appliance standards</p> <p>C&S program supports CEC outreach efforts</p> <p>C&S program staff attends trade shows, meetings and other outreach venues</p>	<ul style="list-style-type: none"> • Number of manufacturers contacted • Number of meetings • Participation in trade shows • Number of training sessions
1b	<p>C&S Program supports Certified Energy Analyst (CEA) examination development and maintenance, and training programs for various industry groups</p> <p>C&S program supports CABEC in developing technical and administrative guidelines to update the residential and nonresidential CEA examinations developed in 2010-2012 to properly test applicant CEAs under the 2013 standards and facilitating the roll out of the new certification process</p> <p>C&S Program assembles and trains a team of subject-matter experts to prepare exam questions</p>	<ul style="list-style-type: none"> • A trained team of subject-matter experts • Set of exam questions • Blueprint for exam preparation • Alpha and Beta test developed • Exam standards developed
1c	C&S program in collaboration with Workforce Education and Training sub-program (WE&T) prepare and deliver role-based training for building departments, energy consultants, designers, contractors and technicians to improve current code compliance	<ul style="list-style-type: none"> • Number of courses prepared • Number of sessions delivered • Number of course participants
1d	C&S program coordinates with the CEC/ DOE to provide T24 and T20 implementation infrastructure support	<ul style="list-style-type: none"> • Number of statewide/ CEC coordination meetings • Needs assessment recommendations

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Link	Program Theory	Potential Indicators
	C&S Program identifies building department best practices, and compliance improvement barriers and solutions through a needs assessment	
1e	<p>C&S Program assembles and facilitates the Compliance Improvement Advisory Group (CIAG). CIAG acts as ‘ear-to-the-ground’ to identify and prioritize compliance improvement initiatives for the C&S Program</p> <p>CIAG members represent CEC, California State License Board (CSLB), architects, builders, home energy raters, contractors, energy consultants, compliance software developers, and building officials</p> <p>C&S Program collaborates with a select group of building departments across the state to identify best practices for enforcing Title 24</p>	<ul style="list-style-type: none"> • An Advisory Group representative of key compliance improvement market actors • Number of CIAG coordination meetings • Number of participating building departments
2	<p>C&S Program coordinates with the CEC to conduct outreach to equipment manufacturers on existing code requirements, and to facilitate compliance from both a technical and administrative perspective</p> <p>C&S Program assists manufacturers to ensure equipment sold in California meets the minimum technical requirements, and to successfully complete the certification process with the CEC</p> <p>C&S Program staff write articles for CEC Blueprint and other publications addressing T20/T24 requirements</p>	<ul style="list-style-type: none"> • Campaign supporting materials • Number of manufacturers receiving assistance on use of CEC appliance database • Number of distributors informed • Number of articles published addressing T20/T24 requirements
3	C&S Program assists CABEC with the design, implementation and marketing of the CEA certification process, incorporating inputs from CEC	<ul style="list-style-type: none"> • CABEC certification process website • Number of certified Energy Analysts
4a	C&S Program collaborates with WE&T, CEC and major industry trade groups to develop and deliver enhanced workforce education and training to ensure proper installation, commissioning and maintenance as per code	<ul style="list-style-type: none"> • Needs assessment recommendations • Number of industry-specific courses • Number of training sessions

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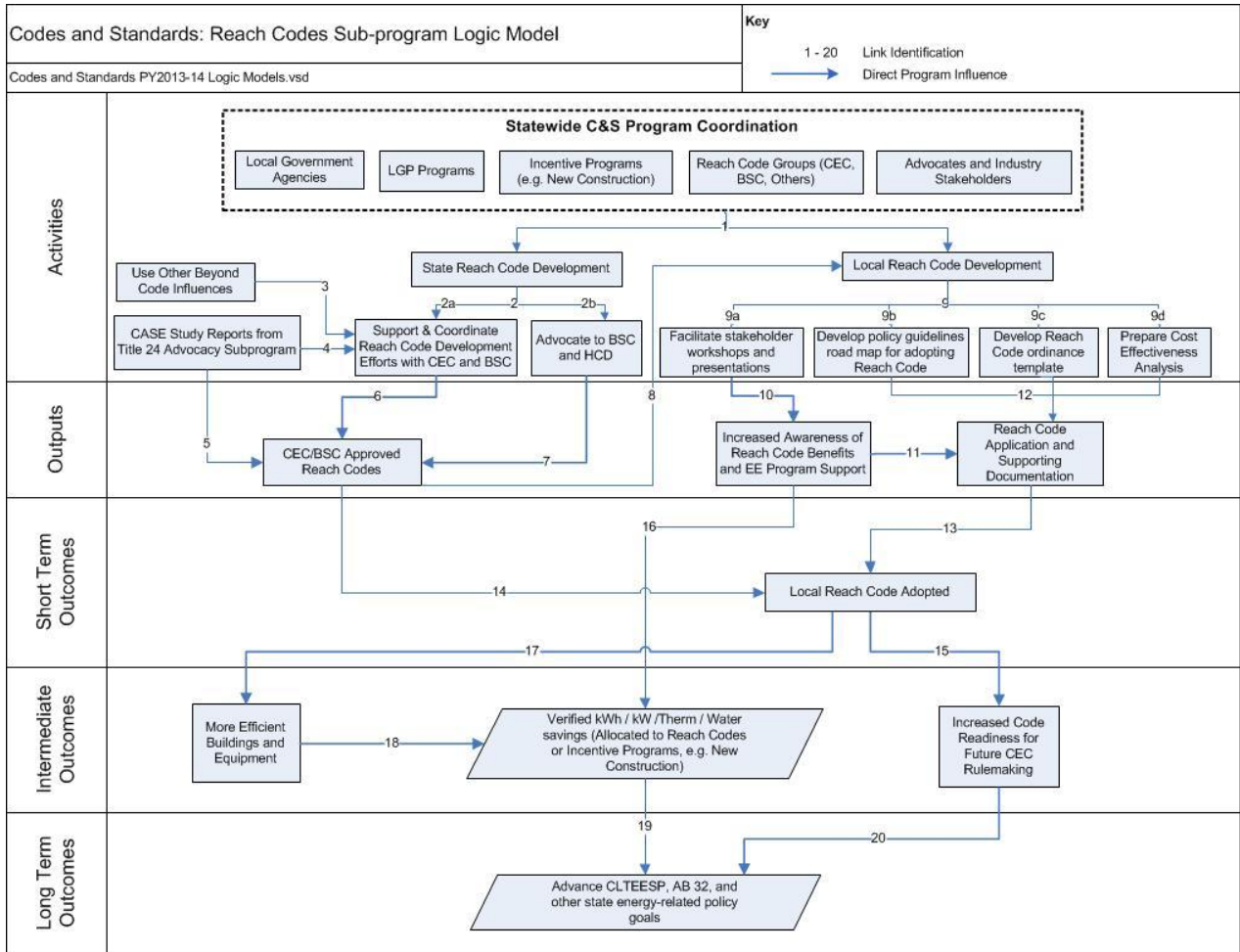
Link	Program Theory	Potential Indicators
		<ul style="list-style-type: none"> • Number of participants
4b	<p>C&S Program develops and implements compliance training to building departments, energy consultants and designers that expands beyond classroom-based training to include live webinars and other activity-based online training</p>	<ul style="list-style-type: none"> • Number of training sessions • Number of courses developed • Number of training sessions • Number of participants
4c	<p>C&S Program updates the current role-based building department and energy consultant training curriculum incorporating feedback from the CEC, WE&T and CIAG</p>	<ul style="list-style-type: none"> • Updated curriculum to reflect 2013 Title 24 Standards
5a	<p>C&S Program provides support to CEC/CPUC to develop a framework for an electronic repository database</p> <p>C&S Program coordinates with the CEC and Emerging Technologies Program (ETP) on needs assessment study to explore the potential for developing electronic compliance forms and technology options for a pilot online permitting process</p>	<ul style="list-style-type: none"> • Needs assessment recommendations
5b	<p>C&S Program provides feedback and support to CEC/CPUC to develop an improved user interface for the CEC appliance database</p>	<ul style="list-style-type: none"> • Interface improvement recommendations
6a	<p>CIAG prepares white papers that identify and prioritize compliance-specific issues, propose solutions and recommend next steps for C&S Program consideration</p> <p>C&S Program supports and maintains CIAG website that houses the white papers and collects feedback and disseminates information</p>	<ul style="list-style-type: none"> • Issue-specific white papers (4-8) • CIAG website
6b	<p>C&S Program, using information obtained from needs assessment and gap analysis, develops and tests building department-specific tools, training and strategies for optimizing Title 24 enforcement</p> <p>C&S Program works collaboratively with participating building departments to document best practices that are shared with local jurisdictions statewide</p>	<ul style="list-style-type: none"> • Comprehensive best practices assessment and gap analysis report • Tools, training materials and implementation strategies
7	<p>C&S Program outreach and coordination efforts results in increased awareness among manufacturers and distributors</p>	<ul style="list-style-type: none"> • Increased number of certified products in CEC appliance database • Increase in availability of

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Link	Program Theory	Potential Indicators
		compliant products
8	Stringent CEA exam and certification process results in increased number of proficient energy analysts which leads to better code compliance	<ul style="list-style-type: none"> • Number of certified energy analysts • Increased number of compliant buildings • More accurate compliance documentation
9	Effective role-based and trade-based training results in increased code compliance knowledge among builders, contractors and designers which leads to better code compliance	<ul style="list-style-type: none"> • Increase in standards knowledge of training attendees (pre and posttests)
10	Improved processes and tools results in increased builder, designer, contractor and energy analyst code compliance knowledge	<ul style="list-style-type: none"> • Increased builder, designer, contractor and energy analyst knowledge of code compliance
11	Best practices study; CIAG white papers and website; improved Title 20/Title 24 electronic submission interface and database; and improved compliance software, repository, forms generator and permit submittal process increase the effectiveness of code compliance processes and tools, and reduce the frequency of compliance errors	<ul style="list-style-type: none"> • Reduced number of compliance errors due to resources and training • Reduced time for building officials to process paperwork
12	Outreach and compliance support in appliance manufacturing and distribution channels results in more appliances meeting code and greater utilization of efficient appliances and technologies	<ul style="list-style-type: none"> • Reduction in number of noncompliant appliances in the market • Increased utilization of efficient appliances and technologies
13	Improved compliance infrastructure, system and modeling software leads to more buildings meeting or exceeding T24 requirements	<ul style="list-style-type: none"> • Energy savings calculations submitted for permit approval with compliance rates
14	More effective enforcement processes, increased knowledge of code requirements throughout the market increases the number of appliances meeting or exceeding code, which results in verified kwh/ therm and water savings, and kw reduction	<ul style="list-style-type: none"> • Verified kwh savings • Verified therm savings • Verified water savings • Verified kw reduction
15	More effective enforcement processes, increased knowledge of code requirements throughout the market increases the number of buildings meeting or exceeding code, which results in verified kwh/ therm and water savings, and kw reduction	<ul style="list-style-type: none"> • Verified kwh savings • Verified therm savings • Verified water savings • Verified kw reduction

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Link	Program Theory	Potential Indicators
16	Adopted and implemented codes lead to advancement towards long term strategic goals	<ul style="list-style-type: none"> State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits



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Codes and Standards: Reach Codes Program Theory and Indicators

Link	Program Theory	Potential Indicators
1	C&S Program coordinates and supports internal and external efforts to drive reach codes development and adoption, using the resources offered by the IOU Energy Efficiency and Local Government Partnership programs; and working with the CEC, Building Standards Committee (BSC), and industry groups	<ul style="list-style-type: none"> • Communication and meetings with CEC, standard organizations committee members and other stakeholders for model reach code ordinances • Communication and meetings with local jurisdictions to develop their reach code ordinances • Quarterly updates to LGP (Local Government Partnership) program regarding reach code adoption progress and delivery of training to building departments • Coordination efforts with local government agencies in conducting rulemaking process • Coordination of reach code features with IOU energy efficiency program offerings where possible • Coordinated C&S program and LGP outreach efforts to local jurisdictions • Solicitation for stakeholder involvement and work with stakeholders
2	C&S Program collaborates with CEC and BSC to provide support for developing local reach code ordinances to encourage buildings to achieve exemplary performance in the areas of energy efficiency	<ul style="list-style-type: none"> • 2a: Stakeholder meetings, outreach and on-going communication with CEC and BSC in development of statewide reach codes solutions such as CALGreen • 2b: Communication with BSC and HCD to advocate the benefits of the reach code
3	C&S Program supports the CEC/BSC CALGreen Tier 1 and Tier 2 standards development by leveraging C&S Program involvement in ASHRAE Standard 189 and other “beyond code” activities (e.g. CHPS)	<ul style="list-style-type: none"> • Stakeholder meetings, outreach and on-going communication with CEC and standards organization staff • Participation in ASHRAE 189 committee meetings and other “beyond code” organization activities
4	C&S Program CASE reports presented at reach code development meetings	<ul style="list-style-type: none"> • CASE reports include data, analysis and documentation for reach code development

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5	IOU proposed code change language is included in CEC adopted reach code standards	<ul style="list-style-type: none"> Adoption of CEC-approved reach codes by BSC includes IOU proposed code change language
6	C&S Program efforts support the development of energy efficiency reach standards by CEC and BSC	<ul style="list-style-type: none"> Adoption of CEC-approved reach codes by BSC Support and contributions to CEC/BSC reach codes efforts, in particular CALGreen
7	C&S Program advocacy to BSC and HCD to support adoption of energy efficient standards into CALGreen	<ul style="list-style-type: none"> Advocacy for industry energy efficiency standards, such as ASHRAE Std 189, influence the CEC-approved reach codes adopted by BSC
8	BSC adopted reach code (CALGreen) is used for the basis of local reach code development	<ul style="list-style-type: none"> Local ordinance development begins with consideration of BSC adopted reach code (e.g. CalGreen Tier 1 or 2) Increase in regional code consistency (countywide or geographically contiguous jurisdictions)
9	C&S Program conducts full range of advocacy efforts to support to rulemaking processes and ensure successful reach code development, completed in collaboration with the local government, CEC, BSC, and others	<ul style="list-style-type: none"> 9a. Stakeholder meetings, outreach and on-going communication 9b. “Road Map” of policy guidelines for adopting reach code 9c. Reach code ordinance “template” that establishes clear definitions of when the ordinance is triggered 9d. Reach code cost-effectiveness documentation
10	Stakeholder outreach by C&S Programs and LGP increase reach code awareness and knowledge	<ul style="list-style-type: none"> Responses to requests for technical assistance from local government officials and stakeholders Input to stakeholder comments and questions on proposed code changes
11	C&S Program supports local government officials in the reach code application process by responding to requests for technical assistance and support materials	<ul style="list-style-type: none"> Technical support material and reach code policy and adoption guidance to local governments upon request
12	Local governments conduct rulemaking process, develop ordinance with technical support from C&S Program	<ul style="list-style-type: none"> Local ordinance adoption proceedings Reach code application developed with support from C&S Program

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13	C&S Program support leads to adopted local reach code ordinances	<ul style="list-style-type: none"> • Reach code ordinance adoption published by local jurisdictions
14	CEC/BSC model reach code, with C&S Program proposed code change language, is adopted by local ordinances	<ul style="list-style-type: none"> • Reach code ordinance adoption published by local jurisdictions
15	Development of locally adopted reach code ordinances leads to integration of more efficient building practices into future CEC rulemaking	<ul style="list-style-type: none"> • Increased acceptance and experience of reach code measures by builders, designers, and contractors prepares the market for future CEC reach codes
16	Stakeholder outreach and technical support by LGP and C&S Programs increase awareness and knowledge of reach code and EE incentive program benefits, resulting in greater utilization of efficient appliances and technologies	<ul style="list-style-type: none"> • Increased utilization of efficient appliances and technologies • Reduction of noncompliant practices and appliances
17	Adoption of reach code ordinances leads to more efficient buildings and equipment	<ul style="list-style-type: none"> • Increased market acceptance of reach code requirements and practices throughout the state
18	More efficient buildings result in electric and gas energy savings, demand reduction, and water savings	<ul style="list-style-type: none"> • Energy savings calculations or building energy and water usage
19	Adopted and implemented codes lead to advancement towards long term strategic goals	<ul style="list-style-type: none"> • State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits
20	Increased market acceptance of building practices resulting from reach codes leads to advancement towards long term strategic goals	<ul style="list-style-type: none"> • Accelerated completion of state policy objectives to achieve environmental, macroeconomic, and other non-energy benefits

Appendix 1 Glossary of Acronyms

Acronym/Term	Description
AB 32	California Assembly Bill AB 32, California Global Warming Solutions Act of 2006
ACM	Alternate Component Method, The CEC's Public Domain Computer Programs, one of the CEC's Simplified Calculation Methods, or any other calculation method approved by the CEC.
AHRI	Air-Conditioning, Heating and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASHRAE 90.1	Energy Standard for Buildings Except Low-Rise Residential Buildings
ASHRAE 189	Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings
ASTM	American Society for Testing and Materials Now referred to as ASTM International
BSC	California Building Standards Commission
C&S	Codes and Standards program
CA	California
CABEC	California Association of Building Energy Consultants
CALBO	California Building Officials
CARB	California Air Resources Board
CASE	Codes and Standards Enhancement
CEC	California Energy Commission
CEE	Consortium for Energy Efficiency
CEPs	Compliance Enhancement Programs
CEQA	California Environmental Quality Act
CHPS	Collaborative for High Performance Schools
CPUC	California Public Utilities Commission
CRRC	Cool Roof Rating Council
CSLB	California State License Board
CSU	California State University
DOE	United States Department of Energy
DCA	California Department of Consumer Affairs
DR	Demand Response
DTSC	California Department of Toxic Substance Control
DSA	California Division of State Architect
DWR	California Department of Water Resources
EE	Energy Efficiency
EISA 2007	United States Energy Independence and Security Act of 2007
EOA	Extension of Advocacy
EPA	United States Environmental Protection Agency
ET (ETP)	Emerging Technologies (Emerging Technologies Program)
FDD	Fault Detection and Diagnostics
GHG	Greenhouse Gas
Green Globes	Green building rating system as administered by the Green Building Initiative

Acronym/Term	Description
HCD	California Department of Housing and Community Development
HERS	Home Energy Rating System
HID	High Intensity Discharge
Huffman Bill (AB1109)	California Assembly Bill AB 1109, Lighting Efficiency and Toxics Reduction Act
HVAC	Heating, Ventilating and Air Conditioning
IBEW	International Brotherhood of Electrical Workers
ICC	International Code Council
IESNA	Illuminating Engineering Society of North America
IOU	California Investor Owned Utility (PG&E, SCE, SDG&E, SCG)
LAUSD	Los Angeles Unified School District
LEED	Leadership in Energy and Environmental Design Green building rating system as administered by the USBGC
LG	Local Government
LGC	Local Government Commission
M&V	Measurement and Verification
NECA	National Electrical Contractors Association
NFRC	National Fenestration Rating Council
NRDC	National Resources Defense Council
OSHPD	California Office of Statewide Health Planning and Development
PG&E	Pacific Gas and Electric
RC	Reach Code
Reach Code	Codes, standards, regulations, policies and programs that exceed minimum energy codes such as Title 24, Title 20, ASHRAE Standard 90.1
ResNet	Residential Energy Services Network
SCE	Southern California Edison
SCG	Southern California Gas
SDG&E	San Diego Gas and Electric
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMUD	Sacramento Municipal Utility District
Title 20	Title 20, California Appliance Efficiency Regulations, Section 1601 et seq. of the California Code of Regulations.
Title 24	Title 24, California Building Energy Efficiency Standards, as set forth in the California Code of Regulations, Title 24, Part 6. Also known as the <i>California Energy Code</i> .
TDV	Time Dependent Valuation is the time varying energy caused to be used at by the building to provide space conditioning and water heating and for specified buildings lighting, accounting for the energy used at the building site and consumed in producing and in delivering energy to a site, including, but not limited to, power generation, transmission and distribution losses.
TOS	Time of Sale
UC	University of California
USGBC	United States Green Building Council
WE&T	Workforce, Education and Training

Appendix 2 - 2013 – 2014 Codes and Standards PIP Addendum

Codes and Standards Program Overview

The Codes and Standards (C&S) Program saves energy on behalf of ratepayers by influencing continuous improvements in energy efficiency regulations, improving compliance with existing codes and standards, and working with local governments to develop ordinances that exceed statewide minimum requirements. C&S program activities extend to all buildings and potentially any appliance in California, for both advocacy and compliance improvement.

The C&S Program consists of five subprograms: Building Codes Advocacy; Appliance Standards Advocacy; Compliance Improvement; Reach Codes; and, Planning and Coordination.

1. Building Codes Advocacy Subprogram

The Building Codes Advocacy subprogram primarily targets improvements to Title 24 Building Efficiency Regulations that are periodically updated by the California Energy Commission. The subprogram also seeks changes to national building codes that impact CA building codes. Advocacy activities include, but are not limited to, development of code enhancement proposals and participation in public rulemaking processes. The program may coordinate with or intervene in ratings organizations that are referenced in Title 24; for example, the National Fenestration Rating Council, and the Cool Roof Rating Council.

2. Appliance Standards Advocacy Subprogram

The Appliance Standards Advocacy subprogram targets both state and federal standards and test methods: improvements to Title 20 Appliance Efficiency Regulations by the California Energy Commission, and improvements to Federal appliance regulations by the US Department of Energy. Advocacy activities include, but are not limited to, development of code enhancement proposals and participation in the public rulemaking process (Title 20), and comment letters based on IOU research and analysis (USDOE), and participation in direct negotiations with industry. Additionally, the program monitors state and federal legislation and intervenes, as appropriate.

3. Compliance Improvement

The Compliance Improvement subprogram is a new subprogram that combines the previous Extension of Advocacy and Compliance Enhancement subprograms. It provides education, training, and other activities targeting building departments and other industry actors responsible for compliance with Building Energy Code and Appliance Standards requirements. Activities may include development of “best practices tools” and other infrastructure elements that serve multiple compliance improvement objectives.

4. Reach Codes Subprogram

The Reach Codes subprogram provides technical support to local governments that wish to adopt ordinances that exceed statewide Title 24 minimum energy efficiency requirements for new buildings, additions, or alterations. Support for local governments includes research and analysis for establishing performance levels relative to T-24 and cost effectiveness per Climate Zone, drafting of model ordinance templates for regional consistency, and assistance for completing and expediting the application process required for approval by the CEC. The subprogram also supports local governments that seek to establish residential or commercial energy conservation ordinances for existing buildings.

5. Planning and Coordination

The Planning and Coordination Subprogram provides a formal process that aligns planning activities across the IOU energy efficiency portfolio within the Codes and Standards program activities. This subprogram supports efforts to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving Zero Net Energy.

Codes and Standards 2013-2104 Activities by Sub-Programs

Building Energy Codes Advocacy

The Building Codes Advocacy program will continue conducting many of the same activities as were conducted in the 2010 – 2012 program cycle, but will focus on the upcoming 2016 Title 24 Energy Building Code cycle. In addition, the Building Codes Advocacy sub-program will expand activities at the national level. Primary activities for 2013-2014 include the following:

2013 Title 24 Energy Building Code

- Support implementation of adopted 2013 Energy Building Code:
 - Complete revisions to compliance manuals and forms

2016 Title 24 Energy Building Code

- Prepare CASE studies in coordination with CEC:
 - Conduct research for 2016 building code advocacy to advance State policy goals
 - Support activities to address Department of Finance review requirements
 - Research residential ventilation / IAQ requirements to reduce and control infiltration while maintaining and improving indoor air quality
 - Research and advocate methods to remove code barriers to the increased use of renewable energy in support of ZNE goals
 - Support development of 2016 compliance software

Appliance Standards Advocacy

The Appliance Standards Advocacy program will continue conducting many of the same activities as were conducted in the 2010–2012 program cycle, but will focus on preparing new measures pursuant to CEC’s adopted Order Instituting Rulemaking (“OIR”) for Title 20 Appliance Standards and U.S. Department of Energy’s ongoing rulemaking for Federal Appliance Standards. Primary activities for 2013-2014 include the following:

Title 20 Appliance Standards Rulemaking

- Prepare CASE studies pursuant to CEC's adopted OIR:
 - Advocate and provide public testimony in State public proceedings
 - Conduct research and testing and submit supporting market and technical data to the CEC
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which CEC eventually adopts)
 - Develop voluntary agreements or reach standards

Federal Appliance Standards Rulemaking

- Provide support to DOE rulemaking process:
 - Advocate and provide public testimony in Federal public proceedings
 - Submit supporting market and technical data to the Department of Energy
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which DOE eventually adopts)
 - Develop voluntary agreements or reach standards

Compliance Improvement

For the 2013-2014 program cycle, the C&S team will combine the former Extension of Advocacy and Compliance Enhancement Program activities into one Compliance Improvement subprogram to enhance understanding of program objectives and activities. The subprogram will strive to improve compliance with the Title 24 and Title 20 efficiency standards while implementing an effective sector strategy with the Workforce Education and Training Program. Primary activities for 2013-2014 include the following:

Title 24 Compliance

- Title 24 Standards Essentials Role-Based training for building inspectors:
 - Continue delivering training to plans examiners and energy consultants. Update curriculum to cover what's new in the 2013 code. *(per OP 93)*
 - Expand role-based training curriculum to additional compliance improvement market actors such as the building trades and design professionals as guided by needs assessment
- HVAC Quality Installation and Other Programs with Direct Code Requirements
 - Identify opportunities to insert code compliance modules in existing curriculum, such as training required for technicians
- On-line Compliance Training:
 - Explore training delivery mechanisms beyond the traditional classroom to include live webinars, activity-based online training, and in-field demonstrations

- Tools and Process Improvements:
 - Implement tools and process improvements as identified through the building department best practices study and the Compliance Improvement Advisory Group (CIAG)
- Forms and Compliance Documents:
 - Support development of improved forms and compliance-related documentation for 2013 Title 24
- Nonmonetary Compliance Improvement Incentives:
 - Explore a pilot project designed to improve compliance by providing incentives to local governments, contractors, or other key market actors. The pilot will be based on the CIAG's guidance and may include nonmonetary incentives such as training or provision of tools designed to streamline the permitting and inspection processes for additions and alterations (*per OP 94*)
- Target Low Compliance Problem Areas:
 - Collaborate with the CEC to identify problem areas and potential compliance improvement solutions through white papers developed by CIAG members (*per OP 95*)
 - Consider pilot project to improve compliance for measures with known challenges, which may include providing incentives to contractors for pulling permits, or motivation for other market actors. (*per OP 95*)
- Develop and Conduct Outreach Campaign to Improve Compliance:
 - Collaborate with the CEC to develop and implement an outreach campaign designed to improve compliance with Title 24 and Title 20 standards. The campaign will be based on the CIAG's guidance and may include activities such as developing flyers for contractors to provide to potential customers explaining the code requirements and benefits, mini measure-based code seminars for big box store employees, etc. (*per OP 93*)
- CEA exam development, facilitation support, and maintenance
 - Collaborate with the California Association of Building Energy Consultants to improve the working knowledge, skills, analytic ability and accountability of individuals using energy compliance software and preparing the appropriate Title 24 documentation for permit submittal. C&S will support updating the beta Residential and Nonresidential CEA examinations developed in 2010-2012 to properly test applicant CEAs under the 2013 standards and facilitating the roll out of the new certification process.

Title 20 and Federal Standards Compliance

- Surveys and Technical Support:

- Conduct surveys and provide technical support to CEC and industry to facilitate compliance.
- Education and Outreach:
 - Collaborate with CEC on implementing an education and outreach campaign targeted to distributors, retailers, contractors, and possibly consumers. (*OP 93*)

Reach Codes

For the 2013-2014 program cycle, the IOUs will continue to collaborate with the CEC and Local Government Partnership Program to identify, and provide technical assistance to, local jurisdictions interested in adopting Reach Codes. In addition, the IOUs will continue to collaborate with CEC to provide support for developing voluntary standards to encourage buildings to achieve exemplary performance in the areas of energy efficiency. Primary Reach Code activities for 2013-2014 include the following:

Reach Code Technical Assistance

- Cost Effectiveness Studies:
 - Prepare Cost Effectiveness studies for each of the California climate zones (to be updated for 2013 Energy Building Code) that have been vetted with the CEC, resulting in expedited CEC review of reach code application submittals.
- Policy Guidelines:
 - Provide a “Road Map” of Policy Guidelines for adopting Reach Code including an overview of some of the implications and important choices in writing and adopting these types of ordinances, and recommendations intended to improve implementation and compliance.
- Ordinance Template:
 - Provide a Reach Code Ordinance “template” that establishes clear definitions of when the ordinance is triggered, including CEC-required language which states that all buildings shall meet all applicable requirements of the Building Energy Code.
- Workshops & Presentations:
 - Facilitate public workshops and presentations to interested stakeholders including elected officials, city staff, industry organizations, and community groups that address the following:
 - Critical role that energy efficiency plays in reducing greenhouse gas emissions
 - Understand how Reach Codes and complementary new construction incentive programs such as California Advanced Homes help meet CalGreen’s voluntary Tier 1 and Tier 2 Energy requirements, accelerate

advancement of zero net energy building practices, and mitigate project-level GHG impacts pursuant to CEQA requirements.

- Explain the process for developing and adopting a legally enforceable Reach Code pursuant to CEC requirements
- Work with industry organizations and other market actors to conduct outreach to local governments to inform them of available Reach Code assistance.

Planning and Coordination (Non-Resource Subprogram)

The Planning and Coordination Subprogram supports planning activities that improve alignment across the IOU energy efficiency portfolio with respect to future C&S program activities. C&S staff will coordinate with IOU energy efficiency portfolio programs to support efforts to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving Zero Net Energy.

This subprogram will consist of four elements: 1) Strategic planning and coordination; 2) Outreach within each IOU to other program areas; 3) Statewide planning and coordination; and, 4) Workforce education and training. Primary activities for 2013-2014 include the following:

Strategic Planning (per OP 91)

- Codes and Standards Collaborative:
 - Maintain a Codes and Standards Collaborative to conduct strategic planning
- Code Readiness:
 - Establish cross-functional teams, including representatives from voluntary programs (incentive, emerging technologies, and education and training), the CPUC, and the CEC, will be established to identify code readiness priorities relative to policy goals, for example: zero net energy, AB 1109, and other Action Plan objectives.

Internal Coordination and Communications

- Periodic Meetings:
 - Conduct a variety of internal coordination activities based on respective needs of each IOU, including periodic meetings with program leads in other areas as well as management teams.
- Ongoing Communication:
 - Inform planners and support groups regarding future code changes, collaboration on evaluation and regulatory matters.
 - Solicit input from other groups re advocacy efforts, aligning education and training activities with incentive programs.

Statewide Collaboration

- Integrated Dynamic Approach to Portfolio Planning:
 - To support the state's Zero Net Energy objectives, the C&S team, will work closely with new construction programs to develop an integrated approach to align new construction program offerings with base code requirements as well as reach codes where possible.
 - The C&S team will work with core retrofit programs as well as local government partnerships and third parties to coordinate offerings with anticipated code changes. *(per OP 91, 152)*

- CPUC Communication:
 - Conduct monthly calls with CPUC personnel to share progress and discuss issues *(per OP 91)*

- CEC Communication:
 - Maintain statewide weekly calls with CEC staff regarding building codes and appliance standards *(per OP 91)*

- National Stakeholders Communication:
 - Conduct regular conference calls with national stakeholders regarding appliances *(per OP 91)*

- Compliance Advisory Group Communication:
 - Host quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities *(per OP 91, 152)*

- Local Government Partnership Communication:
 - Provide quarterly updates to Local Government Partnership Program regarding reach code adoption progress and delivery of training to building departments *(per OP 91)*

Workforce Education and Training (WE&T)

- Sector Strategies for WE&T:
 - C&S and WE&T personnel will meet periodically to coordinate activities that will enhance support for the appropriate market actor roles responsible for new and emerging codes and standards implementation according to priorities established by needs assessments. C&S will collaborate with the WE&T Centergies sub-program to not only prepare contractors and technicians to implement current codes, but to also prepare them with technical training on advanced technologies that are projected to become part of reach codes and then the statewide code. *(per OP 92 and OP 152)*

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2013-2014 PIP Addendum

Program Name	Codes and Standards	Date Submitted	July 2, 2012
Subprogram Name	Various	Utility Name	SoCalGas
Program ID	SCG 3724, SCG 3725, SCG 3726, SCG 3727, SCG 3728	IOU Program Contact	Ron Gorman
		Program Cycle	2013-2014

1. **Program Name:** Statewide Codes and Standards Program
Program ID(s): SCG3724
 SCG3725
 SCG3726
 SCG3727
 SCG3728
Program Type: Statewide Core Program

2. Projected Program Budget Table Tables

Table 11¹: Total Projected Program Budget by Category

	Codes and Standards	Total Administrative Cost (Actual)(\$)	Total Marketing & Outreach (Actual)(\$)	Total Direct Implementation (Actual)(\$)	Total Budget By Program (Actual)(\$) Subprogram
SCG 3724	Building Codes, Advocacy, Extension of Advocacy, and CASE studies	\$823,173	\$0	\$7,592,270	\$8,415,444
SCG 3725	Appliance Standards, Advocacy, Extension of Advocacy, and CASE Studies	\$765,056	\$0	\$6,559,747	\$7,324,803
SCG 3726	Compliance Enhancement Program: Measure-Based and Holistic Improvement (CD)	\$172,448	\$0	\$1,064,849	\$1,237,298
	Reach Codes: Local Government	\$266,839	\$0	\$1,116,952	\$1,383,790

¹ Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here

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Statewide Codes and Standards Program
Program Implementation Plan**

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		Compliance Enhancement	TBD	TBD	TBD
		Local Government Ordinances	NA	NA	NA
		Coordination	NA	NA	NA
		Education and Training	NA	NA	NA
Total		2,556,620,812	493,615		

SCG

Table 43: Total Projected Program Savings by IOU (Gross)

		<u>SCG (MTherms)</u>
		<u>MTherms</u>
	Building Codes Advocacy	6.7
	Appliance Standards Advocacy	3.8
	Compliance Improvement	0.4
	Reach Codes	0.2
Total		11.2

Program #	Three Year EE Program Gross Savings kWh	Three Year EE Program Gross Savings kWh	2009 - 2011		2009 - 2011		2009 - 2011
	Codes and Standards						
	2003 Title 24 (100%)						5,948,818
	2004 Title 20 (100%)						19,261,724
	2006 Title 20 Tier II Lighting (100%)						

**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
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2008 Title 24 (100%)				_____	_____	12,823,296
2008 Title 20 (100%)				_____	_____	_____
2009 Title 20 (100%)				_____	_____	_____
Advocacy Savings in Municipal and Irrigation Districts	-	-	377,078			
Compliance Enhancement	TBD	TBD	TBD			
Reach Codes	NA	NA	NA			
Coordination			NA	NA	NA	
Education and Training			NA	NA	NA	
Total			38,410,916			

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SDG&E

Program #	Codes and Standards	2009—2011 Three Year EE Program Gross kWh Savings	2009—2011 Three Year EE Program Gross kW Savings	2009—2011 Three Year EE Program Gross Therm Savings
2003 Title 24 (100%)		51,974,180	23,355	422,204
2004 Title 20 (100%)		215,084,055	37,089	1,367,056
2006 Title 20 Tier II Lighting (100%)		74,939,583	9,799	
2008 Title 24 (100%)		28,225,348	7,510	910,104
2008 Title 20 (100%)		23,125,285	2,247	
2009 Title 20 (100%)		58,323,720	7,206	
Advocacy Savings in Municipal and Irrigation Districts		128,500,034	24,810	26,762
Compliance Enhancement		TBD	TBD	TBD
Reach Codes		NA	NA	NA
Coordination		NA	NA	NA
Education and Training		NA	NA	NA

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	Total	580,172,205	—112,016	—2,726,126
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Table 2 includes Tables 32 and 34 include savings from the following California Energy Commission (CEC) proceedings.

- 2003 Title 24 (Building regulations adopted in 2003 and effective in 2005, we have previously referred to these as 2005 Title-24.)
- 2004 Title 20 (Appliance regulations adopted in 2004 and effective in 2006, 2007 or 2008, we have previously referred to these as 2005 Title 20.)
- 2006 Title 20 Tier II Lighting (Adopted in 2006, became effective in 2008.)
- 2008 Title 24 (Adopted in 2008, they will become effective in 2009/2010.)
- 2008 Title 20 (Adopted Lighting standards adopted in 2008, they will become effective in 2010 or later; in particular, general service incandescent lamps for which federal legislation prescribes limits on CA, 2011, 2012, and 2013.)
- 2009 Title 20 (Assuming the CEC completes Phase II proceedings Television standards adopted in 2009, effective dates are proposed for 2011 or later and 2013.)
- 2011 Title 20 (Battery charger standards adopted 2012, effective 2014.)
- Various Federal appliance standards (motors, vending machines, commercial refrigeration, ASHRAE products, etc.)
- 2013 Title 24 (Building regulations adopted in 2012, effective 2014.)

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Table 232 and 43 savings are calculated from the sum of first-year gross savings from each CEC proceeding in 2009, 2010, and 2011. Gross savings are calculated from projected statewide installations, compliance, energy use baseline, and unit energy savings, prior to correcting for naturally occurring market adoption and attribution.

Savings in Table 2 Table 32 and Table 43 are based on actual installation of measures, consistent with the rest of the portfolio that savings are real and in existence; therefore, 100% credit is assumed for savings from all proceedings, including those from pre-2006 adoptions.

Table 54: Total Projected Program Savings by Subprogram (Net)

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	<u>Building Codes Advocacy</u>			<u>Appliance Standards Advocacy</u>			<u>Compliance Improvement</u>			<u>Reach Codes</u>		
	<u>GWh</u>	<u>MW</u>	<u>MTh rms</u>	<u>GWh</u>	<u>MW</u>	<u>MT her ms</u>	<u>GWh</u>	<u>MW</u>	<u>MTh rms</u>	<u>GWh</u>	<u>MW</u>	<u>MT her ms</u>
<u>SCG</u>	<u>0</u>	<u>0</u>	<u>3.5</u>	<u>0</u>	<u>0</u>	<u>1.5</u>	<u>0</u>	<u>0</u>	<u>0.2</u>	<u>0</u>	<u>0</u>	<u>0.2</u>
<u>Total</u>	<u>111</u>	<u>28</u>	<u>5.9</u>	<u>948</u>	<u>105</u>	<u>2.6</u>	<u>25</u>	<u>4</u>	<u>0.4</u>	<u>6</u>	<u>9</u>	<u>0.3</u>

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Table 65: Total Projected Program Savings by IOU (Net)

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		<u>SCG (Therms)</u>
		<u>Therms</u>
	<u>Building Codes Advocacy</u>	<u>3.5</u>
	<u>Appliance Standards Advocacy</u>	<u>1.5</u>
	<u>Compliance Improvement</u>	<u>0.2</u>
	<u>Reach Codes</u>	<u>0.2</u>
	<u>Total</u>	<u>5.4</u>

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Table 54 and Table 65 savings are calculated from the sum of first-year net savings from CEC proceeding that produces savings in 2013 and 2014.

4. Program Mission

The Codes and Standards (C&S) Program-program saves energy on behalf of ratepayers by directly influencing standards and code setting bodies to strengthen continuous improvements in energy efficiency regulations, by improving compliance with existing codes and standards, and working with local governments to develop ordinances that exceed statewide minimum requirements. Both the C&S program advocacy and compliance improvement activities extend to virtually all buildings and potentially any appliance in California.

The C&S Program-program conducts advocacy activities to improve building and appliance efficiency regulations. The principal audience is the California Energy Commission (CEC) which conducts periodic rulemakings, usually on a three-year cycle (for building regulations), to update building and appliance energy efficiency regulations. C&S also seeks to influence the United States Department of Energy (DOE) in setting national energy policy that impacts California.

In some cases we may seek to influence the state legislature and other state agencies like California Air Resources Board (CARB) to influence policy regarding buildings and appliances. We may explore ways to influence the US Congress outside the traditional means of negotiating through Federal partners such as American Council for an Energy Efficient Economy (ACEEE) or Appliance Standards Awareness Project (ASAP).

Codes And Standards Enhancement (CASE) studies, focused on energy efficiency improvements, are developed for promising design practices and technologies and presented to standards- and code-setting bodies. Advocacy also includes affirmative expert testimony at

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public workshops and hearings, participation in stakeholder meetings, ongoing communications with industry, and a variety of other support activities.

The program participates in DOE proceedings and legislative negotiations leading to federal regulations that are passed through to California; in particular, Title 20 appliance efficiency regulations that are the same as Federal regulations.

~~Extension of advocacy activities, in particular, include compliance improvement efforts carried out as continuing advocacy for codes or standards adopted as a result of the Program.~~

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Following adoption, C&S supports compliance improvement with both Title 24 building codes and Title 20 appliance standards.

~~Compliance Enhancement (CE) subprogram improvement activities — in that, these are not carried out as extension of complement the advocacy — include two elements based on the CPUC’s Evaluator’s Protocol for Code Compliance Enhancement Programs: 1) work by maximizing verified savings, ensuring that the measure-based element is aimed at full savings from codes and standards not adopted as a result of that are realized and persist over time. The Compliance Improvement subprogram targets market actors throughout the Program, similar to extension of advocacy efforts, and 2) the holistic entire compliance enhancement subprogram seeks chain, providing education, outreach, and technical support and resources to improve compliance with both the building department and appliance energy code enforcement processes from beginning to end standards. Compliance improvement responds to the CPUC’s interest in robust implementation of existing standards and support for the California Long Term Energy Efficiency Strategic Plan’s HVAC Big Bold strategies.~~

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The Program program carries out strategic activities that support or shape future codes and standards. In addition to mandatory minimum-level codes, the C&S Program program advocates for the development and implementation of “reach codes” that exceed minimum state code requirements and may be adopted by local jurisdictions or agencies. The Program program monitors and/or participates in a wide range of activities or proceedings that have direct or indirect impacts on California regulations including, but not limited to American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), international activities including involving Europe, Asia, Canada, and Australia, voluntary standards such as green building codes, and ratings organizations such as the Cool Roof Rating Council (CRRC), National Fenestration Rating Council (NFRC), and the United States Green Building Council (USGBC). Additionally, the program intervenes in Energy Star and other voluntary activities, as necessary, to shape future regulations or support coordination with voluntary programs.

The new Planning and Coordination subprogram expands the coordination role of the C&S program in the market adoption cycle for energy efficiency technologies and practices. As many of the measures offered through voluntary programs are adopted into the standards, C&S will coordinate both internally and externally to support a dynamic approach to portfolio planning with the objective of accelerating market acceptance and ultimately the adoption of successful, cost-effective technologies or practices into code. C&S will directly support the

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[goals and objectives of both the CA Long Term Energy Efficiency Strategic Plan and the Codes and Standards Action Plan currently under development, subject to budget constraints.](#)

A glossary of acronyms used in this document is provided at the end of the document.

5. Program Rationale and Expected Outcome

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a) ~~a)~~ Quantitative Baseline and Market Transformation Information

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Program Performance Metrics (PPMs)

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On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

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Below are the approved PPMs and metric types for the [Lighting Market Transformation Codes and Standards](#) Statewide Program (Resolution E-4385, Appendix A):

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SW PROGRAM/ Sub-program	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
CODES AND STANDARDS		
<i>Building Standards Advocacy</i>	1. Number of Residential and Commercial CASE studies, as defined in Building Standards Objectives 1 & 2 for which adoption by the CEC is anticipated by the IOUs, targeting efficient technologies practices and design in each of the following areas: lighting; HVAC; envelope; water heating; and cross-cutting measures in support of the following: (a) Integrated Design, including data management and automated diagnostic systems, with emphasis on HVAC aspects of Whole Building, (b) ZNE technologies, practices, and design in Residential Sector, (c) Peak efficient technologies including plug loads and HVAC technologies, (d) Advanced Lighting Technologies	2b
<i>Appliance Standards Advocacy</i>	1. Number of draft CASE Studies, as defined in Appliance Standards Objective 1, developed as mutually agreed upon by the CEC and IOUs in support of plug loads, refrigeration, advanced lighting, and/or other technologies that are adopted by the CEC, within authorized budget.	2b
<i>Compliance Enhancement</i>	1. Number of role-based, Title 24, training sessions delivered.	2a
<i>Reach Codes (RC)</i>	1. Number of jurisdictions in IOU Service territories with CEC approved Reach Codes in residential and/or commercial sectors as a result of the RC sub-program activities.	2b

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b) Market Transformation Information

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Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly funded intervention is no longer appropriate in that specific market.”² The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the

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² California Public Utilities Commission Decision, D.98-04-063, Appendix A.

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continuous transformation of markets around successive generations of new technologies.³

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Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures.⁴ Markets are social institutions,⁵ and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁶ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress.⁷ According to York,⁸ "Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy."⁹

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The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate—particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as

³ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁴ Pelozo, J., and York, D. (1999). "Market Transformation: A Guide for Program Developers." Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁵ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) "From technology transfer to market transformation". Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁶ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*, p. 6-4. Available at www.calmae.org.

⁷ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁸ York, D., (1999). "A Discussion and Critique of Market Transformation", Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>

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on the degree of successful market transformation⁹. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory¹⁰, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹¹. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹². The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers)."¹³ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁴, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁵. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy

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⁹ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

¹⁰ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹¹ Example in bottom chart of this graphic from NYTimes: http://www.nytimes.com/imagepages/2008/02/10/opinion/10op_graphic_ready.html

¹² Sebald et al (2001) p. 6-5.

¹³ Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

¹⁴ CPUC (2008) Strategic Plan, p. 5.

¹⁵ Nadel, Thorne, Sachs, Prindle & Elliot (2003).

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Center of Wisconsin's guide for MT program developers,¹⁶ suggests that the first step is not to set end point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

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As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

Market Transformation Indicators (MTIs)

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Resolution E 4385 identifies a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. These MTIs will be presented at a public workshop to allow for public comments and discussion before being finalized. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities.

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per Energy Division Guidance on June 19, 2012, the MTIs to be found in Attachment "H" are approved for this sub-program as applicable.

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¹⁶ Palouza & York, (1999).

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c) Program Design to Overcome Barriers

The statewide Codes and Standards Program has ~~four~~^{five} subprograms including:

- ~~i. 1) Building Energy Codes; Advocacy, Extension of Advocacy (EOA) and CASE Studies~~
- ~~ii. 2) Appliance Standards; Advocacy, Extension of Advocacy and CASE Studies~~
- ~~iii. 3) Compliance Enhancement (CE); Measure Based and Holistic Improvement~~
- ~~iv. 4) Reach Codes (RC); Local Government Ordinances and Green Building Standards~~
- ~~v. 5) Planning and Coordination~~

Building Code and Appliance Standards Advocacy Subprograms

~~Codes and standards~~ & S advocacy comprises a portfolio level strategy that complements incentive and information offerings in several ways. Since IOU incentive and rebate programs typically capture only a small percentage of the market, a transition to regulatory intervention is essential to maximize portfolio energy savings. This transition to code causes a once high-margin product to become an industry standard; thereby reducing the overall cost to society for energy efficiency. This commoditization effect, in turn, spurs innovation for new high-margin products since most manufacturers and other industry practitioners seek to compete in part on high-margin differentiated products.

As involuntary interventions, codes and standards are effective at breaking down market barriers such as split incentives between building owners and tenants that are difficult to overcome through incentive and information programs. Minimum code requirements direct consumers', builder's and renovation contractor's choices of materials and appliances to higher efficiency products, thereby reducing monthly energy bills to tenants. Regulations also improve equity in benefits from IOU customer investments in energy efficiency through rates. Through codes and standards, positive changes initiated through voluntary programs targeting early adopters are extended to all customers. Hence, hard-to-reach groups that do not participate in voluntary offerings benefit through C&S codes and standards.

Baselines for building and appliance advocacy activities are developed in two ways. If the objective of a code proposal is to update an existing standard, the baseline is simply the existing standard. If the objective is a new standard, which expands the scope of building or appliance efficiency regulations, the baseline is established through market characterization studies prior to or during the development of the CASE study unless a recent preexisting market characterization study can be found. Hence, baselines for new standards often do not exist until a draft CASE study is complete.

IOU support for recent CEC code upgrade cycles – in particular, the 2003, 2004, 2006, and 2008 CEC proceedings – for new building codes and appliance standards has significantly

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increased the rate of change in regulations compared to previous code cycles. Moreover, the scope of regulations has grown to include Title-24 alterations for measures such as duct sealing when replacing HVAC system components, and numerous appliances have been added to Title-20. These changes have created a significant need to ~~extend advocacy efforts to improve~~ support the successful implementation of the standards by improving industry awareness and understanding of California regulations.

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~~Extension of advocacy (EOA) As compliance improvement~~ efforts are carried out to improve the rate-of-compliance -- with ~~building codes or appliance standards Title 24 and Title 20 as inputs to savings calculations for standards adopted as a result of the C&S Program. Hence,~~ the benefits of ~~EOA activities~~ the increase in compliance are captured in the Advocacy subprogram savings, as part of the verified C&S Program program energy savings. ~~Determination of compliance improvement savings requires that P~~ programs savings ~~must~~ be recalculated periodically based on recurring CPUC evaluations that ~~include rate-of compliance rates. ; however, since program attribution is based on attribution factors for code adoption that extends to compliance improvement, evaluation of changes in rates of compliance excludes additional attribution factors.~~

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~~The enabling assumptions for EOA efforts are as follows. CPUC compliance evaluations will be conducted at least once during each program cycle and the IOU's will receive full credit for savings. Evaluators must sample at technology level for T 20, mandatory T 24 measures, and prescriptive measures when a prescriptive compliance approach is used. Evaluators sample at the whole building level when performance approach is used, with mandatory measures evaluated in sufficient detail to capture energy impacts. Evaluation must be sensitive to variations across state and in time.~~

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~~In May 2007, Quantec and the Benningfield Group published an evaluation of C&S advocacy efforts, the "Statewide Codes and Standards Market Adoption and Noncompliance Rates," in part to refine estimates of noncompliance rates assumed for 2003 and 2004 C&S advocacy measures adopted as a result of the Program; however, at the time of this writing, The Cadmus Group is reevaluating compliance rates. Baseline metrics will be established based on The Cadmus Group's reevaluation and target improvement metrics will be determined from new baseline metrics and additional evaluation. The CPUC is expected to conduct another evaluation at or shortly after the end of the 2010-2012 program cycle to, once again, adjust savings for 2005 advocacy measures.~~

Compliance Enhancement (CE) Improvement (CI) Subprogram

Compliance improvement is increasingly important to the energy efficiency industry in California. Having supported the commercialization of efficient technologies and practices through IOU incentive and rebate programs, achieving satisfactory compliance is a crucial requirement for capturing market change for the long-term benefit of society. Broad compliance is necessary to level the playing field for well-intentioned suppliers and

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contractors who are otherwise faced with a competitive disadvantage when complying with regulations. Greater compliance strengthens voluntary program baselines, provides a solid foundation for future robust advocacy efforts, and improves throughput of California's energy efficiency industry by removing an industry bottleneck.

The primary barriers to compliance improvement with the building standards include the complexity of the standards and limited resources available for enforcement by local governments and the CEC. Although education and training are not substitutes for enforcement, they increase compliance rates by generating awareness and improving understanding of regulations, and by equipping key market actors in the compliance supply chain with the tools and knowledge necessary for compliance. The CI subprogram will offer training and resources to market actors throughout the compliance delivery chain, which may include, but is not limited to energy consultants, building department staff, contractors, and design professionals.

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In addition, the CI subprogram will work with local government and other industry partners to provide technical support and other resources, such as process improvement tools. The CI subprogram will document best practices and lessons learned from the Best Practices study completed in 2012, and will work with California Building Officials (CALBO), CEC, and local government partners to encourage other jurisdictions to adopt successful practices and tools identified during the pilot project. By encouraging more jurisdictions to use the same or similar processes, tools and forms where possible, compliance will be simpler for market actors, as enforcement will become more consistent.

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The CE subprogram, whose primary purpose is to increase the number of customers complying with code,⁴² is based on the Code Compliance Enhancement Programs Protocol featured on pages 100-103 of *California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals*. Per the evaluator's protocols, Compliance Enhancement Programs require a separate program theory and logic model, and before and after measurements of compliance rates. Hence, a separate logic model for the CE subprogram is included at the end of this document. This subprogram has two elements including measure specific and holistic.

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The measure specific element of the Compliance Enhancement Subprogram includes measures for existing regulations not adopted as a result of the program; for example, these include pre-2005 Title 24 or Federal standards for which no credit for advocacy is expected. IOUs propose that this element be similar to measure specific extension of advocacy efforts with respect to evaluation.

Enabling assumptions include the following. CPUC evaluators will conduct an ex ante evaluation in 2009 and an ex post study in 2012 of measures included in this subprogram. Evaluations will include sampling at technology level for T-20, mandatory T-24 measures, and prescriptive measures when a prescriptive compliance approach is used. Evaluators

⁴² [CPUC] California Public Utilities Commission, April 2006. *California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals*.

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~~sample at the whole building level when performance approach is used; however, mandatory measures are evaluated in sufficient detail to capture energy impacts. Evaluation accounts for variations across the state and in time. Verified energy savings are calculated based on the difference in measure compliance rates before and after implementation. Following the initial ex post evaluation, recurring CPUC evaluations must be conducted at least once each program cycle for measures included in future work.~~

~~The Code Compliance Enhancement Programs Protocol, used to evaluate compliance enhancement programs, also includes a correction for naturally occurring compliance (the compliance that occurs without program intervention) that IOUs recommend be deleted. This recommendation stems from the belief that the savings at risk are small since the rate of change in compliance “flattens out” soon after a code or standard becomes effective. Defining “natural” may be subjective and attribution parameters may be complex and costly to evaluate. Parsing out attribution gets in the way of a more important objective to work cooperatively with all California stakeholders.~~

~~The holistic element of the CE~~~~The CI~~ subprogram supports proactive building departments that seek general improvements to operations and compliance improvement processes; ~~as such, this element complements measure-based activities. The holistic element will be implemented initially as a pilot program. The rationale behind the holistic element. The rationale~~ is based on the recognition that building departments are facing increased economic pressures and resource constraints, with no reduction in the required workloads. Given that this trend is unlikely to change in the near future, utility assistance in improving the efficiency of building department enforcement processes will effectively provide the jurisdiction with more resources to increase compliance rates. ~~The IOUs anticipate working with approximately twelve building departments collectively to develop process improvement interventions including, but not limited to, role-based training and tools customized in accordance with program theory by market actor type and jurisdiction.~~

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~~The holistic element will identify and screen potential partners based on several criteria. One of the primary characteristics of process pilot partners is jurisdictions that have building stock characteristics that meet the program objectives. For example, one jurisdiction might have a high growth rate, thus a high volume of both residential and nonresidential new construction. Another example might include a jurisdiction with a high cooling load and a high volume of HVAC related activity and/or contractors. Still another might be mostly built-out, with a majority of the building activity devoted to remodels or renovations. Any criteria used will be established by the program in collaboration with the CPUC, with provisions for clarity and consistency in application, and documentation of these criteria.~~

~~The holistic element also requires support from the partners at multiple levels including the Chief Building Official and the mayor or city council. At a minimum, the building department staff must be interested in and have the ability to test new tools or processes. The support might take many different forms, including allowing access to building~~

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department staff, and permit and inspection records, or officially setting optimizing compliance as a high priority for the jurisdiction.

The holistic element process improvement activities include conducting a comprehensive needs assessment/gap analysis by interviewing staff, reviewing permitting and inspection processes, tracking and documentation, internal communications as projects move toward completion, and available tools and resources and how they are currently used. The Program CI subprogram will identify and create tools to help optimize existing processes and simplify enforcement and work with staff to test and modify the tools as necessary. Tools might include, but are not limited to, electronic forms, tracking software, or implementing online permitting and payment methods.

The holistic element will also offer staff and local market actor training and resources, and will document best practices and lessons learned in each jurisdiction. The Program will work with California Building Officials (CALBO), CEC, and local government partners to encourage other jurisdictions to adopt successful practices and tools identified during the pilot. By encouraging more jurisdictions to use the same or similar processes, tools and forms where possible, compliance will be simpler for market actors, as enforcement will become more consistent.

In addition to supporting the CPUC's impact evaluation, which will involve establishing pre- and post-program compliance rates per participating jurisdiction, the IOUs will document training and process improvement to other efforts employed per jurisdiction, administer pre- and post-tests to gauge training participants' knowledge swing, and gather and measure implementation of action plans from participating building departments.

Reach Codes (RC) Subprogram

The Reach Codes RC subprogram will develop focus primarily on developing and/or supporting the development of reach codes, or locally adopted ordinances, that exceed statewide minimum requirements. Reach codes are typically codes adopted by local governments and provide a means to test new codes as well as testing the efficacy of increasing the stringency of existing codes at a local level prior to disseminating the code on a statewide basis. Each jurisdiction's experience with local codes can be used to inform the state's process by documenting both the successes and barriers faced for both adoption and implementation. The RC subprogram will encourage local governments to first optimize compliance with existing codes, and will provide training and resources where applicable.

The Reach Codes subprogram relies on a demand-side philosophy, similar to the general philosophy guiding all other energy efficiency activities. Rather than looking first to supply-side options (new codes), the program asks two standard DSM questions to frame the discussion. The answer to the first question, "What do we want?" is the easiest—more energy savings. However, the answer to the second question, "How do we get it most efficiently?" is less obvious. In response, many local governments IOUs have adopted reach codes to directly increase the efficiency of new buildings within their jurisdiction, or

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in some cases just the buildings owned by the local government. However, based upon the most recent Codes and Standards EM&V report, (Quantee study performed in May 2007), the non-compliance rate worked with the existing 2003 code is approximately 25-30%, leaving a tremendous amount of savings on the table. What many local governments are not aware of is that there are significant savings available from optimizing compliance with the existing code that likely exceeds the potential savings available through adopting a reach code. The most immediate, cost-effective way to obtain more energy savings and reduce the carbon footprint of each jurisdiction is to optimize compliance with the existing code.

The Program will encourage all local governments to first optimize compliance with existing codes. In addition to the biggest savings opportunity, sub-optimal compliance with the existing code will erode potential savings from a new code. The reach code subprogram is designed to facilitate mutual support from the utilities and local governments to realize the full savings potential from codes, both statewide, and at a local level. The IOUs will request that prior to adopting any new codes, building department staff attend role-based training as well as relevant measure-specific training (HVAC replacements, controls under skylights), and to identify, implement and document two actions designed to increase compliance. Examples might include: conducting outreach to market actors in the community, adding or expanding on-line services, providing a financial incentive to those who submit required compliance documents, or offering rewards such as expedited plan check services for contractors with high compliance rates. Incentive programs may also require acceptance testing to improve energy savings from installed equipment and provide incentives to contractors to participate in advanced hands on training. Observations of contractor performance at the hands on training can in turn be used to improve the acceptance test methods or materials for the next round of standards.

Many local governments, eager to act in the absence of federal leadership, have passed local jurisdictions (cities, counties, school districts, colleges and universities, etc.) to implement a more coordinated approach to development and implementation of local ordinances that are more stringent than minimum state requirements. While the intention is honorable, the volume and variety of codes has resulted in an extremely inconsistent structure that changes frequently, making it nearly impossible to track or learn. A contractor, designer or builder working within a single county might have to comply with ten different energy or green building codes, depending on which city a project is in, and whether it's in or outside of city limits. This kind of fragmentation causes to minimize market actor confusion and even contempt for the code, resulting in resistance from both the market actors and enforcement personnel, and ultimately lower compliance rates. The IOUs propose a coordinated development approach have and will continue to promote regionally consistent ordinances where possible to reduce the wasted energy and cost resulting from duplication of efforts. In addition that results when individual government entities develop the language and technical supporting documentation independently. This duplication can even occur in regional government organizations whose geographical boundaries aren't consistent with the CEC's climate zone designations. Lastly, coordinated development provides better staging for statewide adoption, leverage

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for local ~~governments jurisdictions~~ to encourage adoption, and increases the likelihood of adoption and compliance.

~~The program will work with interested local governments as well as others including, but not limited to, IOU voluntary rebate programs, CEC, Building Standards Commission, the Local Government Commission (LGC), IOU green or sustainable communities programs, regional local government associations, and organizations that promote green building rating systems, to identify characteristics of reach codes that meet the needs of the majority of jurisdictions. The Working with local jurisdictions and other market actors, the IOUs will then develop a package of climate-zone based reach codes for both new construction and as well as some existing buildings (at time of sale). The IOUs will submit continue to work closely with the package CEC to expedite the CEC to obtain pre-review and approval as required process and to eliminated drastically reduce local government development costs and facilitate subsequent adoption of the code(s). At present, there are approximately a dozen local jurisdictions with reach code ordinances surpassing Title 24 2005 approved by the CEC, all of which are different. Going forward, there is an opportunity to develop a pre approved reach code based upon surpassing Title 24 2008. Reach codes may also include codes targeting government-owned buildings or particular activities such as commissioning.~~

The main enabling assumption for the ~~Reach Code RC~~ subprogram is ~~a continuation of the resolution of an outstanding CPUC policy issue related to efficiency activities undertaken as a result of legislative or other policies. Current thinking on this topic presumes directive that any action required to meet a code or standard is not eligible for incentives and rebates. Thus, the allows constituents of ain jurisdictions with local government that passed a reach code could not obtain financial assistance from utility incentive and rebate ord in ances to participate in voluntary programs to help meet that code, as they would be without being classified as free riders.~~

~~The CPUC, along with utilities and local governments recognize that this policy may have unintended consequences is necessary, especially in light of the long-term strategic policies that must be implemented to reduce California's Green House Gas (GHG) emissions sufficiently to meet statewide reduction goals as set forth by AB32. The Otherwise, the effective result, of the current interpretation of the policy, "punishes" innovators and market leaders by eliminating access to incentive and rebate programs to assist these leaders in achieving additional energy savings. In most cases, reach codes were are adopted based upon the expectation of continuing eligibility for incentives and rebates.~~

The program assumes that citizens of a jurisdiction or agency that passes a reach code ~~continue to~~ be deemed eligible participants in incentive and rebate programs administered under the auspices of the CPUC, consistent with the treatment of California-owned buildings responding to ~~the Governor's Governor's Executive Order Orders (S-20-04 and B-18-12)~~ requiring state buildings to reduce energy usage by 20% by 2015. This interpretation can set up a positive energy efficiency feedback loop wherein participation in incentive and rebate programs increases because of the reach code, and the availability of

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incentives and rebates to assist code compliance encourages more local governments to adopt a reach code.

Baselines: For new construction (including renovations, additions, and replacements) reach codes, the IOUs assume Title 24 as the baseline. A Title 24 baseline provides a conservative savings estimate, is consistent with new construction incentive programs, and eliminates any potential overlap with the [Extension of Advocacy Compliance Improvement](#) savings claims.

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Time-of-Sale (TOS) reach codes for existing buildings assume that no energy actions are undertaken absent the code. There are currently only two TOS codes that the program is aware of in California. The scopes are both very limited, and in at least one case, the code is not routinely enforced. Therefore, assuming that building owners do not undertake any energy efficiency retrofits at TOS absent a specific requirement is a reasonable assumption consistent with the rationale for the proposed new construction reach code baseline.

Enabling assumptions include a "shared savings" claim mechanism for attributing savings impacts resulting from reach codes. In a jurisdiction with a reach code, savings resulting from participants in the relevant incentive or rebate program (new construction or retrofit) will be claimed by that program, consistent with current practice. Savings resulting from completed projects that do not participate in an incentive or rebate program will be claimed by either the Codes and Standards or Government Partnership programs if one is extant.

In addition to local governments, various agencies such as school districts, colleges, universities, and industry groups are adopting reach-code policies. Examples include:

- CHPS (Collaborative for High Performance Schools) as adopted by school districts
- Green building requirements adopted by the UC, CSU, and community college districts
- LEED and GreenPoint Rated as adopted by various agencies, builders and jurisdictions
- ASHRAE Standard 189: High Performance Green Buildings, is expected to be adopted by agencies and local jurisdictions

In many cases, the IOUs were involved in the development, adoption, and deployment of these reach code programs. The primary intent of the IOUs involvement was to increase participation in EE programs. The impact of these programs needs to be recognized in the evaluation process as they tend to raise the baseline for code compliance for program participants and non-participants. For example, the baseline for schools in a district with a CHPS policy resolution may have a much higher efficiency baseline as a result of the efforts of the IOU from participation in both the Savings By Design program and CHPS even though there was no legal requirement to exceed the code.

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Going forward, the C&S [Program-program](#) will be working on the development of new and updated reach code rating systems, standards, guidelines, most of which be based upon the new Title 24 [2008 standards](#). These reach codes [programs](#) are expected to be adopted and implemented with the support of the [IOU-C&S Program-program](#) by various agencies, institutions, and building associations. Although there have been cases where the mere adoption of reach code programs have little to no impact, there have been a number of cases where significant savings have been verified.

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Examples of where verification processes are in place include the CHPS Verified program and the CHPS deployment at Los Angeles Unified School District (LAUSD). The CHPS Verified program (http://chps.net/chps_schools/Verified.htm) provides project review, design review, and construction review of school projects to verify compliance with CHPS requirements. This is a fee-for-service program that provides a rigorous review of the project prior to Department of State Architect (DSA) plan review which generally results in the overall reduction in time and cost for the school design and construction process. In the case of LAUSD, the District worked with consultants (including Global Green) to integrate CHPS into their internal quality assurance process that involved the design teams and all LAUSD design, construction review, and maintenance and operations staff. The C&S [Program-program](#) proposes to review these and similar compliance improvement programs and processes and will implement them accordingly to maximize the energy savings associated with the reach code programs.

To the extent that the C&S [Program-program](#) is able to increase compliance with these reach code programs, the resulting savings should be reflected in buildings that result in above-code performance. In addition, to the extent that the IOUs were and will be involved with the development and deployment of these reach-code programs, the energy savings should be treated similarly to the reach code ordinances adopted by local government jurisdictions.

Based upon precedents that allow eligibility for above-code incentives for state and federal agencies with executive orders (e.g., Governor's Executive Order (S-20-04, [recently replaced by B-18-12](#)) requiring state buildings to reduce energy usage by 20% by 2015) for mandatory above code construction of their buildings, the IOUs propose [similar treatment continuing the policy](#) of [treating](#) these reach code policies [in a similar manner](#).

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Planning and Coordination Subprogram

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[The ambitious goals set by the CPUC and CEC require the participation of many different entities. Without proactive coordination, it will be difficult if not impossible to fully realize the savings from the C&S program activities as well as other programs. The C&S program will facilitate coordination and develop and implement a strategic vision to promote and advance cost-effective technologies.](#)

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[The Planning and Coordination subprogram will work with the CEC, CPUC, emerging technologies, as well as voluntary programs to create a strategic approach for key measures](#)

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and technologies in support of the Zero Net Energy (ZNE) and other policy goals. For those key technologies, the C&S program will strive to work with other programs to commercialize them for adoption into a relevant code or standard.

The Planning and Coordination subprogram will also work with other programs and market actors to improve code compliance, conduct more outreach and solicit additional input on code enhancement proposals from impacted industries. As part of the expanded outreach and communications efforts, the C&S program will establish and maintain a codes and standards collaborative, and will continue to facilitate the Compliance Advisory Group. In addition, the C&S program will maintain regular contact with state and federal code-setting agencies to minimize duplication of efforts and coordinate activities.

d) Advancing Strategic Plan Goals and Objectives

Through the C&S ~~Program program~~, SoCalGas, SDG&E, SCE and PG&E will combine advocacy, compliance ~~enhancement; improvement~~ and reach code development efforts to meet the codes and standards goals defined in the Strategic Plan in ~~section Section 7seven~~. Please see ~~s~~Section 6 for the specific action strategies the IOUs will employ in order to meet the Strategic Plan's codes and standards goals.

Due to the long code upgrade cycle, the process of developing CASE and research studies may extend past the end of the program cycle; therefore, funding committed prior to the end of 2011 will be available for four years thereafter to fund these studies. This might entail moving the committed funds forward into subsequent program cycles until these studies are completed.

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6. Program Goals, Objectives and Action Strategies

a) ~~a)~~ Subprogram Descriptions

The ~~statewide Codes and Standards~~C&S Program program has ~~four~~consists of five subprograms ~~including:~~

~~1)~~ Building Codes; Advocacy; ~~Extension of Advocacy and CASE Studies; Appliance Standards Advocacy; Compliance Improvement; Reach Codes; and, Planning and Coordination.~~

i. ~~1.~~ Building Codes Advocacy Subprogram

The Building Energy Codes Advocacy subprogram primarily targets improvements to Title 24 Building Efficiency Regulations that are periodically updated by the California Energy Commission (CEC). The subprogram also seeks changes to national building codes that impact CA building codes. Advocacy activities include, but are not limited

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to, development of code enhancement proposals and participation in public rulemaking processes. The subprogram ~~may will~~ coordinate ~~with or engage with~~ ~~intervene in~~ ratings organizations that are referenced in Title 24; for example, the National Fenestration Rating Council, and the Cool Roof Rating Council.

ii. ~~2.~~ Appliance Standards; Advocacy; Subprogram

The Appliance Standards Advocacy subprogram targets both state and federal standards and test methods: improvements to Title 20 Appliance Efficiency Regulations by the CEC, and improvements to Federal appliance regulations by the US Department of Energy. Advocacy activities include, but are not limited to, development of code enhancement proposals and participation in the public rulemaking process (Title 20), and comment letters based on IOU research and analysis (USDOE), participation in direct negotiations with industry, and development of quasi-mandatory appliance standards reach codes. Additionally, the subprogram monitors state and federal legislation and intervenes, as appropriate.

iii. ~~3.~~ Compliance Improvement

The Compliance Improvement subprogram is a new subprogram that combines the previous Extension of Advocacy and ~~CASE Studies~~ Compliance Enhancement subprograms. It provides education, training, and other activities targeting building departments and other industry actors responsible for compliance with Building Energy Code and Appliance Standards requirements. Activities may include development of "best practices tools" and other infrastructure elements that serve multiple compliance improvement objectives.

~~3)~~ Compliance Enhancement: Measure-Based and Holistic

~~4)~~ Reach Codes; v. ~~Local Government Ordinances and Green Building Standards~~ Reach Codes

The Reach Codes subprogram provides technical support to local governments that wish to adopt ordinances that exceed statewide Title 24 minimum energy efficiency requirements for new buildings, additions, or alterations. Support for local governments includes research and analysis for establishing performance levels relative to Title 24 and cost effectiveness per Climate Zone, drafting of model ordinance templates for regional consistency, and assistance for completing and expediting the application process required for approval by the CEC. The subprogram also supports local governments that seek to establish residential or commercial energy conservation ordinances for existing buildings.

~~5v.~~ Planning and Coordination

The Planning and Coordination Subprogram provides a formal process that ~~aligns~~ supports planning activities that improve alignment across the IOU energy efficiency portfolio with respect to future ~~within the~~ C&S program activities. This subprogram supports efforts to prepare the market for future code adoption (i.e.,

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improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving zero net energy.

b) Program Goals and Activities

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In general, the goals of the C&S Program-program are the same as the two C&S goals defined in the C&S section of the Strategic Plan. Through the Advocacy subprograms, the IOUs will strive to continually strengthen and expand building and appliance codes and standards as IOU efforts reveals greater efficiency opportunities and compelling economic benefits. Through the Compliance EnhancementImprovement subprogram, the IOUs will strive to improve code compliance using through education and outreach, and other technical resources. IOUs will also develop reach codes local ordinances and facilitate their adoption and implementation in motivated communities.

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- Strategic Plan Codes and Standards Goal #1: Continually strengthen and expand building and appliance codes and standards as market experience reveals greater efficiency opportunities and compelling economic benefits. (Subprograms 1 and 2: Building Codes and Appliance Standards Advocacy).
- Strategic Plan Codes and Standards Goal #2: Improve code compliance and enforcement. (Subprograms 3 and 4: Compliance Improvement and Reach Codes).

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The following sections provide a description of the proposed C&S subprogram activities which will lead to achieving the program goals.

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Building Codes Advocacy

The Building Codes Advocacy program will continue conducting many of the same activities as were conducted in the 2010 – 2012 program cycle, but will focus on the upcoming 2016 Title 24 Energy Building Code cycle. In addition, the Building Energy Codes Advocacy subprogram will expand activities at the national level. Primary activities for 2013-2014 include the following:

2013 Title 24 Building Codes

- Support implementation of adopted 2013 Energy Building Code:
 - Complete revisions to compliance manuals and forms.

2016 Title 24 Building Codes

- Prepare CASE studies in coordination with CEC:
 - Conduct research for 2016 building code advocacy to advance State policy goals.
 - Support activities to address Department of Finance review requirements.
 - Research residential ventilation / IAQ requirements to reduce and control infiltration while maintaining and improving indoor air quality.

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- Research and advocate methods to remove code barriers to the increased use of renewable energy in support of ZNE goals.
- Support development of 2016 compliance software.

Appliance Standards Advocacy

The Appliance Standards Advocacy subprogram will continue conducting many of the same activities as were conducted in the 2010–2012 program cycle, but will focus on preparing new measures pursuant to CEC’s adopted Order Instituting Rulemaking (OIR) for Title 20 Appliance Standards and U.S. Department of Energy’s ongoing rulemaking for Federal Appliance Standards. Primary activities for 2013-2014 include the following:

Title 20 Appliance Standards Rulemaking

- Prepare CASE studies pursuant to CEC’s adopted OIR:
 - Advocate and provide public testimony in State public proceedings
 - Conduct research and testing and submit supporting market and technical data to the CEC
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which CEC eventually adopts)
 - Develop ~~voluntary agreements or reach standards~~ quasi-mandatory reach codes that are voluntary with respect to participation, but require CEC certification if a supplier chooses to participate.

Federal Appliance Standards Rulemaking

- Provide support to DOE rulemaking process:
 - Advocate and provide public testimony in Federal public proceedings.
 - Submit supporting market and technical data to the Department of Energy (DOE).
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which DOE eventually adopts).
 - Develop voluntary agreements or reach standards.

Compliance Improvement

For the 2013-2014 program cycle, the combines the former Extension of Advocacy and Compliance Enhancement Program activities into one Compliance Improvement subprogram to enhance understanding of program objectives and activities. The subprogram will strive to improve compliance with Title 24 and Title 20 standards while

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implementing an effective sector strategy with the Workforce Education and Training (WE&T) Program. Primary activities for 2013-2014 include the following:

Title 24 Compliance

- Title 24 Standards Essentials Role-Based training for building inspectors:
 - Continue delivering training to plans examiners and energy consultants. Update curriculum to cover what is new in the 2013 code. *(per OP 93)*
 - Expand role-based training curriculum to additional compliance improvement market actors such as the building trades and design professionals as guided by needs assessment.

- HVAC Quality Installation and Other Programs with Direct Code Requirements
 - Identify opportunities to insert code compliance modules in existing curriculum, such as training required for technicians.

- Online Compliance Training:
 - Explore training delivery mechanisms beyond the traditional classroom to include live webinars, activity-based online training, and in-field demonstrations.

- Tools and Process Improvements:
 - Implement tools and process improvements as identified through the building department best practices study and the Compliance Improvement Advisory Group (CIAG).

- Forms and Compliance Documents:
 - Support development of improved forms and compliance-related documentation for 2013 Title 24.

- Compliance Improvement Incentives:
 - Explore a pilot project designed to improve compliance by providing incentives to local governments, contractors, or other key market actors. The pilot will be based on the CIAG's guidance and may include nonmonetary incentives such as training or provision of tools designed to streamline the permitting and inspection processes for building additions and alterations. *(per OP 94)*

- Target Low Compliance Problem Areas:

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- Collaborate with the CEC to identify problem areas and potential compliance improvement solutions through white papers developed by CIAG members. ~~(per OP 95)~~
- Consider pilot project to improve compliance for measures with known challenges, which may include providing incentives to contractors for pulling permits, or motivation for other market actors. ~~(per OP 95)~~
- Develop and Conduct Outreach Campaign to Improve Compliance:
 - Collaborate with the CEC to develop and implement an outreach campaign designed to improve compliance with Title 24 and Title 20 standards. The campaign will be based on the CIAG's guidance and may include activities such as developing flyers for contractors to provide to potential customers explaining the code requirements and benefits, mini measure-based code seminars for big box store employees, etc. ~~(per OP 93)~~
- CEA exam development, facilitation support, and maintenance
 - Collaborate with the California Association of Building Energy Consultants to improve the working knowledge, skills, analytic ability and accountability of individuals using energy compliance software and preparing the appropriate Title 24 documentation for permit submittal. The C&S program will support updating the beta Residential and Nonresidential CEA examinations developed in 2010-2012 to properly test applicant CEAs under the 2013 standards and facilitating the roll out of the new certification process.

Title 20 and Federal Standards Compliance

- Surveys and Technical Support:
 - Conduct surveys and provide technical support to CEC and industry to facilitate compliance.
- Education and Outreach:
 - Collaborate with CEC on implementing an education and outreach campaign targeted to distributors, retailers, contractors, and possibly consumers. ~~(OP 93)~~

Reach Codes

For the 2013-2014 program cycle, the IOUs will continue to collaborate with the CEC and Local Government Partnership Program to identify, and provide technical assistance to, local jurisdictions interested in adopting reach codes. In addition, the IOUs will continue

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to collaborate with CEC to provide support for developing voluntary standards to encourage buildings to achieve exemplary performance in the areas of energy efficiency. Primary Reach Code subprogram activities for 2013-2014 include the following:

Reach Code Technical Assistance

- Cost Effectiveness Studies:
 - Prepare Cost Effectiveness studies for each of the California climate zones (to be updated for 2013 Energy Building Code) that have been vetted with the CEC, resulting in expedited CEC review of reach code application submittals.
- Policy Guidelines:
 - Provide a “Road Map” of Policy Guidelines for adopting Reach Code including an overview of some of the implications and important choices in writing and adopting these types of ordinances, and recommendations intended to improve implementation and compliance.
- Ordinance Template:
 - Provide a Reach Code Ordinance “template” that establishes clear definitions of when the ordinance is triggered, including CEC-required language which states that all buildings shall meet all applicable requirements of the Building Energy Code.
- Workshops & Presentations:
 - Facilitate public workshops and presentations to interested stakeholders including elected officials, city staff, industry organizations, and community groups that address the following:
 - Critical role that energy efficiency plays in reducing greenhouse gas emissions
 - Understand how Reach Codes and complementary new construction incentive programs such as the California Advanced Homes (CAHP) program help meet CalGreen’s voluntary Tier 1 and Tier 2 Energy requirements, accelerate advancement of zero net energy building practices, and mitigate project-level GHG impacts pursuant to CEQA requirements.
 - Explain the process for developing and adopting a legally enforceable reach code pursuant to CEC requirements
 - Work with industry organizations and other market actors to conduct outreach to local governments to inform them of available reach code assistance.

Local ordinances may be structured in several ways, and often vary in scope, requirements, and triggers. The C&S team will encourage local governments to adopt regionally consistent ordinances where feasible to reduce potential market confusion. However, differing circumstances in each jurisdiction may require them to pursue different avenues.

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For example, ordinances may be limited to energy issues only, or may be more comprehensive, also including other green building measures. Some examples of typical variations in ordinances include the following:

- Scope and Triggers: Local ordinances may include residential, nonresidential, or municipal buildings, or any combination of the above. Many local ordinance requirements apply to new construction only, while others also include remodels. Triggers may include project size, scope, or value.
- Requirements: Local ordinances typically specify a particular level of performance, allowing builders and designers to achieve the desired performance using a combination of measures and technologies that are appropriate for the project. Many local ordinances specify that covered projects exceed state requirements by a specific percentage (15% was the most common requirement relative to the 2008 Standards). In addition, local ordinances may require projects to meet CalGreen Tier 1 or Tier 2 advanced efficiency levels as well as the non-energy portions of CALGreen. Another common structure employed by many local governments is to require buildings to obtain certification from a relevant green building rating system such as LEED or Build It Green. This structure allows the jurisdiction to leverage the documentation and verification requirements inherent in these systems, thus reducing the verification burden on the building department.

Planning and Coordination (Non-Resource Subprogram)

The Planning and Coordination subprogram establishes a formal process that dynamically aligns planning activities across the IOU energy efficiency portfolio within the C&S program activities. The Planning and Coordination subprogram supports planning activities that improve alignment across the IOU energy efficiency portfolio with respect to future C&S program activities.

The C&S staff will coordinate with IOU energy efficiency portfolio programs to support efforts to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving zero net energy.

This subprogram will consist of four elements: 1) Strategic planning and coordination; 2) Outreach within each IOU to other program areas; 3) Statewide planning and coordination; and, 4) Workforce education and training. Primary activities for 2013-2014 include the following:

Strategic Planning (per OP 91)

- Codes and Standards Collaborative:
 - Maintain a Codes and Standards Collaborative to conduct strategic planning.
- Code Readiness:

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- Establish cross-functional teams, including representatives from voluntary programs (incentive, emerging technologies, and education and training), the CPUC, and the CEC, will be established to identify code readiness priorities relative to policy goals, for example: zero net energy, AB 1109, and other Action Plan objectives.

Internal Coordination and Communications

- Periodic Meetings:
 - Conduct a variety of internal coordination activities based on respective needs of each IOU, including periodic meetings with program leads in other areas as well as management teams.
- Ongoing Communication:
 - Inform planners and support groups regarding future code changes, collaboration on evaluation and regulatory matters.
 - Solicit input from other groups re advocacy efforts, aligning education and training activities with incentive programs.

Statewide Collaboration

- Integrated Dynamic Approach to Portfolio Planning:
 - To support the state's zero net energy objectives, the C&S team will work closely with new construction programs to develop an integrated approach to align new construction program offerings with base code requirements as well as reach codes where possible.
 - The C&S team will work with core retrofit programs as well as local government partnerships and third parties to coordinate offerings with anticipated code changes. *(per OP 91, 152)*
- CPUC Communication:
 - Conduct monthly calls with CPUC personnel to share progress and discuss issues. *(per OP 91)*
- CEC Communication:
 - Maintain statewide weekly calls with CEC staff regarding building codes and appliance standards. *(per OP 91)*
- National Stakeholders Communication:

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- Conduct regular conference calls with national stakeholders regarding appliance standards. (per OP 91)
- Compliance Advisory Group Communication:
 - Host quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities. (per OP 91, 152)
- Local Government Partnership Communication:
 - Provide quarterly updates to Local Government Partnership Program regarding reach code adoption progress and delivery of training to building departments.

Workforce Education and Training (WE&T)

- Sector Strategies for WE&T:

The C&S and WE&T teams will meet periodically to coordinate activities that will enhance support for the appropriate market actor roles responsible for new and emerging codes and standards implementation according to priorities established by needs assessments. The C&S program will collaborate with the WE&T Centergies subprogram to not only prepare contractors and technicians to implement current codes, but to also prepare them with technical training on advanced technologies that are projected to become part of reach codes and then the statewide code. (per OP 92 and OP 152)

c) Program objectives (more specific milestones to be achieved to accomplish the goals)

▲ See Codes and Standards Alignment with Strategic Plan narrative and table below.

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d) Program action strategies that will be used to implement the goals

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e) Program outputs (measurable results of the program linked to the action strategies)

▲ See Codes and Standards Alignment with Strategic Plan narrative and table below.

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Codes and Standards Alignment with Strategic Plan

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The following narrative and table details the specific actions the C&S Program-program will use to carry out the C&S goals defined in the Strategic Plan and the program outputs linked to each action strategy.

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In addition to striving to meet the two codes and standards C&S goals defined in the Strategic Plan, the IOUs will work in concert with other programs within the energy efficiency portfolio to help meet associated goals such as those defined for HVAC, local governments and workforce education and training WE&T as described in Section 8 of this Program Implementation Plan.

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Strategic Plan Codes and Standards Goal #1: Continually strengthen and expand building and appliance codes and standards as market experience reveals greater efficiency opportunities and compelling economic benefits. (Subprograms 1 and 2: Building Codes and Appliance Standards Advocacy)

The C&S Program will provide a direct response to the CPUC's goal by specifically addressing each near-term strategy in the Strategic Plan. Through the advocacy activities, the program will:

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- Continue to expand Title 24 Building and Title 20 Appliance Efficiency Regulations through improved research to identify current code and compliance shortcomings, new technologies and processes, and latest thinking on breadth (scope) and depth (stringency) of possible standards
- Develop aggressive proposals to accelerate regulations for both Title 20 appliance efficiency standards and Title 24 building standards
- Support leading activities such as statewide reach standards (e.g., codes that include California Green Building Standard) and the coordinated development and adoption of advanced local government ordinances.
- Coordinate with both internal and external organizations on an ongoing basis, including voluntary programs and national standards organizations

The Strategic Plan outlines five strategies to strengthen and expand building and appliance standards. The C&S Program intends to address each strategy through the advocacy subprograms as follows.

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Strategy 1-1: Develop a phased and accelerated approach to more stringent codes and standards.

The C&S Program seeks to accelerate the adoption of increasingly stringent building and appliance standards. To this end the program will develop proposals to increase the scope and stringency of Title 20 and Title 24. The C&S Program will also develop or support development of more stringent codes, such as the California Green Building Standard,

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ASHRAE Standard 189, and other model code ordinances, which would significantly exceed the current Title 24 requirements and could potentially become a model for local green building ordinances.

The use of discrete, above minimum code tiers of efficiency standards (e.g. reach codes) have been proven to be an effective way to promote energy efficiency, prepare the market for high efficiency equipment in an orderly way and smooth the transition for more stringent future standards. However, the proliferation of many standards for the same product renders confusion in the market place and hinders compliance. The C&S Program program will work with local governments that currently have or are considering adopting advanced energy codes to identify common themes among their primary objectives and develop a set of model reach codes and standards that form the path for subsequent statewide adoption. The C&S Program program will help local governments improve compliance by developing compliance forms, modify performance software, and provide code compliance training to practitioners and building departments

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Historically, approximately 100,000 single family (SF) homes and 50,000 multi-family (MF) dwelling units are constructed each year. Estimated construction for 2009 is projected to be much lower: SF 30,000 SF units and 33,400 MF units.¹⁸ These buildings are within the scope of the Title 24 energy code. There are about 8 million existing single family homes and 4 million existing multi-family dwelling units in California.¹⁹ Since homes are sold on average every seven years in California²⁰, approximately 1.4 million existing homes and (assuming same turn-over for rental properties) 570,000 existing multi-family units are sold each year. Thus requirements for the most basic efficiency measures (attic insulation, weather sealing) installed at time of sale would have a huge impact – potentially impacting 10 times as many residential buildings as do the current residential standards. The C&S Program program will work with local governments to identify existing barriers and develop model time-of-sale (TOS) requirements such as Home Energy Rating System (HERS) audits, and commissioning for commercial buildings that do not unnecessarily hinder real estate transactions or financing. Ultimately, if the pilot program with local governments is successful, it will make the case for a statewide time-of-sale requirement.

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HVAC. The efficiency of heating and cooling systems is central to building energy efficiency standards and has become an even more significant component of the standards through the adoption of time-dependent valuation. Energy losses from ducts can be a large fraction of heating and cooling loads. The Title 24 standards have mandatory requirements for duct sealing and prescriptive requirements for duct testing and verification by a HERS rater. Feedback from duct tests to HVAC contractors and home builders is a very

¹⁸ Construction Industry Research Board, California Construction Review, Private Building Construction, January 22, 2009.

¹⁹ <http://www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/Estimates/E8/E-8.php>

²⁰ Median duration at residence is 7 years for homeowners and 1 year for renters. Jason P. Schachter and Jeffrey J. Kuenzi. US Census. Seasonality of Moves and The Duration and Tenure of Residence: 1996, data extracted from Figure 4. Duration of Current Residence by Current Tenure: 1996.

<http://www.census.gov/population/www/documentation/twps0069/twps0069.html>

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important mechanism for transforming the market. Thus, the C&S ~~Program~~ program will be pursuing the concept of mandatory requirements for duct testing and self-certification of the test while still including the prescriptive requirement for a HERS rating. Similar to the acceptance tests in the nonresidential market, a self-certified duct pressurization test would be required for all residential duct systems in unconditioned spaces that are not obtaining a HERS verified duct test.

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The systems not receiving HERS duct sealing verification would receive the same energy penalty in the performance approach and the systems would not be allowed in the prescriptive method approach. This requirement would reduce enforcement uncertainty – every duct system would be required to be tested. Since all duct systems are required to be tested, this lowers the incremental cost barrier for a HERS verified duct test and assures that mechanical contractors and homebuilders receive the feedback from duct testing on every job. This same approach would be taken for relatively new requirements for measurements of airflow, fan power, duct pressure drop and refrigerant charge.

The C&S program will prepare CASE studies to evaluate the cost-effectiveness, market status and availability of the equipment to determine the potential for revising the building efficiency standards so they are based on enhanced efficiency HVAC systems such as: radiant cooling with a dedicated outside air system, evaporative condensing, direct/indirect evaporative cooling and ground coupled heat pumps. These and other cooling technologies have the potential to be significantly more efficient than the federal air conditioning regulation but may be exempt from federal pre-emption. For federally-regulated cooling equipment, the C&S program will continue working with the federal DOE to develop regional air conditioning standards that would be more appropriately suited to California's warmer and drier climate.

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Envelope performance testing. Similar to the requirements for performance testing of HVAC installations, the performance testing of the envelope of homes and other residential dwelling units provides direct feedback on the level of infiltration. Thus, testing could transform the building industry. The C&S program will evaluate the feasibility of adding mandatory requirements for blower door tests for all new homes. Similar to the requirements for duct testing, the prescriptive baseline would retain the HERS verification requirements, but for those homes wishing to avoid the HERS requirements through a performance trade-off the blower door test would still have to be performed.

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Strategy 1-2: Expand Titles 24 and 20 to address all significant energy end uses

The ~~codes and standards~~ C&S program will pursue additional energy savings by broadening the scope of the Title 20 appliance standards and the Title 24 building efficiency standards. Title 20 proposals will be developed and supported through the public stakeholder process for both current and future proceedings. Current proposals include: battery chargers, portable lighting fixtures, set top boxes, televisions, computer monitors, game consoles. Future proposals will include office equipment and other miscellaneous and plug loads. Integration activity with voluntary codes and program activities will be increased to expand

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potential for new product categories to be added to the measure list. The C&S program will continue to support the Title 20 proposals after their adoption by providing ongoing technical assistance to the CEC to fend off post adoption maneuvering by oppositional stakeholders, which has increased in recent years. This will reduce post adoption exemption of product classes.

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For the 2008 revisions to Title 24, the C&S Program successfully proposed a bold increase in scope to include refrigerated warehouses. For 2011-2013, the C&S Program program will consider increasing again advocated increasing the scope of the standards, this time to include the refrigeration plant small walk-in refrigerated coolers and refrigerant plants serving display cases in supermarkets. The C&S Program is also pursuing other opportunities with computer room cooling, and other process measures such as compressed air systems.

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In the past, energy codes have focused only on the efficiency of the equipment installed and not on how that equipment functions, and recent field studies have found that a significant number of controls do not work correctly. Thus the C&S Program will be reviewing the efficacy of fault detection and diagnostic (FDD) controls to determine their effect on operators taking subsequent action to correct the problem when notified. The C&S Program will also investigate barriers to sub-metering tenant units and major building energy consuming systems such as lighting, chiller plants, and boiler plants. Pending approval from the CPUC that water savings are within the scope of IOU energy and resource conservation programs and should be pursued, the C&S Program will research requirements for water meters on all new buildings.

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With the current new federal administration's focus on energy efficiency we can expect, at a minimum, more opportunities to increase the stringency of Title 20 standards through Federal proceedings. If the new administration increases the budget for DOE staff, we can expect an even greater acceleration in activities than the already rapidly increasing number of DOE proceedings. Increased DOE funding would provide the opportunity for states to petition DOE for new rulemakings and/or waiver petitions in support of California energy savings.

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The C&S Program will work in conjunction with national organizations to align California's reach goals with LEED, Green Globes, and CHPS. Ideally, satisfying California's Green Building Standard would become the minimum threshold to apply for a LEED rating. Likewise, the C&S Program will work with ResNet and California HERS Providers on the development of further home rating system upgrades and rating techniques.

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Strategy 1-3: Improve code research and analysis.

Research and analysis is the basis of upgrading energy codes. In some cases this research is forward-looking and identifies technologies that have sufficient market experience, cost-

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effectiveness and broad applicability to be deemed “code-ready.” This research can also be retrospective for two major categories of energy savings opportunities:

1. Review of code proposals that were unsuccessful in past code cycles, but appear to have promise due to changes in the market, refinements in the technology or new information.
2. Evaluation of current standards for loopholes, inconsistencies, enforcement barriers. The savings from these issues can be substantial and must be actively researched.

More generally, the Program will seek to improve C&S advocacy by developing new approaches to determining incremental costs, availability, and reliability. In particular, cost information is considered confidential by industry representatives who generally oppose code upgrades, so the success or failure of a standards proposal often turns on the perceived accuracy of incremental costs.

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Due to the increasing complexity of the targeted measures and increasing sophistication of oppositional stakeholder tactics during the public process under both Title 20 and 24, a greater emphasis on more thorough market research, product performance measurement and technical production data is necessary. Existing studies may be expanded, new studies may be designed and implemented, and additional market research may be purchased to facilitate future standards development. New or updated test methods are required to pursue significant savings opportunities left stranded by current incomplete test methods (e.g., high temperature performance metrics for cooling systems and variable speed capability of commercial refrigeration equipment).

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Codes research also needs to consider more than just technologies but also design methods. A “big bold” research topic for Title 24 is a whole building approach to building design. This concept is in support of a requirement for compressorless- or “hybrid” cooling systems in the homes in the more temperate California climate zones. Well-designed homes in the mild coastal regions of California do not need air conditioners. These homes often have thermal mass to dampen the diurnal temperature swings when it is hot outside, so the thermal comfort of the home isn't solely dependent on the air temperature of the home, but also the radiant temperature. The C&S program will pursue the potential of providing Title 24 compliance credit to homes that do not have air conditioners as long as it can be reasonably expected that occupants in these homes will be comfortable enough that these homes will not be retrofitted with air conditioners later on. This approach would likely require an enhancement of the existing performance method simulation tools, or require newer simulation tools such as Energy Plus, that has a thermal comfort model. This would require a significant investment in resources. However, if this concept were implemented, it would move new homes in coastal regions significantly closer to the 2020 net-zero net energy homes goal.

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This same concept can also be applied to commercial buildings with greater attention given to comfort due to tasks being conducted in fixed positions and locations, and greater attention to internal heat gains resulting from plug loads and lighting loads. However,

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better thermal mass and comfort models will advance low energy commercial buildings as this would also benefit the characterization and ultimately the design of passive solar commercial buildings assisted with radiant heating and cooling. Energy Plus also promises the capability of modeling airflow which should provide improved confidence in specifying two other low energy HVAC systems: positive displacement ventilation and natural convection.

Initially, advanced tools require advanced users. Thus training in low energy design principles and methods of predicting building performance training is needed for the next generation of architects and engineers starting out in practice and currently attending California architecture and engineering schools. Thus, Training is needed in a number of different venues: for existing practitioners, training opportunities at utility training centers, and at professional conferences. Student training would be most efficiently conducted as part of their normal curriculum. Sponsored curriculum development and sponsored research in the design of efficient buildings results in career long impacts when combined with other broader society-wide incentives for low energy design.

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Even more advanced interfaces to these tools expand the scope of potential users by simplifying the user's inputs, but requiring sufficient detail in the nomenclature used by designers so these tools can predict the energy impact of design choices with reasonable levels of accuracy. These program interfaces must have enough flexibility so the breath of applications is wide enough to affect a sizable portion of the possible building applications and the scope of measures is sufficiently broad. Training is still needed for these simplified tools but is accomplished in less time and is given to more people as there are more people likely to use the tool. Easier to use tools expands likely users to sales people, manufacturer representatives and facility managers.

In addition to the fairly sophisticated tools to support these advanced designs, a segment of the market will be drawn to design approaches that are formulaic. These approaches may not optimize energy savings, but if the prescriptive cookbook method is well designed, they can yield significant levels of reliable savings. This requires a significant effort in exercising the design tools, comparing the simulated results to actuals and synthesizing the results into design standards. These design patterns then must be transmitted in a number of ways including resource documents, training materials and presentations.

The energy consumption of buildings is not purely a function of their components but is impacted by occupant behavior and actual equipment installation and performance. Field studies are an important method of feedback on how much energy is really saved by a measure. In some cases this research can leverage information from CPUC EM&V studies and CEC load forecasting studies.

Another significant source of market and technology data is the utility energy efficiency programs. The C&S P program will periodically poll the program managers for information concerning market share, technology cost and verified energy savings. The energy efficiency programs will likely identify technologies that may be ripe for code adoption and

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can help develop the market experience that differentiates those products that are truly code ready.

The importance of the statewide utility Emerging Technology (ET) Program will increase as source of information and potential measures for voluntary reach-code tiers. Although available in the market, the measures that are assessed in the ET Program may be neither cost-effective nor fully applicable for mandatory standards. In some cases, it may be appropriate to have measures simultaneously included in utility energy efficiency programs as well as a reach code tiers.

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Also related to field studies are process evaluations of how the code is administered from the designer and specifier, to Title-24 analyst, to plan check, to bidding, through construction to inspection to occupancy. The delivery of efficient buildings relies on each step of this process. Transferring this information to the CEC and code proposal developers increases the likelihood that compliance will increase with the next energy code.

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Strategy 1-4: Improve coordination of State energy codes and standards with other state and Federal regulations.

The development of the California energy efficiency standards does not occur in a vacuum. Much of the technical basis of Title 24 rests on consensus standards developed by ASHRAE (American Society of Heating, Refrigerating and Air-conditioning Engineers) and IESNA (Illuminating Engineering Society of North America.). The measurements of product properties rely on test standards developed by DOE; American Society for Testing and Materials now referred to as ASTM International (ASTM); Air-Conditioning, Heating and Refrigeration Institute (AHRI); National Fenestration and Rating Council (NFRC); Cool Roof Rating Council (CRRC). Although the C&S Program works most closely with the CEC, other California state agencies are also involved with the development of efficiency standards. Examples of coordination with other state agencies may include, but are not limited to, the California Air Resources Board (CARB) as codes relate to greenhouse gas (AB 32) and other emissions, Department of Toxic Substance Control (DTSC) as codes relate to toxic waste from lamps, and California Department of Water Resources (DWR) as codes relate to the water use in HVAC systems. In addition, there is much to be learned and many benefits derived from coordinating with ASHRAE and other states that are developing their own energy codes. Thus, the C&S Program will be coordinating with other entities in the development of test standards and other consensus standards.

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The C&S Program will also participate in the development of other standards that can then be applied in California. The most notable of these is the Federal appliance efficiency regulations and international standards, which are likely to have bigger impacts on Federal and state appliance standards in the future. If the C&S Program continues to influence the outcome of these regulations, nominal savings in California will be achieved. Since the Federal regulations apply to all sales in the US, compliance enforcement is easier. The

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The program will continue to take a leadership role in advocating for new legislated standards (often based on Title 20 standards in the past) and in both negotiated and contested DOE appliance standards rulemakings. In view of the increasing international coordination in the codes and standards arena, the program will take a more influential role in influencing international test methods and standards framework developments where there is significant opportunity to affect federal and CA appliance standards. We fully expect the need to travel to other countries to conduct effective collaboration and coordination of standards activities that potentially affect California. Increased coordination with national voluntary program frameworks including CEE and ENERGY STAR are also likely to increase C&S codes and standards efficacy.

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Federal appliance efficiency standards limitations have been a hindrance to more stringent codes in California. These Federal standards preempt the state from requiring additional labeling, higher appliance efficiency standards, and prevent building efficiency standards from requiring higher efficient equipment than equipment that are minimally compliant with the Federal appliance standards. Given that the Federal regulations cover the largest energy consuming devices (lighting, air conditioners, and water heaters), this has seriously constrained the effectiveness of California's appliance and building efficiency standards in California. The C&S program will be developing a research plan to address Federal preemption including, but not limited to, waiver petitions, federally legislated standards, and development of new coalitions.

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The CARB's proposal in response to SB 97, which requires rules be developed to address the California Environmental Quality Act (CEQA) requirements for greenhouse gas emissions, expands the possible scope of energy consumption that could be regulated. Well-defined efficiency measures and performance trade-off options would be in the interest both of CARB and the entity submitting a new industrial, commercial or residential project.

In addition to the coordination with the DWR for the water use in HVAC systems noted above, there is an ongoing CPUC proceeding to determine the amount of energy embedded in water use. Therefore, the C&S program will further coordinate with the DWR as studies are initiated to examine potential reductions in water use. Since the CEC was given jurisdiction over water use starting in 2008, it is anticipated there will be new sections in Title 24 regulating the use of water.

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Also as mentioned earlier, the C&S program will pursue developing reach codes in coordination with the California Green Building Standards. To do this the C&S program will coordinate with the BSC (Building Standards Commission), the CEC (California Energy Commission), HCD (Housing and Community Development), OSHPD (Office of Statewide Health Planning and Development), Local Governments, and others.

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Strategy 1-5: Improve coordination of energy codes and standards with utility programs

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Coordination between C&S and other utility programs may occur in various ways: existing or newly adopted standards, future standards, direct linkages between incentive programs and a specific standard, and long-term integrated planning. This is a rapidly evolving area, so planning is necessarily at an objectives level for now. The C&S program staff team will periodically meet with other utility program staff to facilitate ongoing coordination.

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Newly adopted standards. On an ongoing basis, C&S staff team communicates with IOU incentive program managers regarding potential adoptions of new standards. Depending on the opportunity, program managers may decide to provide incentives for measures in advance of the effective date to prepare the market.

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Education and training between adoption and effective dates of a particular standard represents another way to prepare industry. The C&S program will provide 2008 Title 24 training to both market actors and internal program staff in advance of the August 1, 2009 effective date for the 2008 Title 24 Standards. The training will help identify opportunities for ongoing coordination between incentive programs and C&S activities. Another activity under development is to require program participants to complete and submit the applicable acceptance tests required by Title 24 to receive an incentive for HVAC and lighting controls equipment. This will increase compliance with the acceptance tests and help assure the incented equipment is installed according to code intent.

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Although all utility programs are impacted by codes and standards, particular focus will be placed on coordinating with the Local Government, HVAC, and Workforce, Education and Training (WE&T) programs. Please refer to Section 8 for how the Program C&S program will coordinate efforts to help meet shared goals defined in the Strategic Plan.

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Future standards. Having selected topics for potential CASE study proposals for the next code cycle, for example, 2011 building and appliance standards, energy efficiency program managers may be able to include measures in programs to improve code readiness. The C&S program may also work with statewide Emerging TechnologiesET program staff to identify new technologies for which to develop alternative calculation methods (ACM). CASE studies can be developed for new technologies to propose Title 24 credit towards achieving compliance, thereby reducing one barrier to market acceptance. Moreover, a Title 24 ACM provides an approved method for calculating energy savings for incentive programs.

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The C&S program will continue to improve coordination with the statewide new construction programs. Since the success of these programs are dependent on exceeding the current Title 24 codes, they serve as a useful “test-bed” to inform the development of future Title 24 proposals by highlighting the more cost effective measures, flagging problem areas with compliance, and demonstrating the extent to which the current code can be exceeded.

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On a longer term basis, it is sometimes possible to identify code objectives two code cycles into the future. This will be particularly critical for developing an appropriate trajectory for

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reaching the Strategic Plan’s zero net energy goals, AB 1109 Huffman Bill goals²¹, and state policy initiatives indicated in the previous section. For these opportunities, the C&S program will complete a gap analysis to identify distance between code readiness attributes and the current market status of the technology, which will inform the creation of an integrated long-term coordination plan. Long term information repositories may be developed to collect information that will support adoption in a future code cycle.

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Direct linkages. The C&S program seeks to directly link, as has been done for the current Title 20 television proposal before the CEC, code proposals with incentive programs. When faced with industry resistance, this linkage constitutes a stronger argument before the commission. Moreover, linking a standard with an incentive program creates a synergy in which the push of a widely recognized future standard reinforces the pull of near term incentive programs, thereby increasing participation in a complementary incentive program.

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Albeit weaker compared to direct linkages, the synergy between standards and incentive programs exists more generally through indirect linkages.

Strategic Plan Codes and Standards Goal #2: Improve code compliance and enforcement.
Strategic Plan Codes and Standards Goal #2: Improve code compliance and enforcement.
(Subprograms 3 and 4: Compliance Enhancement/Improvement and Reach Codes)

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The C&S program is committed to improving code compliance and enforcement. To demonstrate this commitment, C&S will expand Extension of Advocacy activities and launch expanding the new Compliance Enhancement (CECI) subprogram. The program will leverage existing, and develop new education and outreach activities to equip both building and appliance industry market actors with the knowledge and tools needed to comply with Title 24 building energy efficiency standards and Title 20 appliance efficiency regulations. Expanding the program to include compliance improvement will help ensure that the full potential of the state’s codes and standards efforts are realized, and results in a comprehensive C&S program.

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The C&S strategies and activities listed in the Strategic Plan are focused primarily on Title 24 building energy efficiency standards, noting that appliances are principally regulated at the federal level rather than the state level. As the CPUC Strategic Plan also notes, there remains huge potential savings at the state level for appliances and equipment not regulated by the federal government. With this in mind, the C&S program has added activities to capture Title 20 compliance savings as well and added a sixth implementation item for this program cycle in the Strategic Plan Table below to document planned Title 20 efforts.

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Strategy 2-1: Improve code compliance and enforcement.

²¹ AB 1109 Huffman directs the CEC to implement strategies to reduce residential lighting by 50% and commercial and outdoor lighting by 25% by the year 2018.

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The Strategic Plan identifies one strategy and five activities targeted to improve compliance and enforcement with Title 24 building energy efficiency standards. Each activity is addressed in order below.

Activity 2-1 a): Conduct research to determine high-priority tactical solutions for code compliance and focus efforts accordingly.

As a first step in launching compliance improvement efforts, ~~Program staff~~ the C&S team will interview the building industry market actors included in the compliance supply chain to determine how their current performance compares to the desired performance, the reasons for the gap, and which performance improvement solutions the C&S ~~P~~ program may employ to improve code compliance. Additionally, ~~the team~~ C&S staff will interview experts who have been providing training, software and regulatory support to industry practitioners over the years to identify best practices, possible points of collaboration and gaps the C&S ~~P~~ program can help fill. Furthermore, ~~the~~ C&S program will conduct a process pilot with several local governments to investigate code enforcement processes in detail, identify opportunities to streamline enforcement practices and improve consistency across jurisdictions. Results of these research efforts will inform the total package of performance improvement solutions the ~~p~~ program will implement to help improve code compliance rates. In addition, the results of the compliance improvement process study that included a stakeholder roundtable discussion will be compared with the interviews.

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Activity 2-1 b): Increase training and support for local building code officials.

Building code officials are the primary key to improving compliance with Title 24 standards and certain Title 20 regulations such as residential air conditioning equipment. Building department personnel must enforce several different building codes simultaneously, with limited resources. Given the limited time available, officials correctly prioritize those codes related to life-safety, which often results in extremely limited time and resources dedicated to enforcing energy-related codes. In addition to resource limitations, energy codes have undergone much more significant changes in each of the recent code updates than most other codes, thus creating a challenge for officials to maintain their expertise.

~~EOA and CE~~ The CI subprogram will focus a significant percentage of the code education resources on providing training and support to building code officials. Based on research results, ~~EOA and CE~~ the CI subprogram will develop role-based training courses and abbreviated code guidelines for plan checkers, inspectors and counter staff specifically targeting only those sections of the code related to each particular position. This work will be closely coordinated with the CEC and third party efforts to ensure that it supports and is in alignment with the CEC's compliance improvement efforts.

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In addition, in response to the needs assessment to be conducted as part of the local government process pilot, ~~CE~~ the CI subprogram will develop and test process improvement tools, and will work with CALBO, the International Code Council (ICC), and

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CEC to conduct outreach to other jurisdictions to encourage adoption of those tools.

CEThe CI subprogram will conduct outreach and encourage other jurisdictions to adopt tools and processes that help building officials increase compliance. CEThe CI subprogram will support more consistency across jurisdictions, in processes, documentation requirements and enforcement practices, and will encourage the expansion of submitting online permitting paperwork for HVAC replacements as well as other measures. These on-line submittals allow for the creation of customized inspection checklists that also simplify enforcement.

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CEThe CI subprogram will also work with the CEC and HERS providers to ensure the new HERS documentation and data management systems are consistent and serve to streamline the compliance process.

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Activity 2-1 c): Investigate regulatory tools such as licensing/ registration enforcement.

Currently, although Title 24 documentation must be signed by a licensed professional, the actual calculations can be prepared by anyone. Anecdotal evidence from rebate programs and building departments indicates that the lack of training and/or professional certification requirements results in sub-par documentation being submitted to building officials, thus requiring more time to review documents and determine compliance. CEThe CI subprogram will work with the California Association of Building Energy Consultants (CABEC), CEC and CALBO to increase the stringency of the Title 24 Certified Energy Analyst test, initiate a certification process for Title 24 consultants, and begin requiring energy education for building officials as part of CALBO's existing continuing education requirements.

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CEThe CI subprogram will also work with the CSLB (California State License Board) and the DCA (California Department of Consumer Affairs) to conduct outreach to members regarding the importance of the standards to the state and to their customers, and to encourage the CSLB to enforce the HVAC permitting requirements with their members.

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Activity 2-1 d): Evaluate proposed changes to the code and compliance approaches to simplify and expedite compliance.

Feedback from building officials indicates that they are overwhelmed by the volume, complexity, and rapid changes to the energy codes. As a complement to the role-based training, CEthe CI subprogram will work with industry experts, CEC, and building officials to develop and test role-based and context-sensitive code guidelines. The guidelines will target specific compliance items and common measures that must be addressed at each stage in the permitting and inspection processes.

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CEThe CI subprogram will conduct research to identify specific areas of the code that can be simplified by reducing the number of trade-offs and compliance options and/or transitioning to a greater number of mandatory measures.

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In addition, ~~CE~~ the CI subprogram will work to increase the availability of online permitting resources and the consistency of requirements and documentation across all jurisdictions, with an initial focus on geographically contiguous regions. Online permitting makes obtaining permits more convenient and less costly, and geographic consistency provides a more stable and easier-to-understand process for building designers and contractors, as well as building officials.

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Activity 2-1 e): Work with local governments to improve code compliance, adopt above code ordinances, and provide training/education.

The primary goal of the ~~CE measure-based and holistic compliance improvement~~ subprogram elements is to improve code compliance. As discussed in activities a) through d) above, CI subprogram will be dramatically expanding and enhancing efforts in support of this goal, launching several different outreach and training offerings and activities.

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The C&S ~~Reach Code~~ (RC) subprogram has adopted a demand-side philosophy to local code adoption, consistent with the general philosophy of energy efficiency. California has a very robust energy efficiency code that can, if fully enforced, result in a tremendous amount of savings and reduction in both energy usage and peak demand. The RC subprogram will conduct outreach to local governments and green communities through Government Partnerships Programs, Build It Green, and others industry partners to educate interested participants about the potential savings that could be realized through optimizing compliance with existing codes prior to adopting a new code. The RC subprogram will inform local government^s that optimizing compliance with existing codes is one of the most immediate and significant steps a city or county can take toward reducing the jurisdiction's carbon footprint, and will request a commitment from each participant to take documentable steps toward that end.

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Many local governments, in their eagerness to take action in the absence of federal leadership, have individually developed and adopted unique local codes to reduce the climate change impacts of the building activities in their jurisdictions. Unfortunately, codes are developed and adopted without any real overall coordination with other jurisdictions, resulting in a plethora of local ordinances and code requirements throughout the state that are changing frequently, making it impossible to easily track what code applies in which jurisdiction at any given time. ~~In Sonoma County alone, there are ten different local energy and green building ordinances.~~ The RC subprogram will encourage local governments to work with neighboring jurisdictions to adopt consistent requirements and to remain consistent with current Title 24 climate designations to reduce potential market confusion.

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One of the RC subprogram's goals for local codes is to promote consistency with the current Title 24 climate zone structure, with which market actors are used to working. The RC subprogram will work with local government partners to identify and document their objectives for a local code and also with the CEC and Building Standards Commission (BSC) to make the next generation of the State's Green Building Standards meet those

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objectives for most, if not all local governments. First, [the RC subprogram](#) will work with local governments to support development of a package of cost-effective local energy codes that exceed ~~2008~~ Title 24 minimum requirements for residential and nonresidential new construction. [The RC subprogram](#) will support efforts to obtain CEC pre-approval to simplify the approval and adoption process at the local level. In addition, to begin harnessing the tremendous savings potential from existing homes, [the RC subprogram](#) will support development of a package of standards that are applicable at time-of-sale or major remodels. Local ordinances will serve as an opportunity to test the efficacy of the codes and inform regulators as to the readiness of the codes for statewide adoption.

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Activity 2-1 f): Conduct outreach and education efforts to improve compliance with Title 20 Appliance Standards.

The IOUs' experience working with industry actors on Title 20 advocacy indicates that there are two primary paths for equipment covered by Title 20 to move through the supply chain from manufacturers to consumers. The first is via manufacturers, distributors and contractors, while the second is via retailers directly to consumers. Similar to the Title 24 outreach, the IOUs plan to target each actor in the supply chain for selected measures with significant savings potential and for which compliance rates are relatively low.

Given the wide range of industries and the organization of their distribution channels, compliance improvement activities for appliances will be conducted on an industry-specific basis. For example, compliance improvement outreach for manufacturer-dominated industries logically begins with manufacturers since top down efforts will affect most product sales in California. If major manufacturers are located overseas, as is the case of consumer electronics for example, we fully expect the need to travel to other countries to conduct effective outreach and training.

Different approaches will be used to educate and train retailer-dominated and contractor-dominated industries. In the retailer-dominated case, for example, compliance efforts must target the stocking practices of these retailers. In the contractor dominated case, where contractors are largely responsible for the purchase and installation of the product, compliance efforts must focus on outreach to contractors.

The C&S [P](#)rogram will coordinate with the CEC to conduct outreach to equipment manufacturers to inform them of existing code requirements, and to facilitate their compliance from both a technical and administrative perspective. Assistance will be provided to manufacturers to support their efforts to ensure equipment sold in California meets the minimum technical requirements, and to successfully complete the certification process with the CEC.

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For measures such as pool pumps, where most are sold through distributors and installed by contractors, in addition to working with the pump manufacturers, the [P](#)rogram will work directly with distributors to educate their representatives. The IOUs will also conduct outreach to contractors directly, and will work with trade organizations to leverage their

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existing communications networks. Outreach activities may include attending trade conferences and regional meetings, authoring articles for industry newsletters or publications, or direct contact via email or printed materials.

Other measures, such as incandescent lamps and consumer electronics are often purchased directly by consumers through retail establishments. Though the market actors are different for these measures, the C&S Program will use similar methods to reach as many market actors as possible. Trade associations are expected to be important stakeholders in this effort and will be leveraged as much as feasible. The IOUs will coordinate with regulators and other providers to identify gaps and opportunities to collaborate.

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e) Program objectives which are more specific milestones to be achieved in order to accomplish the goals

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d) Program action strategies that will be used to implement the goals

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See Codes and Standards Alignment with Strategic Plan Table below.

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e) Program outputs which are measurable results of the program linked to the action strategies, for example

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Codes and Standards Alignment with Strategic Plan Table

Please see Section 8 for details on how the C&S Program will work with other programs within the energy efficiency portfolio to help meet associated goals such as those defined for HVAC, local governments and workforce education and training.

f) Market Transformation Information

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Regulation through building codes and appliance standards comprises an exit strategy for traditional portfolio activities and creates a continuous improvement cycle in California. While voluntary programs are essential to establishing market acceptance, adoption into code is required to complete the market transformation process.

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Adoption into code is a commoditization process which converts a once high margin differentiated product into an industry commodity or baseline product. Greater economies of scale for the once premium product reduce the cost of the regulated product which, in turn, drives innovation for new products that can be sold at high margins.

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In California, the CEC is responsible for conducting rulemakings, including setting the scope of proceedings, determining the schedule and either adopting (with or without modifications) or rejecting a code proposal. Hence, the CEC largely determines the success or failure of the CPUC's IOU administered C&S program. For various reasons, the CEC sometimes fails to adopt IOU code enhancement proposals for reasons other than code readiness; examples include lack of resources to conduct a robust rulemaking or vigorous industry resistance.

So too does the CPUC's decisions impact success; for example, the delay in program approval and associated funding has delayed preparation for the 2011 code cycle. Since the emphasis on C&S program opportunities is still comparatively new, some C&S program-related CPUC policies are not fully developed, which creates uncertainty for C&S program implementation. Additionally, if CPUC is unable to conduct timely baselines and evaluations, the delay may constrain or delay C&S program activities.

From a C&S Program perspective, the IOU's role is somewhat limited, including developing code proposals through the building codes and appliance standards advocacy subprograms and supporting the public process through adoption. Following adoption, IOU's provide other assistance such as writing drafts of the compliance manuals and assisting CEC staff in clarifying standards.

Since the CEC controls the timing of all aspects of the adoption process, advocacy entries in Table 4 are general and subject to change.

Through the extension of advocacy components of the building codes and appliance standards advocacy subprograms, IOUs will strive to improve compliance rates with the measures as noted below.

In 2009, the IOUs will develop a detailed statewide compliance enhancement plan and goals based on the Program's compliance enhancement scoping study results. This plan will include program targets for compliance based, in part, on the CADMUS evaluation ongoing at the time of this writing. In 2010, the IOUs will assess the Program's progress relative to the compliance enhancement plan goals, revise the plan and improve CE subprogram implementation as necessary. Again in 2011, the IOUs will assess the Program's progress relative to the plan goals, revise the plan and improve Program implementation as necessary.

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Table 4

Building Codes and Appliances Standards Advocacy Internal Market Transformation Planning Milestones (estimates)			
Subprogram Element	2009	2010	2011
Appliance Standards (State)	• Support unfinished	• Continue support for Phase II as	• Continue advocacy after

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	<p>business from 2008 Phase 1 of current CEC proceedings, for example TVs (Percentage of CEC workshops in which IOUs present CASE studies or respond to comments)</p> <ul style="list-style-type: none"> Continue development of code proposals for 2009 Phase 2 proceedings and provide ongoing advocacy for those accepted by CEC (Percentage of total potential savings that will be adopted as a result of IOU advocacy) CASE study reports filed with CEC Begin RFP process for 2011 code cycle 	<p>necessary (Percentage of CEC workshops in which IOUs present CASE studies or respond to comments)</p> <ul style="list-style-type: none"> Continue advocacy after adoption, as necessary, to clarify standards or prevent repeal Develop detailed CASE study development plans for 2011 and begin CASE study development 	<p>adoption, as necessary, to clarify standards or prevent repeal (Percentage of CEC workshops in which IOUs present CASE studies or respond to comments)</p> <ul style="list-style-type: none"> Continue development of 2011 CASE studies and produce final draft CASE studies, as appropriate (Percentage of total potential savings that will be adopted as a result of IOU advocacy) CASE study reports filed with CEC
Appliance Standards (Federal)	<ul style="list-style-type: none"> Conduct research, develop analytical commentary, or advocate, as appropriate on behalf of California, in all proceedings that have significant energy impacts (Percentage of DOE rulemakings for which comments are submitted) Advocate through negotiations for Federally legislated standards (Percentage of DOE workshops in which IOUs contributed comments) 		
Building Standards	<ul style="list-style-type: none"> Complete RFPs to develop CASE studies in early 2009 	<ul style="list-style-type: none"> Continue development and produce final draft CASE studies, as 	<ul style="list-style-type: none"> Conduct advocacy in support of CEC proceedings,

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	<ul style="list-style-type: none"> Develop detailed CASE study plans and begin CASE study development Conduct advocacy in support of CEC proceedings, assuming the CEC commences a rulemaking (Percentage of CEC workshops in which IOUs present CASE studies or respond to comments) 	<p>appropriate (Percentage of total potential savings that will be adopted as a result of IOU advocacy)</p> <ul style="list-style-type: none"> CASE study reports filed with CEC Conduct advocacy in support of CEC proceedings, assuming the CEC commences a rulemaking (Percentage of CEC workshops in which IOUs present CASE studies or respond to comments) 	<p>assuming the CEC commences a rulemaking (Percentage of CEC workshops in which IOUs present CASE studies or respond to comments)</p>
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**~~Building Codes and Appliances Standards Advocacy (continued)~~
~~Internal Market Transformation Planning Milestones (estimates)~~**

Subprogram Element	Targeted Measures	Initial Compliance Rate	Program Target by 2011
EOA Measure Specific T24 Activities	Residential Hardwired lighting	TBD	TBD
	Residential Duct Improvement	TBD	TBD
	Lighting Controls Under Skylights	TBD	TBD
	Ducts, Existing Commercial Building	TBD	TBD
	Indoor Lighting	TBD	TBD
	Cool Roofs	TBD	TBD
	Envelope Insulation	TBD	TBD
	Refrigerated Warehouses	TBD	TBD
	Outdoor Lighting	TBD	TBD
	Acceptance Testing	TBD	TBD
EOA Measure Specific T20 Activities	General Service Incandescent Lamps, Tier 1	TBD	TBD
	General Service Incandescent Lamps, Tier 2	TBD	TBD
	Residential Pool Pumps, High	TBD	TBD

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	Efficiency Motors, Tier 1		
	Residential Pool Pumps, Two-Speed Motors, Tier 2	TBD	TBD
	Pulse Start Metal Halide HID Luminaires, Tier 1	TBD	TBD
	Pulse Start Metal Halide HID Luminaires, Tier 2	TBD	TBD
	Consumer Electronics—Audio Players	TBD	TBD
	Consumer Electronics—Televisions	TBD	TBD
	Consumer Electronics—DVDs	TBD	TBD
	Unit Heaters and Duct Furnaces	TBD	TBD
	External Power Supplies, Tier 1 & 2	TBD	TBD
Compliance Enhancement (CE)			
Internal Market Transformation Planning Milestones (estimates)			
Subprogram Element	Targeted Measures	Initial Compliance Rate	Program Target by 2011
CE Measure-Specific T24 Activities	Nonresidential Windows: U-factor & SHGC	TBD	TBD
	Storage Water Heaters	TBD	TBD
	SEER 13 Air Conditioners	TBD	TBD
	Mandatory Requirements for Duct Sealing	TBD	TBD
	Quality Insulation Installation	TBD	TBD
	HVAC Quality Installation	TBD	TBD
CE Measure-Specific T20 Activities	TBD	TBD	TBD
CE Holistic T24 Activities	Number of A/C change-out permits issued per jurisdiction	TBD	TBD
	Improve plan checkers' knowledge of T24 and processes and tools used to enforce T24 per jurisdiction		
	Improve field inspectors' knowledge of T24 and processes and tools used to enforce T24 per jurisdiction	TBD	TBD
Reach Codes			
Internal Market Transformation Planning Milestones (estimates)			
Subprogram Element	2009	2010	2011
Reach Codes	Development of technical supporting documentation for model codes	Continue collaboration on	Continue collaboration on

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		future reach codes with CEC and other parties	future reach codes with CEC and other parties
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g) Quantitative Program Objectives

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7. List of Measures & CASE Studies

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Following are tables of ~~current and future~~ possible IOU CASE study topics. For a number of reasons, these lists are not static. After further planning, IOUs may decide to swap leads, co-fund, or make other changes, as appropriate. During the CASE study development process, it is sometimes found that there is insufficient market data or economic information to justify a standard. During rulemakings, industry representatives may inject sufficient uncertainty to derail a proposal. The CEC may indicate that they are more interested in some proposals and delay others. Sometimes new ideas occur that were overlooked during the planning process.

The CASE study projects develop feasibility and cost-effectiveness evaluation for a variety of code improvement opportunities. These CASE projects are not a purely technical exercise, advocacy is an important part of moving an idea into energy codes and this requires a significant amount of consensus building and negotiation.

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~~Table 6 includes measures to be evaluated for the 2011 Title 24 Building Efficiency Standards. The IOU lead provides funding, is the project manager for the CASE report, is responsible for tracking project progress, and is involved with some of the policy questions that arise in the development and advocacy of the CASE measure. Co-funding typically indicates another IOU which is interested in the topic and will likely provide in-kind support as well as financial support of the CASE report but is not managing the consultant working on the CASE report. Research support often comes in the form of utility test labs, or field data collected by ET or other programs. The status indicates whether a contract has been let ("initiated"), research has commenced ("ongoing"), or in the case when this field is blank, the measure is in an RFP that has not yet been issued.~~

~~Table 6 includes a preliminary list of measures from the CEC to be evaluated for the 2016 Title 24 Building Efficiency Standards cycle. These will inform IOU planning.~~

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Table 6: 2016 Title 24 Building Codes and Appliance Standards Preliminary Measures

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2016 Title 24 Preliminary Measures	
Preliminary Nonresidential Measures	
<u>Measure</u>	<u>Description</u>
<u>Flicker specification for all dimming systems</u>	<u>Flicker is a function of the lighting source (ballast, driver) and the dimming control</u>

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Task/ambient lighting for offices	
Low W/sf HVAC systems	Prescriptive performance-based requirement, cap on total installed watts.
Optimized Window Area, Update Window VT's	Reduce WWR from 40% to 30% while maintaining visual comfort. Estimate that 0.11/WWR reduced VT reduced daylighting savings by 25%. See ASHRAE ECB reduced WWR by building type.
Nat ventilation, dedicated O/A, + chilled beam or radiant system	Drive down fan energy. Window sensors interlocked with fan system
Dual path approach PV vs High Eff HVAC	Base case has 1W/sf of roof area, alternate has high eff HVAC
Eliminate reheat	Through zoning of systems or designs such as dual duct design, reheat can be mostly eliminated.
Daylighting control dimming plus off.	Ballasts can use 20% of power when fully dimmed. In primary zone no light can be needed much of the day. Added savings.
Opaque envelope U-factors	ASHRAE roof values are significantly lower
Retail lighting including occupancy controls	Fix general lighting in tailored method. Further LPD reductions, trade-offs with occupancy sensing controls
Skylighting in lower ceiling heights	Skylighting required in spaces > 15 ft, related to cost of lighting well and spacing of skylights. Technologies to reduce cost of light wells and to spread light so skylights can be further apart.
Egress lighting	Turn all the way off when space is unoccupied. Effort involves working with state fire marshal and perhaps NFPA.
Economizers	Catch up to IECC - required down to 33 kBtu/h, FDD updates
Façade and landscape lighting	ASHRAE has lower LPDs
Parking lot lighting (tall pole motion sensing?)	Motion controlled bi-level expanded to above 24 ft if technology ready. Consider expanding to other applications.
Solar pool heating for hotel/motels	Scoped out as cost-effective application of solar pool heating (year round operation)
Lab fume hoods, Occupancy sensing control of sash	Sash can be closed when no one is in front of fume hood. Saves energy and increases IAQ
Streamline and remove exceptions	Simplify and expand scope when possible
Plug-in hybrid and EV charging circuit	Reduces transportation costs and emissions, coincident with PV output
Plug for trucks at refrigerated warehouses	
Nonresidential ACM	
Refrigeration model in ACM	Allow trade-offs

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Whole building (BEARS) model including deemed plug loads.	Software also generates BEARS rating and ZNE rating
Improved Natural Ventilation simulation	
PV model offsets consumption	Also useful; for ZNE rating
Radiant model including comfort	Provides accurate estimate of benefit of radiant cooling methods
Improved VRF simulation	Current model may be inaccurate. May require added manufacturer data for credit
Base case WWR by building type	ASHRAE 90.1 has reduced WWR for dome building types (i.e. 22% for schools, 11% for retail, 7% for grocery store, 19% for small office etc.)
Solar absorption air conditioning	
Combined heat and power	
<u>Process Loads</u>	
Evap fan speed control for walk-ins	Saves fan energy and compressor energy
Pipe sizing for compressed air systems	Pressure drop losses reduced
Specific efficiency requirements for refrigeration equipment	
Air dryer efficiency for compressed air	Modulating systems versus on/off systems
Capacity controls for centrifugal compressors	Remove exception from compressed air system requirements
<u>Preliminary Residential Measures</u>	
Low-rise multi-family prescriptive package	
QII - Quality Insulation Installation inspection	
All high efficacy lighting	Show availability of high quality high efficacy products for all sockets. Trade-off with PV
Ducts in conditioned space or ductless HVAC	Variety of methods, cathedral ceilings, scissor truss, mini-splits etc.
Tested Infiltration < 3 ACH 50	Catch up with IECC, have to show IAQ is OK, may be done in conjunction with mandatory CALGreen to reduce source pollutants
Compact water distribution	Measured length of pipe between water heater and fixture
Controlled supply mech ventilation	Better air quality, cleaner house
Dual path PV with high efficiency HVAC and DHW	
Coastal compressorless comfort	White paper for 2013 standards
Walls - R-21 + R5 in all CZs	Also consider R-15+ R-8 exterior insulation
Windows 16% of floor area	Highly controversial, should be based on survey

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Heat recovery ventilator	Heat recovery in very hot or very cold climates
Simplify and remove exceptions	
Plug-in hybrid and EV charging circuit (ME)	
High efficiency white goods	Credit in model perhaps prescriptive trade-off
<u>Residential ACM</u>	
Multi-family modeling	
Evaporative cooling modeling	
Ductless AC system modeling	
Sealed attic modeling	
Whole building (HERS) model including deemed plug loads.	Basis of HERS rating and ZNE
PV model offsets consumption	Supports ZNE goal
Locational efficiency credit when solar access is low	Prepare for ZNE or equivalent

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[Table 7 includes a preliminary list of Title 20 measures under consideration by the CEC for the 2012-2015 Title 2- cycle. These will inform IOU advocacy work.](#)

Table 7: Title 20 Appliance Standards. ~~Ongoing advocacy efforts will extend into the 2009-2011 program cycle.~~ **Preliminary Measures.**

<u>Title 20 Measure</u>	<u>Description (all subject to change)</u>
<u>Lighting</u>	
Dimming ballasts	Minimum efficiency standards for dimming ballasts, and possible limits on standby wattage. Standard would likely use the Relative System Efficacy (RSE) or the Ballast Luminous Efficiency (BLE) metric, with minimum performance requirements at full light output only or at several light levels.
Multifaceted-Reflector lamps	Minimum efficiency standards for multifaceted-reflector lamps, possibly with tiered standards. May also require minimum light quality/lamp performance standards.
LED lamps	Require LED lamps to meet minimum performance requirements (e.g. dimming and lamp life), minimum light quality standards (e.g. CRI), and modest efficiency (lpw) requirements.
EISA exempt lamps	Apply existing T20 general purpose light bulb standards to EISA exempt bulb types, including: 3-way, 2,601 – 3,000 lumen, shatter-resistant, candelabra base, intermediate base. All can accommodate halogen capsules for reduced power. Consider coverage at similar stringency as non-exempt bulbs (approx. 30% lower power)
Lighting Accessories	Maximum energy use and standby power for nightlights (NL), maximum power/bulb requirements for decorative string lights (DSL),

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	and maximum power requirements for illuminated house numbers (IHN).
Outdoor Lighting	Sets minimum performance requirements for pole-mounted outdoor lighting, including street, highway, parking, and area fixtures with “controls-ready” requirements in some cases.
Linear fluorescent fixtures	Propose test and list requirement for Energy Effectiveness Factor (EFF) and listing on product documentation resulting Target Efficacy Rating (TER) values from a combination of lamp lumens and ballast factors.
Illuminated street number signs	Set an efficacy standard (active power limit) to effectively require LEDs. Recommend requiring that all illuminated address numbers utilize photo-switches. Finally, recommend a standby power limit of 0.75 W.
Plug-in luminous signs	Set a standard establishing maximum power per square foot of illuminated area, and additional control requirements (required integral on/off switch, supplemental control for signs with face area(s) greater than 4 sqft).
Computers	Propose maximum energy requirements and power management enablement upon shipment for desktops and laptops; minimum power supply unit efficiencies for desktops. Exploring energy use limits or power limits in different operating modes.
Servers	Propose minimum power supply unit efficiencies and power proportionality for servers.
Game consoles	Set standard to require an auto power down feature and establish a maximum allowable standby power level.
Computer/video displays	Set maximum On Mode and Sleep Mode power consumption levels, as a function of screen size. Consider luminance and automatic brightness control requirements.
Set top boxes (terrestrial, cable and satellite)	Propose an energy use limit for new STBs. May include prescriptive requirements such as auto-off feature and performance-based maximum power demand per defined feature set (e.g., per tuner). Develop test and list requirements for small networking equipment.
Imaging Equipment	Propose maximum total energy consumption (TEC) levels for imaging equipment, which includes copiers, fax machines, printers, scanners, and all-in-one devices.
Low power modes	May propose required low-power modes, with maximum power levels, for various equipment. Low power modes include sleep, standby, idle, off.
Power Factor Interactive Effects	Appliance energy efficiency performance is influenced by power factor, such that losses in distribution circuits can be reduced by improving poor power factor. This is currently being studied in PIER research. This proposal would bring PIER findings into code as a consistent policy for appliances where merited
<u>Water and Miscellaneous</u>	
Toilets and Urinals	This standard proposal revises the current standards in Title 20 regulations to conform to the legislatively enacted performance

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	standards of AB715, by having toilets have 1.28 gallons per flush and urinals have 0.5 gallons per flush effective January 1, 2014.	
Air Filter Labeling	Require a label for air filters (a consumer version of the existing AHRI 680 label) so that consumers and designers can select the appropriate filter for the system.	
Pool and Spa Equipment	Update current regulations to better align with APSP 15. Add performance efficiency requirements for new and replacement motors and pool heater hydraulic performance. Require labeling of efficiency performance and compliance information on portable electric spas to better inform consumers.	
Faucets	This standard proposal sets the maximum flow rate for lavatory faucets and lavatory replacement aerators at 1.5 gpm at 60 psi, effective January 1, 2014. It also expands the definition of lavatory replacement aerator to include all flow restricting accessories, to encourage design best practices.	
Water Meters	Propose requiring testing for accuracy of residential water meters at levels indicative of household leaks, to better identify and prevent leaks.	
Landscape Irrigation Equipment	Set performance standards and labeling requirements for landscape irrigation controls and sensors; require a rain shut-off device and a test and list for landscape irrigation controllers (and add-on devices) for standby mode power.	
Commercial Clothes Dryer	Commercial gas dryers are regulated by neither federal nor California regulations; there exists the opportunity to establish new Title 20 standards for commercial gas dryers to be sold in California. The C&S program will develop the testing procedure for Energy Factor of commercial clothes dryers, and establish a minimum performance requirement.	
Refrigeration Condensing Units	Develop test procedure for EER for fixed output refrigeration condensing units and part load EER for variable output refrigeration condensing units. Establish a minimum performance requirement. Require either floating head control; require systems operate at 70°F or lower min. condensing temp.	
Measure	Description	Status

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DOE Proceedings. The IOUs expect to be actively engaged in Federal Table 8 shows a preliminary list of federal appliance standards proceedings rulemaking events. IOUs will respond to rulemaking events carried out by USDOE, and possibly others, that affect impact California. Federal advocacy during the current program cycle includes the following topics.

- External Power Supplies & Battery Chargers – DOE Framework Document and Determination Notice / Advanced Notice of Public Rulemaking
- Refrigerated Beverage Vending Machines – DOE Notice of Proposed Rulemaking

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- ~~Incandescent Reflector Lamp and General Service Fluorescent Lamp—DOE Notice of Proposed Rulemaking, and Negotiation~~
- ~~Residential Water Heaters, Direct Heaters, Pool Heaters—DOE Advanced Notice of Proposed Rulemaking and Notice of Proposed Rulemaking~~
- ~~Small Motors Test Method—DOE Notice of Proposed Rulemaking~~
- ~~Residential Clothes Washers—DOE Framework Document~~
- ~~Walk-in Coolers & Freezers—DOE Framework Document~~
- ~~Metal Halide Lamp Fixtures—DOE Framework Document~~
- ~~External Power Supplies & Battery Chargers—DOE Determination of Final Rule/Advanced Notice of Public Rulemaking~~
- ~~Residential Refrigeration—DOE Advanced Notice of Public Rulemaking~~
- ~~Small Electric Motors—DOE Notice of Proposed Rulemaking~~
- ~~Clothes Dryers & Room Air Conditioners—DOE Advanced Notice of Proposed Rulemaking~~
- ~~Residential Central Air Conditioner and Heat Pump—DOE Advanced Notice of Proposed Rulemaking and Negotiation~~
- ~~Fluorescent Ballasts—DOE Advanced Notice of Proposed Rulemaking~~

The IOUs Extension of Advocacy includes, but is not limited to:

<u>Title 24</u>	<u>Title 20</u>
Residential Hardwired Lighting	General Service Incandescent Lamps
Residential Duct Improvement	ER and BR Lamps
Lighting Controls Under Skylights	Residential Pool Pumps, High Efficiency Motors
Duct sealing, New and Existing Commercial Buildings	Portable Spas
Outdoor lighting including sign lighting controls and wattage allowances	Pulse Start Metal Halide HID Luminaires
Tailored Lighting for High LPD Retail	Portable Lighting
DR Lighting Controls and HVAC (DDC to Zone)	Consumer Electronics—Audio Players
Demand Controlled Ventilation (DCV)	Consumer Electronics—TVs
Pool piping, motors and controls	Consumer Electronics—DVDs
Cool roofs	Unit Heaters and Duct Furnaces
HVAC equipment testing (res) and acceptance tests (nonres)	External Power Supplies

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Table 8: Federal Appliance Standards

<u>Title 24 Product Category</u>	<u>Title 20 DOE Proceeding Event Description</u>	<u>Anticipated Date</u>
<u>3-Phase CAC</u>	<u>Standard Preliminary Technical Support Analysis</u>	<u>Dec-13</u>
	<u>Standard Notice of Proposed Rulemaking</u>	<u>Dec-14</u>
<u>ASHRAE Products</u>	<u>Standard Final Rule</u>	<u>Nov-13</u>
<u>CACs, HPs (air-cooled)</u>	<u>Standard Final Rule</u>	<u>Jul-13</u>
<u>Ceiling Fans</u>	<u>Standard Final Rule</u>	<u>Jul-13</u>
<u>CFL (Medium Base)</u>	<u>Test Procedure Final Rule</u>	<u>Jun-13</u>
<u>Commercial Boilers</u>	<u>Standard Framework</u>	<u>Jul-14</u>
<u>Commercial Clothes Washers</u>	<u>Standard Preliminary Technical Support Analysis</u>	<u>Jul-13</u>
	<u>Standard Notice of Proposed Rulemaking</u>	<u>Jul-14</u>
<u>Commercial Ice Makers</u>	<u>Standard Final Rule</u>	<u>Jul-13</u>
<u>Commercial Refrigeration</u>	<u>Standard Final Rule</u>	<u>Jan-13</u>
	<u>Test Procedure Final Rule</u>	<u>Jan-13</u>
<u>Commercial Unit Heaters</u>	<u>Standard Final Rule</u>	<u>Jul-13</u>
<u>Dehumidifiers</u>	<u>Standard Preliminary Technical Support Analysis</u>	<u>Dec-13</u>
	<u>Standard Notice of Proposed Rulemaking</u>	<u>Dec-14</u>
<u>Dehumidifier (Active Mode)</u>	<u>Test Procedure Notice of Proposed Rulemaking</u>	<u>Jan-13</u>
	<u>Test Procedure Final Rule</u>	<u>Jul-13</u>
<u>Direct Heating Equipment</u>	<u>Test Procedure Final Rule</u>	<u>Sep-13</u>
<u>Dishwashers</u>	<u>Standard Preliminary Technical Support Analysis</u>	<u>Jul-13</u>
	<u>Standard Notice of Proposed Rulemaking</u>	<u>Jul-14</u>
<u>Exit Signs</u>	<u>Test Procedure Final Rule</u>	<u>Jun-13</u>
	<u>Standard Final Rule</u>	<u>Jul-13</u>
<u>Fumace Fans</u>	<u>Test Procedure Final Rule</u>	<u>Apr-13</u>
	<u>Standard Notice of Proposed Rulemaking</u>	<u>Dec-13</u>
	<u>Standard Final Rule</u>	<u>Dec-13</u>
<u>General Service Lamps</u>	<u>Standard Framework</u>	<u>Jan-14</u>
<u>GSFLs</u>	<u>Standard Notice of Proposed Rulemaking</u>	<u>Aug-13</u>
	<u>Standard Final Rule</u>	<u>Apr-14</u>
<u>HIDs</u>	<u>Standard Final Rule</u>	<u>Jan-13</u>
<u>IRLs</u>	<u>Standard Notice of Proposed Rulemaking</u>	<u>Aug-13</u>
	<u>Standard Final Rule</u>	<u>Apr-14</u>
<u>Microwaves (Active)</u>	<u>Standard Framework</u>	<u>Jan-13</u>
	<u>Standard Preliminary Technical Support</u>	<u>Jul-14</u>

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	Analysis	
Pool Heaters	Test Procedure Final Rule	Sep-13
Pre-rinse spray valves	Standard Final Rule	Jul-13
PTACs, PTHPs	Standard Framework	Sep-13
Ranges, Ovens	Standard Framework	Mar-14
Residential Boilers	Standard Preliminary Technical Support	Dec-13
	Analysis	Dec-14
STBs	Standard Notice of Proposed Rulemaking	
	Test Procedure Final Rule	May-13
Televisions	Standard Final Rule	Jun-13
Torchieres	Standard Final Rule	Jan-13
Traffic Signals	Standard Final Rule	Jul-13
Vending Machines	Standard Final Rule	Jul-13
Water Heaters	Standard Framework	Jul-14
Wine Chillers	Test Procedure Final Rule	Sep-13
	Standard Preliminary Technical Support	
	Analysis	Aug-13
	Standard Notice of Proposed Rulemaking	Aug-14

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8. Coordination & Integration

At the CPUC's direction, the C&S program is adding a non-resource Planning and Coordination Subprogram to improve the integration of portfolio program offerings. The C&S team will coordinate with both internal and external entities to establish a dynamic and integrated planning and implementation process to methodically and purposefully accelerate the movement of successful, cost-effective measures from the ET program through voluntary offerings and ultimately to adoption into standards. The three primary functions of the planning and coordination subprogram include strategic planning, internal coordination and communication, and statewide collaboration.

a) C&S Statewide Coordination

Many requirements for C&S coordination are derived from the CPUC's objective to mitigate climate change through regulatory objectives, including Title 20 and Title 24. While the Statewide C&S Program comprises the primary intervention to achieve these objectives, it must be considered within the context of California's innovation cycle:

- Adoption causes commoditization in the sense that a once high margin product becomes the industry standard.
- Commoditization spurs companies to innovate.

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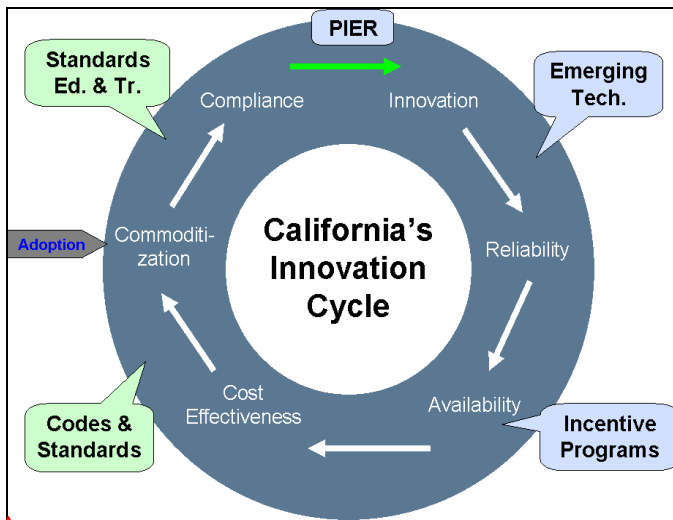
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- Innovation creates new, differentiated, high-margin products for the competitive market.
- Voluntary programs commercialize new innovations.
- Commercialization creates code readiness leading to adoption.

Innovation Cycle



Since the primary purpose of the [Statewide C&S Program](#) is to propose and support adoption of code enhancements, it is essential that IOUs collectively respond to all significant energy savings opportunities identified for a future code update cycle. For example, IOUs are now planning how best to coordinate efforts to address a long list of potential [Title 24](#) code enhancements for the 2011 code cycle. In general, planning is conducted on an as needed basis.

Codes and standards operations are conducted relative to a multi-year time horizon, so statewide meetings organized on a quarterly basis are sufficiently frequent to coordinate activities. Some CASE studies are developed through co-funding agreements when multiple IOUs are interested in or have specific value-added knowledge, perhaps through previous research. More typically, however, code proposals are developed by one IOU on behalf of the statewide since each proposal is a fraction of the program budget. During these meetings, ~~the our~~ primary objectives are to discuss CASE study objectives and develop mutual support for public proceedings.

The [C&S Program](#) will enhance coordination and integration of [Codes](#) and [Standards](#) with other [IOU](#) energy efficiency programs to maximize energy savings and demand reducing by coordinating training programs and utilizing the experience gained in resource

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programs to inform the development and advocacy of new codes. The C&S program will work with the Government Partnerships to improve code compliance, adopt above code ordinances, and provide training and education. The C&S compliance improvement subprogram will focus compliance improvement efforts on HVAC new installations and replacements in coordination with the HVAC program. The C&S program will also meet periodically with HVAC program staff to discuss compliance improvement strategies, training, and other program needs.

Coordination between the C&S and other parts of the IOU portfolio falls into one of two categories: existing standards and future standards. Compliance with code is essential to completing the commoditization process and capturing the benefit of commercialization efforts for the benefit of society, so the CEI subprogram leads efforts to implement existing standards through development of core activities that can be delivered either through, or in coordination with, other programs. Opportunities are identified through small group meetings between C&S and each target group such as workforce education and training, local government partnerships, new construction programs. In addition, the IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

Small group meetings mentioned above, are particularly useful, as they serve to identify incentive program opportunities to leverage the pull of existing standards that have effective dates far enough in the future to accommodate program changes. For example, an appliance standard adopted with an effective date two years hence would provide an opportunity to develop an incentive program pull that complements the C&S push.

Coordination activities around future standards are, likewise, developed through individual targeted meetings. Once the C&S team has identified potential code enhancement opportunities for a future code proceeding, the team meets with Mass Market, Targeted Market, Emerging Technologies, HVAC, demand response, or general education and training leads to discuss gaps between adoption needs and current code readiness. As appropriate, new measures may be added to incentive programs, new projects may be added to the ET portfolio. Sometimes, when ongoing CEC proceedings coincide with incentive program planning, incentive offerings can be integrated with code enhancement proposals to increase influence on proceedings.

Coordination with external organizations falls into a few broad categories. A particular code proposal typically attracts directly affected industry stakeholders. If an industry employs associations organized to oppose energy efficiency standards – which is usually the case – IOUs will seek support from other advocates and share information that enables their advocacy, as well as ours. Sometimes IOUs are able to work directly with industries that are not, in principal, opposed to all regulations.

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b) C&S Coordination with External Organizations & Entities

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As Federal preemption continues to grow, and as DOE continues to increase federal proceedings activities, it is necessary for California IOUs to increasingly engage with national organizations such as [American Council for an Energy Efficient Economy \(ACEEE\)](#), [Appliance Standards Awareness Project \(ASAP\)](#), and the [Natural Resources Defense Council \(NRDC\)](#). In particular, since the innovation engine, as pictured above, turns over once every three years in California and once every eight to ten years at DOE, the C&S program needs to work with national organizations to relax federal preemption policies to better help California meet AB 32 energy efficiency targets. California IOUs have ramped up operations to contribute materially DOE proceedings through analysis, letters, and negotiations.

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At a statewide and local level, the C&S program will develop training and compliance improvement activities with entities that include, but are not limited to, California Building Industry Association, local chapters of the Building Industry Association, Build it Green, Institute of Heating and Air Conditioning Industries, International Brotherhood of Electrical Workers, National Electrical Contractors Association, California League of Cities. Additionally, outreach and communications for Title 20 will include industry associations such National Electric Manufacturers Association, American Lighting Association, California Retailers Association, and the International Pool and Spa Association.

**How the Codes & Standards Program will Coordinate with
Other Energy Efficiency Programs**

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CIE or RC Subprograms
HVAC	<ul style="list-style-type: none"> ➤ Research possible scenarios to help improve HVAC quality construction ➤ Develop a whole building comfort metric that is the basis of compressorless homes in the coastal climate zones ➤ Review mandates to increase the use of FDD and improvements to FDD technologies 	<ul style="list-style-type: none"> ➤ Research the HVAC permitting tools available on the market, select permitting tools to test during the local government process pilot, and determine which best practices and tools to incorporate into the building official and HVAC contractor role-based training curriculum the program will develop. ➤ CE-CL will work with the CEC, CALBO and the CSLB to identify possible penalties that may be applied to contractors who do not pull required permits or operate

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CE or RC Subprograms
		<p>without the appropriate licenses. The program will investigate potential penalties during the local government process pilots and incorporate those penalties that prove effective during the pilot into the role-based training curriculum that the program will develop and roll out to additional jurisdictions.</p> <ul style="list-style-type: none"> ➤ CE-Cl subprogram personnel will work with HVAC Quality Installation and Workforce Education and Training program staff, utility education centers, and regulatory agencies to develop a brand, incentive mechanism, and consumer campaign, and technician training and certification programs. CE will evaluate the recently completed ACCA (Air Conditioning Contractors of America) Quality Installation Specification that has been adopted by the EPA ENERGY STAR Program to determine how to incorporate this into role- and measure-based training to be provided by the IOUs. ➤ Investigate the feasibility of an HVAC serial number tracking process to increase compliance. Various HVAC industry groups and HVAC distributors have expressed an interest in pursuing this as a way to increase the quality of installations and better ensure Title 24 compliance.
Government Partnerships		<ul style="list-style-type: none"> ➤ CE-Cl subprogram personnel will conduct a holistic process pilot in

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CIE or RC Subprograms
		<p>select building departments in addition to developing and delivering role-based tools and training to building department personnel.</p> <ul style="list-style-type: none"> ➤ RC subprogram personnel will encourage local governments to lead by example, and to adopt codes for government buildings that match or exceed the requirements for the private sector within their jurisdiction. Those local governments that do not wish to adopt reach codes for the private sector will be encouraged to at least adopt more stringent codes for their own buildings. ➤ Initial C&S efforts will focus on encouraging and supporting local governments, designers, and builders/contractors to implement and enforce existing acceptance testing requirements. CE-CI will work with the CEC, CA Commissioning Collaborative, and industry organizations such as SMACNA to conduct outreach and provide acceptance testing education at all levels of the supply chain.
Workforce Education and Training		<ul style="list-style-type: none"> ➤ CE-CI will work with Workforce Education and Training program managers, CABEC, Sonoma State University, CalPoly San Luis Obispo and others throughout the state to develop a curriculum that can be implemented at the state and community college level to expand current energy-related offerings and train building energy analysts in the theory and concepts

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CIE or RC Subprograms
		<p>of energy-efficient building design, simulation and construction.</p> <ul style="list-style-type: none"> ➤ <u>C&S</u> is working with IBEW, NECA, California Community Colleges, and others to develop and implement an electrical contractor's training program for advanced lighting controls. This is a critical step in facilitating the installation of the sophisticated lighting controls that are essential to meeting the AB1109 Huffman Bill and zero net energy goals.
<p>Targeted Markets/Mass Market/Emerging Technologies</p>	<ul style="list-style-type: none"> ➤ Through small group meetings, C&S will work with the Mass Market, Targeted Market and Emerging Technologies programs to identify incentive program opportunities to leverage the pull of existing standards that have effective dates far enough in the future to accommodate program changes. For example, an appliance standard adopted with an effective date two years hence would provide an opportunity to develop an incentive program pull that complements the C&S push. For promising measures that are evaluated by the ETP, the C&S program may propose that they are included in reach codes in parallel with EE incentive programs. ➤ C&S will work with the targeted and mass market program managers to require 	<ul style="list-style-type: none"> ➤ <u>C&S</u> will work with fellow energy efficiency program managers to identify and fulfill code-related training needs in order to keep program managers up to date on current and future codes, and to help prepare IOU sales reps with the knowledge they need to effectively market incentive programs.

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CIE or RC Subprograms
	<p>program participants to complete and submit the applicable acceptance tests required by Title 24 to receive an incentive for HVAC and lighting controls equipment. This will increase compliance with the acceptance tests and help assure the incented equipment is installed according to code intent.</p>	

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9. Marketing & Outreach/Education & Training

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Outreach for advocacy activities occurs through telephone calls and e-mails to industry stakeholders throughout the CASE study development process, leading up to commencement of a CEC rulemaking. After commencement of CEC rulemaking proceedings, CASE studies are presented during public workshops and hearings conducted by the CEC that are typically attended by building or appliance industry representatives, environmental groups, compliance industry representatives including local government officials, advocates from other states. In response to industry issues and concerns, the IOUs and their consultants will contact specific representatives or conduct stakeholder meetings to address specific issues more broadly. Following adoption hearings, the IOUs participate in developing compliance manuals.

Compliance improvement encompasses numerous industries engaged in supplying buildings and appliances to California; hence, outreach and marketing activities will be conducted through a variety of channels. IOU's training centers will conduct direct outreach to industry associations such as the Contractor State Licensing Board, California Building Officials Association, California Association of Building Energy Consultants, Consumer Electronics Association, and National Electrical Manufacturers Association. E-mail solicitations and paper calendars are sent to individuals notifying them of upcoming classes. Local governments will also be contacted through local government partnerships and circuit riders assigned to provide consulting services.

10. Quality Assurance & Evaluation Activities

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To help ensure quality assurance and effective evaluation, the IOUs will continue their ongoing efforts to track and assess the effectiveness of the [Codes and Standards C&S](#) Program in advocating for new codes, and for increasing compliance with existing codes.

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The [C&S P](#) program will continue to support the impact evaluation efforts of the CPUC and its contractors by documenting code advocacy efforts, and documenting compliance improvement efforts and education and training efforts and their effects on participant behavior. The IOUs will coordinate with the CPUC and their impact evaluation contractors to ensure that the sufficient type and level of data are being collected at the appropriate level of detail to enable an estimation of energy savings related to codes and standards activities. This includes supporting the CPUC in their research effort to establish Title 20 and Title 24 baselines, and track changes in adoption and compliance over time. This includes providing appropriate program data, as well as encouraging the participation of vendors, contractors, building officials and others, as appropriate, in providing information for establishing baselines and changes in penetration over time.

For the purpose of quality assurance in carrying out and improving the [Codes and Standards PC&S p](#) program, the IOUs will be conducting various qualitative evaluation activities to establish IOU effectiveness in various market transformation activities. These include but are not limited to:

- Code adoption - Research with participants in the code adoption process to assess the level and quality of participation by the IOUs and other stakeholders. This includes interview-based research, as well as review of documentation of participation.
- Compliance [EnhancementImprovement](#) – Effectiveness of various education and training activities, based on pre- and post- participation assessment of ‘knowledge swing’ of participants, and commitments to action made by participants and participant organization that stem from [CEcompliance improvement](#) activity. Initial assessments will be succeeded by assessments in the post period to identify changes in code-related activity resulting from [CEthe CI subprogram](#).
- Reach Code Assistance – Effectiveness of IOU efforts to assist local governments in establishing, implementing and enhancing compliance with reach codes. Initial assessments of energy codes and code compliance, local code support capability and other factors will be followed by an ongoing assessment of the effects of IOU reach code assistance.

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For [CEcompliance improvement](#), the IOUs will be using this assessment process to identify changes in awareness, capability and behavior change among individual [CECI](#) participants, and participant organizations, resulting for the various [CEcompliance improvement](#) activities. The IOUs will also look into calibrating our assessment of [CEcompliance improvement](#) through evaluations of non-participant awareness, capability and behavior changes. For example, if there is a [CEcompliance improvement](#) effort focused on building officials, the research could include an assessment of awareness, capability and behavior of building officials who did not participate in the training.

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Additional, formative research will be conducted to provide insight into emerging issues related to current and pending codes and standards. Specifically, research will be carried out to

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identify issues and trends appearing along the delivery chain for appliances as well as for building practices.

11. Program Theory & Logic Model and Performance Indicators

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On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below are the approved logic models for the Codes & Standards C&S Program.

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a) Building Codes and

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a)b) California Appliance Standards, including Extension of Advocacy

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c) Including a separate logic model for Federal Appliance Standards Advocacy

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b)d) Compliance Enhancement/Improvement

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e) Reach Codes

f) Planning and Coordination

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Logic models will be improved based on experience and finalized based on application to specific industries, local governments.

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Logic Models and the accompanying Program Theory and Program Indicators are tools designed to illustrate program structure and operation for the purpose of program management. This logic model is a schematic of the program as planned.

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A program theory is the basis of a logic model. Effective program management applies program theory, and related performance indicators are used to determine whether program theory is correct. Indicators enable informed management responses that improve programs.

Performance indicators are intended to serve as a program's 'dashboard'; displaying information necessary for effective program operation. As with automobile dashboards; indications are neither good nor bad, but enable appropriate management responses that maintain and/or improve program performance.

Logic models, program theories, and performance indicators can provide evaluators an understanding of program activities, outputs and outcomes. However, they are not intended as the basis for estimating, valuing, or attributing program savings as they focus on program operation rather than program results. Revised logic models and program theory tables will be included in a future addendum to the PIP.

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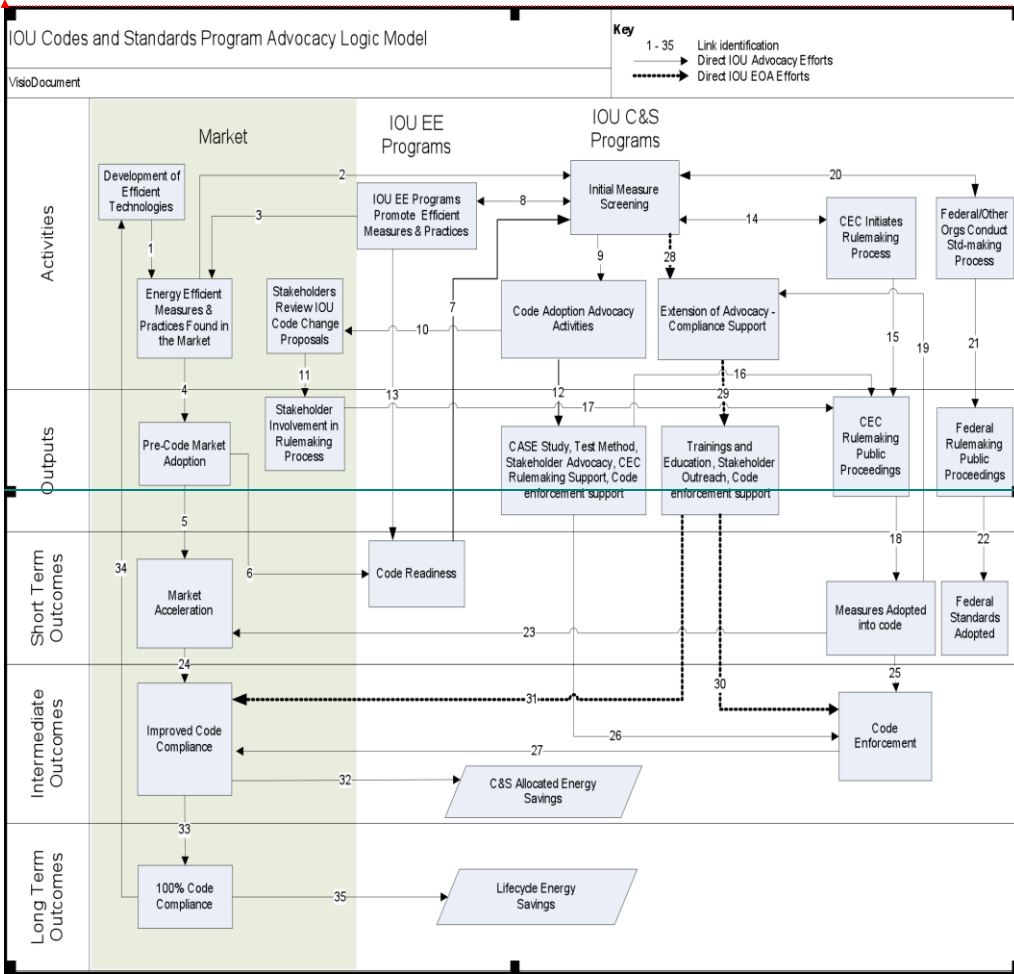
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Revised logic models and program theory tables will be included in a future addendum to the program implementation plan.

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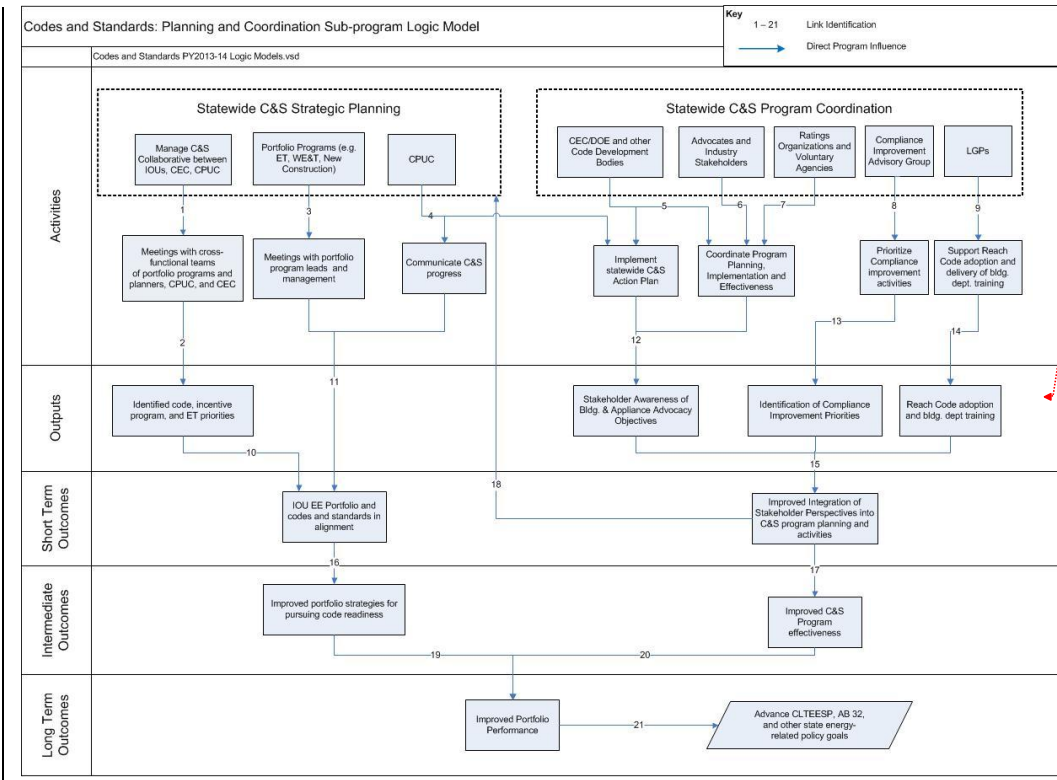
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Codes and Standards: Planning and Coordination Program Theory and Indicators

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<u>Link</u>	<u>Program Theory/Activity</u>	<u>Potential Indicators</u>
1	<u>IOUs P&C Subprogram provides a process that maintains a Codes and Standards Collaborative with CEC and CPUC for strategic planning and aligns portfolio planning activities to advance long term strategic goals</u>	<ul style="list-style-type: none"> <u>P&C subprogram holds quarterly statewide strategic planning meetings with CEC and CPUC</u> <u>Communication with CEC and CPUC Collaborative members</u> <u>IOUs document subprogram activities' alignment with California Long Term Energy Efficiency Strategic Plan (CLTEESP)</u>
2	<u>IOUs establish cross-functional teams with portfolio programs, the CPUC, and the CEC, to identify codes readiness priorities and other C&S priorities relative to policy goals.</u>	<ul style="list-style-type: none"> <u>Coordination meeting with portfolio programs including incentive, emerging technologies, and workforce education and training (WE&T) programs to identify C&S readiness priorities</u> <u>Coordination meeting with CEC to identify C&S priorities</u> <u>Coordination meeting with representatives from CPUC, and CEC to review C&S priorities relative to policy goals, for example: zero net energy (ZNE), AB 1109, and other Action Plan objectives.</u>
3	<u>C&S Program coordinates with other portfolio programs to develop an integrated, forward-looking approach to align new construction program offerings with base code and reach code.</u> <u>C&S program collaboration with the WE&T will prepare contractors and technicians to implement current codes, and prepare them with technical training on advanced technologies to improve code implementation</u>	<ul style="list-style-type: none"> <u>Coordination meeting with new construction program managers</u> <u>Integrated plan that documents how new construction programs are aligned with base code and reach code requirements</u> <u>Coordination meeting with WE&T program managers</u> <u>Integrated plan that documents how WE&T training aligns with base code and reach code requirements.</u>
4	<u>C&S program on-going communication with the CPUC will improve implementation of the C&S Action Plan</u>	<ul style="list-style-type: none"> <u>C&S program monthly calls with CPUC personnel to share progress and discuss issues</u> <u>Progress report on implementing C&S Action Plan.</u>

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<u>5</u>	<u>C&S program on-going collaboration with state and federal code development bodies including CEC, DOE, ASHRAE, IECC and other code bodies will improve implementation and effectiveness of the C&S Action Plan and other building and appliance related code efforts</u>	<ul style="list-style-type: none"> • <u>C&S program meetings with CEC and DOE personnel and ASHRAE and IECC committee members to share progress and discuss issues</u> • <u>Progress report on implementing C&S Action Plan</u> • <u>C&S program periodic calls and meetings with other code development bodies to share progress and discuss issues</u> • <u>Progress report on coordination with other C&S efforts</u>
<u>6</u>	<u>C&S program on-going collaboration, and negotiation with building and appliance related code advocates and industry stakeholder will improve implementation and effectiveness of the C&S Action Plan and success of other C&S efforts</u>	<ul style="list-style-type: none"> • <u>Periodic calls and meetings with national industry stakeholders regarding building and appliances standards</u> • <u>Progress report on collaboration and negotiation efforts, implementation of C&S Action Plan and work on other code efforts</u>
<u>7</u>	<u>C&S program on-going collaboration and coordination with national ratings organizations and voluntary high performance programs will improve implementation and effectiveness of the C&S Action Plan and other C&S efforts</u>	<ul style="list-style-type: none"> • <u>Periodic calls and meetings with national ratings organizations (e.g. NFRC, CRRC) and voluntary programs (e.g. EnergyStar, CHPS, LEED) regarding building and appliances standards</u> • <u>Progress report on collaboration and negotiation efforts, implementation of C&S Action Plan and work on other code efforts</u>
<u>8</u>	<u>Creation and activity of Compliance Improvement Advisory Group will increase compliance activities coordination to improve compliance</u>	<ul style="list-style-type: none"> • <u>Quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities</u>
<u>9</u>	<u>Communication and coordination with Local Government Partnership (LGP) will increase compliance activities coordination to improve compliance</u>	<ul style="list-style-type: none"> • <u>Quarterly updates to LGP Program regarding reach code adoption progress and delivery of training to building departments</u>
<u>10</u>	<u>IOUs' cross-functional teams' coordination and agreement result in statewide codes and standards activities and proposals consistent</u>	<ul style="list-style-type: none"> • <u>Communication among team members including documentation of agreed upon goals and plans.</u>

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	<u>with IOUs' portfolio program goals</u>	<ul style="list-style-type: none"> • <u>Increased feasibility and code readiness of efficient products and practices</u> • <u>IOU program portfolio goals alignment with statewide codes and standards (CEC) plans and activity, for example: ZNE, AB 1109, and other Action Plan objectives</u>
<u>11</u>	<u>C&S Program coordination and collaboration with other portfolio programs, and communication to CPUC result in portfolio program goals consistent with statewide codes and standards activities and proposals</u>	<ul style="list-style-type: none"> • <u>Documentation of agreed upon goals and plans</u> • <u>IOU program portfolio goals alignment with statewide codes and standards (CEC) plans and activity, for example: ZNE, AB 1109, and other Action Plan objectives</u>
<u>12</u>	<u>C&S program on-going communication and coordination with all stakeholders leads to stakeholder awareness and understanding of the C&S Action Plan and advocacy, planning and activities.</u>	<ul style="list-style-type: none"> • <u>Progress report on implementing C&S Action Plan</u> • <u>Documentation of agreed upon objectives, goals, and plans</u>
<u>13</u>	<u>CIAG compliance improvement discussions and activities will result in prioritized code compliance improvement.</u>	<ul style="list-style-type: none"> • <u>Progress report on implementing C&S Action Plan</u> • <u>IOU compliance improvement activities are aligned with statewide codes and standards (CEC) plans and activity, for example: ZNE, AB 1109, and other Action Plan objectives</u>
<u>14</u>	<p><u>C&S program coordination with LGP Program training to building departments will improve understanding of reach code activities</u></p> <p><u>Communication and coordination with Local Government Partnership (LGP) will increase compliance activities coordination and improve compliance</u></p>	<ul style="list-style-type: none"> • <u>Quarterly updates to LGP Program regarding reach code adoption progress and delivery of training to building departments</u> • <u>Reduction in time for building officials to process paperwork</u> • <u>Reduction in number of compliance mistakes due to resources and training</u>
<u>15</u>	<u>Communication and coordination with CIAG, LGP and other stakeholders will improve integration of various perspectives into C&S planning and activities</u>	<ul style="list-style-type: none"> • <u>CIAG, LGP and other stakeholders recognition of C&S benefits, leading to support of activities to optimize codes through enforcement</u>

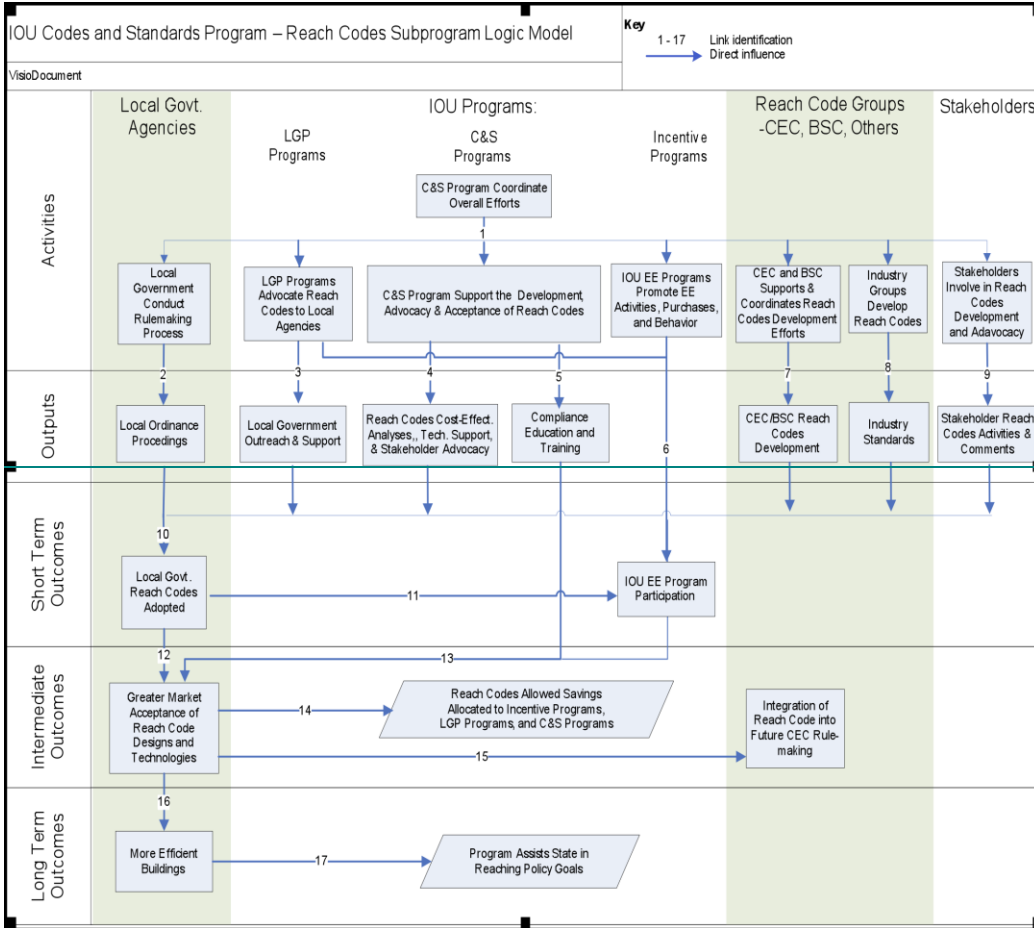
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	<u>Stakeholder awareness of C&S program advocacy objectives and goals leads to improved coordination and integration of planning and activities</u>	<ul style="list-style-type: none"> • <u>Documentation of integration of stakeholder perspective and objectives in C&S plans</u>
<u>16</u>	<u>Portfolio program goals consistent with statewide codes and standards activities results in improved strategies for pursuing code readiness</u>	<ul style="list-style-type: none"> • <u>IOU EE programs support test method development and provide collected test data</u> • <u>Increased market presence and acceptance of efficient products and practices based on IOU portfolio programs</u>
<u>17</u>	<u>Coordination with all stakeholders will improve C&S program effectiveness</u>	<ul style="list-style-type: none"> • <u>Technical responses to comments and concerns voiced by stakeholders</u> • <u>Improved program performance metrics including lower TRC and greater energy savings.</u>
<u>18</u>	<u>Integration of various stakeholder perspectives into C&S planning and activities enhances statewide strategic planning</u>	<ul style="list-style-type: none"> • <u>Progress report on implementing C&S Action Plan</u> • <u>Documentation of agreed upon goals and plans</u> • <u>IOUs document subprogram activities' alignment with Strategic Plan</u>
<u>19</u>	<u>Improved portfolio strategies lead to improved portfolio performance</u>	<ul style="list-style-type: none"> • <u>Increased awareness and understanding of codes and standards by stakeholders</u> • <u>Reduction of noncompliant practices and appliances</u>
<u>20</u>	<u>Improved program effectiveness leads to improved portfolio performance</u>	<ul style="list-style-type: none"> • <u>Increased awareness and understanding of codes and standards by stakeholders</u> • <u>Reduction of noncompliant practices and appliances</u> • <u>Improved program performance metrics including lower TRC and greater energy savings</u>
<u>21</u>	<u>Improved portfolio performance leads to advancement towards long term strategic goals</u>	<ul style="list-style-type: none"> • <u>State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits</u>

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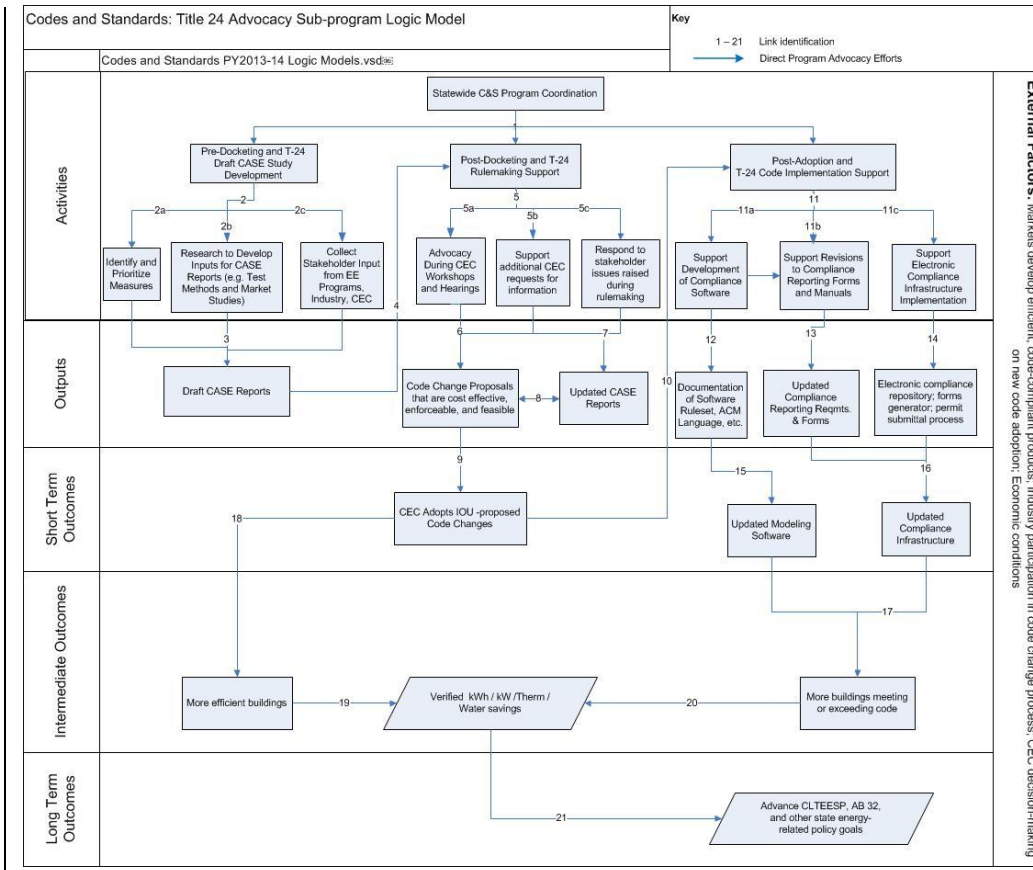
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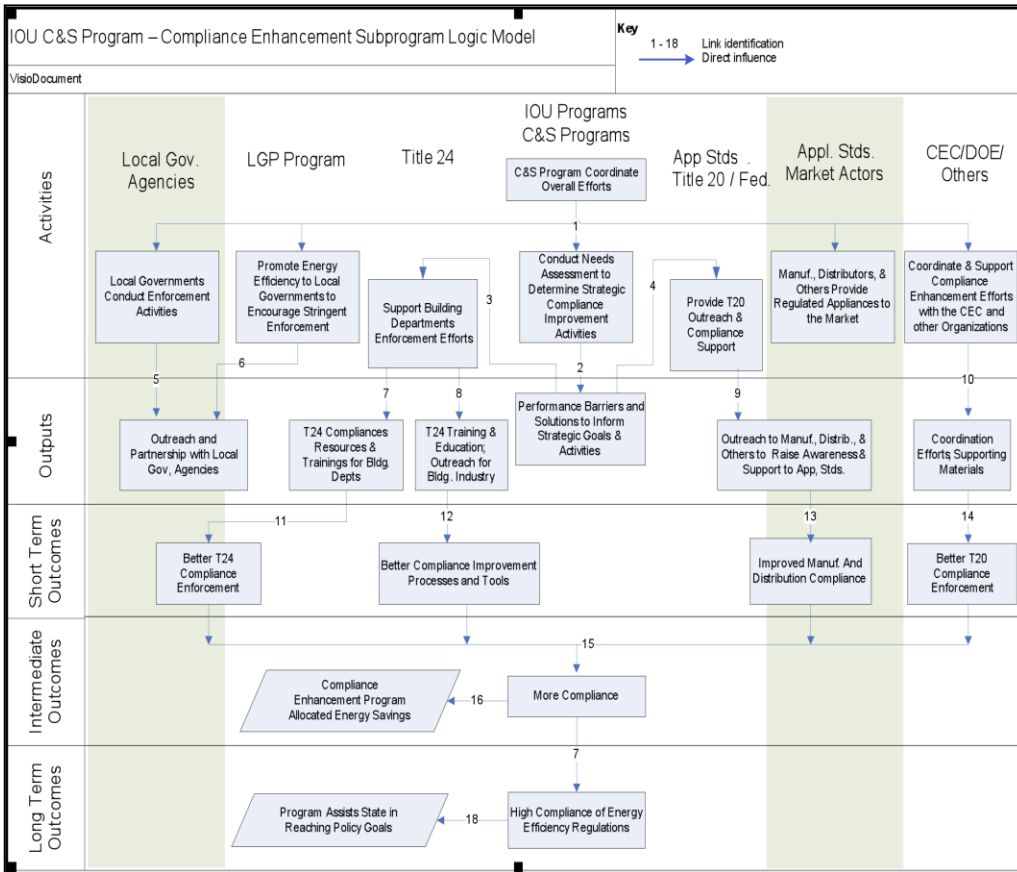
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Codes and Standards: Title 24 Advocacy Program Theory and Indicators

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<u>Link</u>	<u>Program Theory/Activity</u>	<u>Potential Indicators</u>
<u>1</u>	<u>C&S Program managers coordinate their program activities to present a united, statewide IOU C&S Program and conduct activities from pre-docketing through post-adoption of T-24 building standards.</u>	<u>C&S Program managers meetings and on-going communication</u>
<u>2</u>	<u>C&S Program conducts full range of advocacy efforts during pre-rulemaking processes to support successful code change development through outreach and advocacy to stakeholders</u>	<ul style="list-style-type: none"> • <u>2a. Initial IOU assessment of measures/products indicates level of measure code-readiness</u> • <u>2b. C&S Program documentation of market feasibility and cost-effectiveness</u> • <u>Documentation of test methods and required test results</u> • <u>2c. C&S Program stakeholder meetings, outreach and on-going communication with IOU EE program managers, CEC staff and industry stakeholders</u> • <u>Documentation of IOU run stakeholder meetings, including invitee list, attendee list and meeting notes</u>
<u>3</u>	<u>C&S Program conducts initial assessment of code change opportunities based on feasibility, cost-effectiveness, market readiness and acceptance, availability of test methods and data, etc.</u>	<ul style="list-style-type: none"> • <u>Documentation of compliance research, market feasibility, potential energy savings, and cost-effectiveness</u> • <u>C&S Program stakeholder meetings, outreach and on-going communication</u> • <u>C&S Program supported test method development and test data</u> • <u>Communication with CEC, standard organizations committee members and other stakeholders</u>
<u>4</u>	<u>C&S program advocacy is presented at public CEC code proceedings</u>	• <u>Codes and Standards Enhancement (CASE) reports filed with CEC docket</u>
<u>5</u>	<u>C&S Program conducts full range of advocacy efforts to support rulemaking processes and successful code change development</u>	<ul style="list-style-type: none"> • <u>5a. Communication with CEC, standard organizations committee members and other stakeholders</u> • <u>5b. CASE reports include additional</u>

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		<p><u>data, analysis and documentation based on comments raised during rulemaking</u></p> <ul style="list-style-type: none"> • <u>5c. Code enhancement support documents including compliance research, market feasibility, potential energy savings, and cost-effectiveness</u> • <u>Written response to stakeholders' comments and questions</u>
<u>6</u>	<u>C&S program provides technical responses to stakeholder issues raised in public rulemaking proceedings, including responding to comments and concerns voiced by stakeholders</u>	<ul style="list-style-type: none"> • <u>Communication with CEC, standard organizations committee members and other stakeholders</u> • <u>C&S Program input to stakeholder and CEC staff comments and questions on proposed code changes</u> • <u>CASE reports documenting code change proposals that are cost-effective, feasible and enforceable</u>
<u>7</u>	<u>CASE reports are revised and updated during the code proceeding process.</u>	<ul style="list-style-type: none"> • <u>CASE reports documenting code change proposals that are cost-effective, feasible and enforceable</u> • <u>CASE reports include additional data, analysis and documentation based on comments raised during rulemaking</u>
<u>8</u>	<u>CASE reports are updated to include proposed code change language and additional information presented during the public rulemaking proceedings</u>	<ul style="list-style-type: none"> • <u>CEC analysis and workshop discussions, public notices and scheduling of workshops</u> • <u>Updated CASE reports filed with CEC docket</u>
<u>9</u>	<u>IOU-proposed code change language is included in the CEC adopted Title 24 (T24) Standards</u>	<ul style="list-style-type: none"> • <u>Final published CASE reports</u> • <u>Updated T24 Standards adopted and published by CEC</u>
<u>10</u>	<u>After new T24 Standards are adopted C&S program initiates efforts to support the CEC in updating code compliance materials</u>	<ul style="list-style-type: none"> • <u>Communication with CEC, standard organizations committee members and other stakeholders</u>
<u>11</u>	<u>C&S Program conducts full range of advocacy efforts to support successful code change implementation</u>	<ul style="list-style-type: none"> • <u>11a. C&S Program supported compliance software development</u> • <u>11b. C&S Program developed revisions to compliance reporting forms and</u>

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		<u>manuals</u>
		<ul style="list-style-type: none"> • <u>11c. C&S Program supported compliance electronic infrastructure development, including electronic repository, pre-processing of electronic documents, and electronic input to the permit process</u>
<u>12</u>	<u>C&S program develops documentation to revise compliance software requirements to reflect the most recent code updates based on CASE Studies</u>	<ul style="list-style-type: none"> • <u>C&S program provides compliance software revisions documentation to the CEC</u>
<u>13</u>	<u>C&S program develops updated compliance reporting requirements and forms to reflect the most recent T24 updates based on CASE Studies</u>	<ul style="list-style-type: none"> • <u>C&S program provides revisions to T24 Standards manual and forms to the CEC</u>
<u>14</u>	<u>C&S program supports the CEC in developing a permit repository system, which generates and stores compliance forms</u>	<ul style="list-style-type: none"> • <u>Communication and meetings with CEC and other stakeholders on repository system development, including electronic repository, pre-processing of electronic documents, and electronic input to the permit process</u>
<u>15</u>	<u>C&S program documentation of code compliance software revisions is accepted and approved by the CEC</u>	<ul style="list-style-type: none"> • <u>CEC approves and implements updated compliance software</u>
<u>16</u>	<u>CEC compliance infrastructure is updated with new compliance manuals and forms, reporting requirements, and a new permit repository system</u>	<ul style="list-style-type: none"> • <u>CEC approves revised compliance reporting requirements</u> • <u>CEC approves revised compliance manuals and forms</u> • <u>CEC develops an electronic compliance repository and new electronic permit submittal process</u>
<u>17</u>	<u>Improved compliance infrastructure, system and modeling software leads to more buildings meeting or exceeding T24 requirements</u>	<ul style="list-style-type: none"> • <u>Energy savings calculations submitted for permit approval with compliance rates</u>
<u>18</u>	<u>New building efficiency (T24) standards lead to more efficient buildings</u>	<ul style="list-style-type: none"> • <u>Energy savings calculations submitted for permit approval</u>

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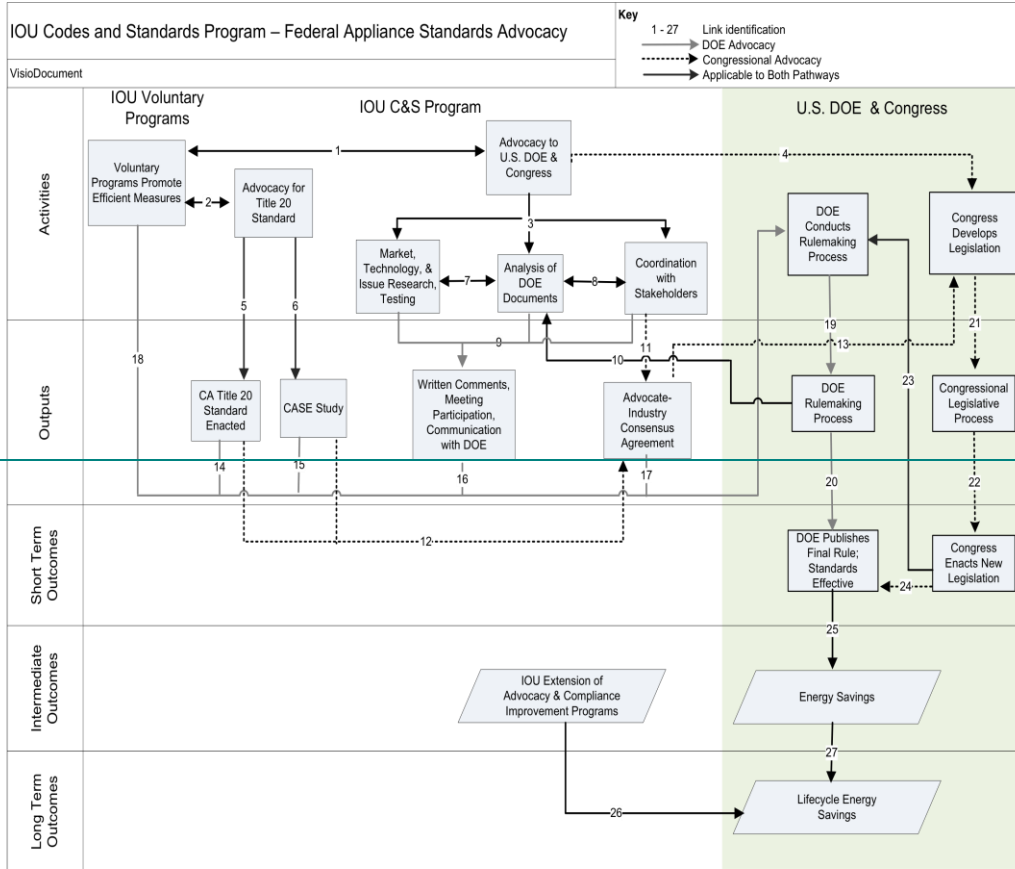
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<u>19</u>	<u>More efficient buildings result in electric and gas energy savings, demand reduction, and water savings</u>	<ul style="list-style-type: none"> <u>Energy savings calculations or building energy and water usage</u>
<u>20</u>	<u>More buildings meeting or exceeding code result in electric and gas energy savings, demand reduction, and water savings</u>	<ul style="list-style-type: none"> <u>Energy savings calculations or building energy and water usage</u>
<u>21</u>	<u>Adopted and implemented codes lead to advancement towards long term strategic goals</u>	<ul style="list-style-type: none"> <u>State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits</u>

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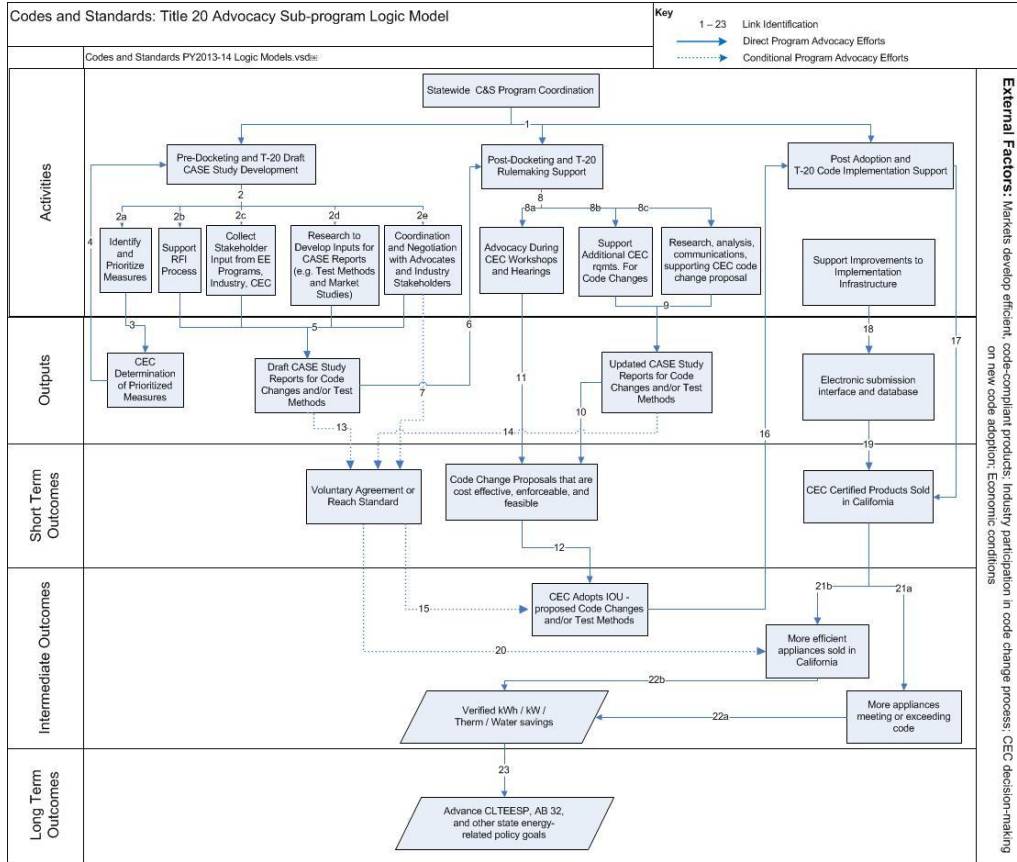
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Codes and Standards: Title 20 Advocacy Program Theory and Indicators

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<u>Link</u>	<u>Program Theory/Activity</u>	<u>Potential Indicators</u>
<u>1</u>	<u>C&S Program managers coordinate their program activities to present a united, statewide C&S Program and conduct activities from pre-docketing through post-adoption of T-20 appliance standards.</u>	<ul style="list-style-type: none"> • <u>C&S Program managers meetings and on-going communication</u>
<u>2</u>	<u>C&S Program conducts full range of advocacy efforts during pre-rulemaking processes to support successful code change development through outreach and advocacy to stakeholders</u>	<ul style="list-style-type: none"> • <u>2a Initial IOU assessment of measures/products indicates level of measure code-readiness</u> • <u>2b. C&S Program support to CEC T20 RFI process</u> • <u>2c. C&S Program stakeholder meetings, outreach and on-going communication with IOU EE program managers, CEC staff and industry stakeholders</u> • <u>2d. C&S Program documentation of market feasibility and cost-effectiveness</u> • <u>Documentation of test methods and required test results</u> • <u>2e. Negotiation meetings with advocates and industry stakeholders</u>
<u>3</u>	<u>IOUs share the code change screening results with the CEC and coordinate code change proposals with the CEC</u>	<ul style="list-style-type: none"> • <u>C&S program communications with CEC staff</u> • <u>C&S program assessments and recommendations presented to CEC</u>
<u>4</u>	<u>Initial CEC vetting of measures produces list of measures for consideration during the public rulemaking proceedings</u>	<ul style="list-style-type: none"> • <u>CEC analysis and workshop discussions of initial measures, public notices and scheduling of workshops</u> • <u>Supporting documentation from C&S Program</u>
<u>5</u>	<u>C&S Program conducts initial assessment of code change opportunities based on feasibility,</u>	<ul style="list-style-type: none"> • <u>Documentation of compliance research, market feasibility, potential energy savings, and cost-effectiveness</u>

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	<u>cost-effectiveness, market readiness and acceptance, availability of test methods and data, etc.</u>	<ul style="list-style-type: none"> • <u>C&S Program stakeholder meetings, outreach and on-going communication</u> • <u>C&S Program supported test method development and test data</u> • <u>Communication with CEC, standard organizations committee members and other stakeholders</u>
6	<u>C&S program advocacy is presented at public CEC code proceedings</u>	<ul style="list-style-type: none"> • <u>CASE reports filed with CEC docket</u>
7	<u>C&S program advocacy is adopted voluntarily by industry or into local reach code ordinances</u>	<ul style="list-style-type: none"> • <u>Industry voluntary agreements and/or adoption of reach code standard based on IOUs C&S program negotiations</u>
8	<u>C&S Program conducts full range of advocacy efforts to support rulemaking processes and successful code change development</u>	<ul style="list-style-type: none"> • <u>8a. Communication with CEC, standard organizations committee members and other stakeholders</u> • <u>8b. CASE reports includes additional CEC requirements</u> • <u>8c. Code enhancement support documents (compliance research, market feasibility, stakeholder outreach, and cost-effectiveness analyses)</u>
9	<u>CASE reports are revised and updated during the code proceeding process</u>	<ul style="list-style-type: none"> • <u>CASE reports documenting code change proposals that are cost-effective, feasible and enforceable</u> • <u>CASE reports include additional data, analysis and documentation based on comments raised during rulemaking</u>
10	<u>CASE reports are updated to include proposed code change language, test method requirements and additional information presented during the public rulemaking proceedings</u>	<ul style="list-style-type: none"> • <u>CEC analysis and workshop discussions, public notices and scheduling of workshops</u> • <u>Updated CASE reports filed with CEC docket supporting code change proposals and test methods that are cost effective, feasible and enforceable</u>
11	<u>C&S program provides technical responses to stakeholder issues raised in public rulemaking proceedings, including responding to comments and concerns voiced by stakeholders</u>	<ul style="list-style-type: none"> • <u>Communication with CEC, standard organizations committee members and other stakeholders</u> • <u>C&S Program input to stakeholder and CEC staff comments and questions on</u>

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		<u>proposed code changes</u>
<u>12</u>	<u>IOU proposed code change language is included in the CEC adopted Title 20 standards</u>	<ul style="list-style-type: none"> • <u>Final published CASE reports</u> • <u>Updated Title 20 Standards adopted and published by CEC</u>
<u>13</u>	<u>IOUs draft CASE report recommendations is adopted voluntarily by industry or into local reach code ordinances</u>	<ul style="list-style-type: none"> • <u>Industry voluntary agreements and/or adoption of reach code standard based on draft CASE reports</u>
<u>14</u>	<u>C&S program provides technical responses to stakeholder issues raised in public rulemaking proceedings, including responding to comments and concerns voiced by stakeholders, which are then adopted voluntarily by industry or into local reach code ordinances</u>	<ul style="list-style-type: none"> • <u>Industry voluntary agreements and/or adoption of reach code standard based on docketed, revised CASE reports</u>
<u>15</u>	<u>Development of locally adopted reach code ordinances leads to integration of more efficient building practices into future CEC Rule-making</u>	<ul style="list-style-type: none"> • <u>Future CEC Title 20 code change proposal and IOU code enhancement proposals based on reach code influenced appliance standards</u>
<u>16</u>	<u>After new Title 20 standards are adopted C&S program initiates efforts to support the CEC in updating code compliance materials</u>	<ul style="list-style-type: none"> • <u>Communication with CEC, standard organizations committee members and other stakeholders</u>
<u>17</u>	<u>The adoption of stringent energy efficient standards accelerates market adoption of efficient technologies</u>	<ul style="list-style-type: none"> • <u>Increased market presence and acceptance of certified products</u> • <u>Initial compliance rates</u>
<u>18</u>	<u>C&S Program promotes development of infrastructure to ensure successful code change implementation</u>	<ul style="list-style-type: none"> • <u>C&S Program-supported electronic infrastructure development including electronic repository, pre-processing of electronic documents, and electronic input to the permit process</u>
<u>19</u>	<u>Compliance electronic infrastructure is accepted and adopted by the CEC</u>	<ul style="list-style-type: none"> • <u>CEC approves and implements compliance electronic infrastructure</u>
<u>20</u>	<u>Market adoption, accelerated by industry voluntary agreements and/or reach codes, leads to market acceleration</u>	<ul style="list-style-type: none"> • <u>Increased feasibility and market presence of efficient products and practices</u>

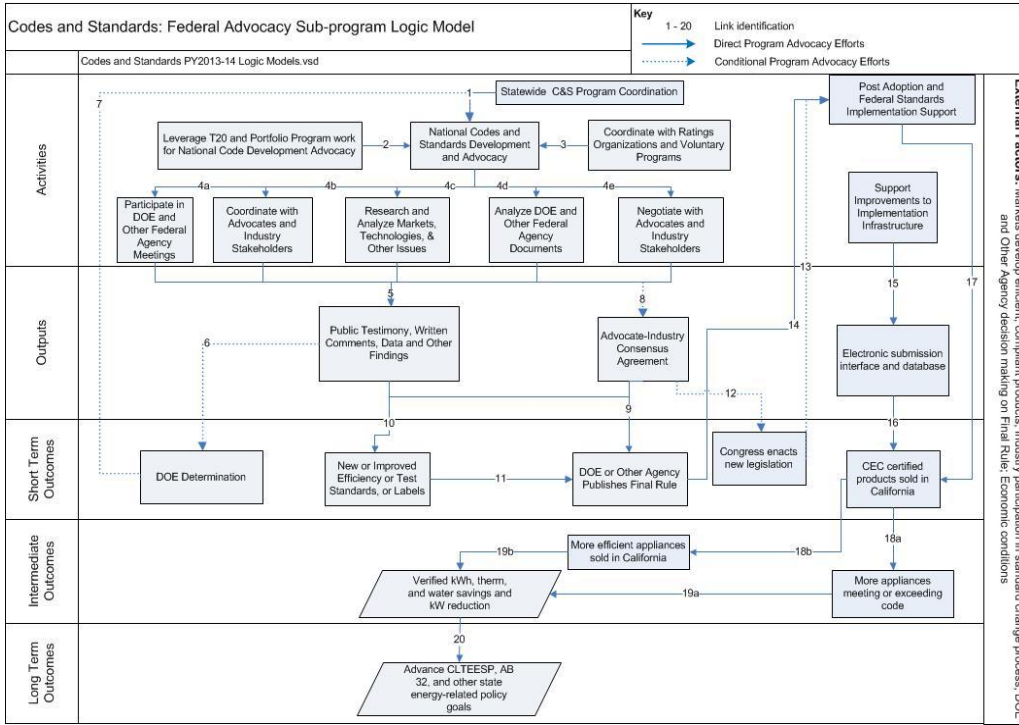
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<u>21</u>	<u>The adoption of stringent energy efficiency standards accelerates market adoption of efficient technologies</u>	<ul style="list-style-type: none"> • <u>21a. Increased market presence and acceptance of efficient certified products</u> • <u>21b. Initial compliance rates</u>
<u>22</u>	<u>As market presence of high efficiency models increases, more products sold automatically meet the code requirement and compliance increases</u>	<ul style="list-style-type: none"> • <u>22a. Increased market presence of efficient products improved compliance rate</u> • <u>22b. Energy and water savings calculations with compliance rates</u>
<u>23</u>	<u>Adopted and implemented codes lead to advancement towards long term strategic goals</u>	<ul style="list-style-type: none"> • <u>State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits</u>

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Codes and Standards: Federal Advocacy Program Theory and Indicators

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Link	Program Theory	Potential Indicators
1	<p><u>C&S Program leverages the experiences and expertise of portfolio programs and Title 20 activities to identify areas for federal appliance standard improvement opportunities</u></p> <p><u>Portfolio programs leverage C&S Program’s federal standards knowledge and expertise to identify new opportunities for programs</u></p>	<ul style="list-style-type: none"> • <u>Obtain market and technical information from portfolio programs</u> • <u>Obtain market and technical information from the Title 20 sub-program</u> • <u>Portfolio programs obtain federal appliance standards information from C&S Program</u>
2	<p><u>C&S Program leverages the experiences and expertise of portfolio programs to identify areas for state appliance standard improvement opportunities</u></p> <p><u>Portfolio programs leverage C&S Program’s state standards knowledge and expertise to identify new opportunities for programs</u></p>	<ul style="list-style-type: none"> • <u>Obtain market and technical information from portfolio programs.</u> • <u>Portfolio programs seek and obtain state appliance standards information from C&S Program</u>
3	<p><u>C&S Program coordinates with national ratings organizations (e.g. FTC) and voluntary programs (e.g. ENERGY STAR), including the development of test standards or labeling requirements</u></p>	<ul style="list-style-type: none"> • <u>Coordination with ratings organizations such as FTC</u> • <u>Coordination with voluntary programs such as ENERGY STAR</u>
4	<p><u>As part of C&S Program advocacy to DOE, C&S Program conducts research and testing, analyzes DOE documentation for key technical and policy issues, and coordinates with both energy-efficiency advocates and industry stakeholders on issues related to the federal appliance standard including the development of new industry test methods</u></p>	<ul style="list-style-type: none"> • <u>4a. Participation in meetings, including providing public testimony</u> • <u>4b. Communication, including email and phone calls, with manufacturers, industry groups, and efficiency advocates</u> • <u>4c. Research documentation and analysis in reports and internal communications</u> • <u>4c. Participation in the development of industry test methods</u> • <u>4d. Notes on key issues and internal communication regarding DOE documentation</u> • <u>4e. Negotiation meetings with advocates</u>

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		<u>and industry stakeholders</u>
<u>5</u>	<u>C&S Program drafts IOU written comments submitted to DOE in advocacy of standards, participates in DOE public meetings, provides public testimony, and communicates with DOE staff and their consultants during the rulemaking.</u>	<ul style="list-style-type: none"> • <u>Percentage of DOE rulemakings for which written comments are submitted by IOUs</u> • <u>Percentage of DOE meetings with IOU participation</u> • <u>Communication, including email and phone records, with DOE staff and their consultants.</u> • <u>Public testimony to DOE</u>
<u>6</u>	<u>C&S Program comments and findings lead to DOE determination of which standards to consider for rulemaking</u>	<ul style="list-style-type: none"> • <u>DOE determination notice of standards considered for rulemaking</u> • <u>Acknowledgment of IOU contributions in DOE determination notice</u>
<u>7</u>	<u>DOE determination to pursue standards for rulemaking</u>	<ul style="list-style-type: none"> • <u>DOE determination notice</u> • <u>DOE proceeds with rulemaking</u>
<u>8</u>	<p><u>C&S Program coordinates with other energy efficiency advocates and industry stakeholders to develop a consensus agreement on new standards and/or testing requirements, through a negotiation process</u></p> <p><u>C&S Program conditionally supports this pathway when it leads to quicker, greater energy savings than traditional rulemaking</u></p>	<ul style="list-style-type: none"> • <u>Communications, including email, phone records, conference calls and in-person meetings, with stakeholders</u> • <u>Internal review, research, analysis and communication on potential negotiation positions</u> • <u>Draft negotiation positions and final consensus agreement</u>
<u>9</u>	<u>DOE uses consensus agreement from efficiency advocates and industry as the basis of their final rule</u>	<ul style="list-style-type: none"> • <u>DOE sets new federal standards based on standard levels and other provisions of consensus agreement</u>
<u>10</u>	<u>C&S Program data, findings, comments and testimony support DOE appliance standards rulemaking to establish new or amended federal appliance standards, test procedures and/or labels.</u>	<ul style="list-style-type: none"> • <u>DOE Federal Register publications, technical documentation, and public meetings.</u> • <u>C&S Program public testimony, written comments, and data in support of new or amended federal appliance standards, test procedures and/or labels</u>
<u>11</u>	<u>DOE publishes final rule with new or amended appliance standards, or new or amended test procedure</u>	<ul style="list-style-type: none"> • <u>DOE Final Rule is published in the Federal Register</u>
<u>12</u>	<u>Advocate-industry consensus agreement is finalized and provided to Congress for possible enactment through energy legislation</u>	<ul style="list-style-type: none"> • <u>Submittal of final consensus agreement to Congress</u>
<u>13</u>	<u>Congress passes final energy legislation and President signs legislation into law</u>	<ul style="list-style-type: none"> • <u>Final enacted legislation</u> • <u>Communication with standard</u>

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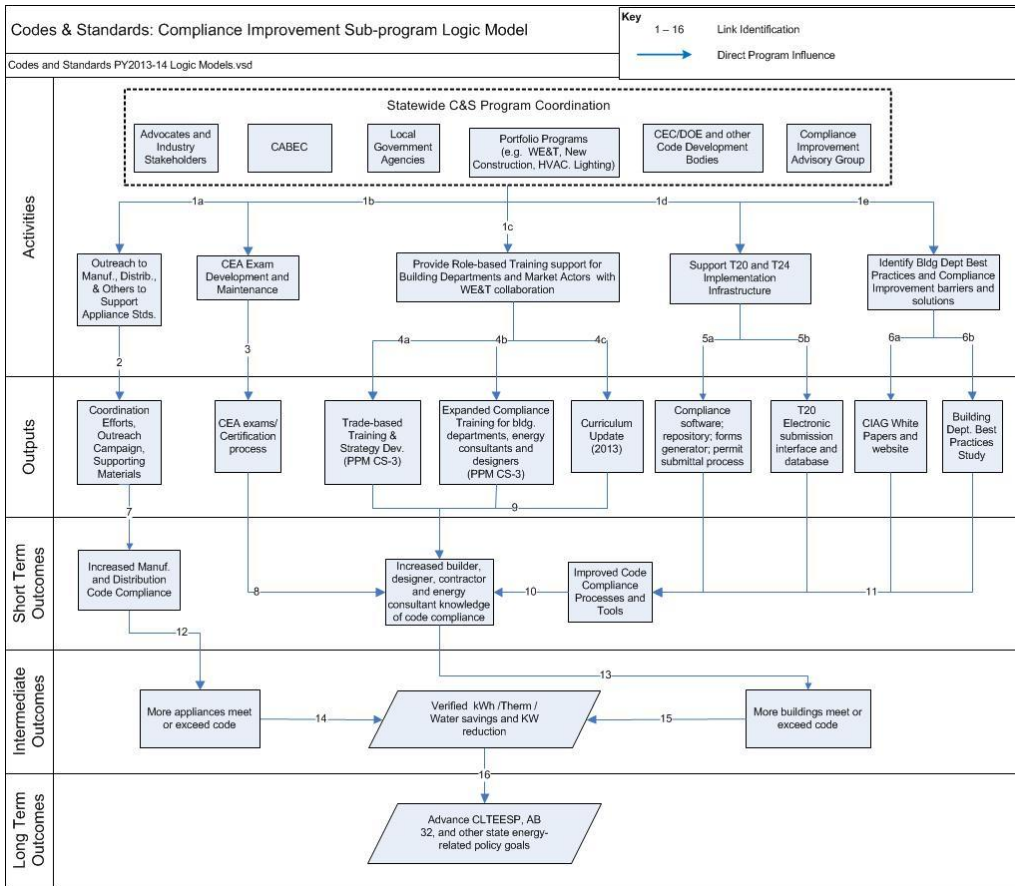
	<u>C&S Program initiates efforts for post adoption implementation support</u>	<u>organizations committee members and other stakeholders to identify implementation support needs</u>
<u>14</u>	<u>DOE publishes a Final Rule to integrate new standards and/or test procedures established by Congress, and related provisions, into the Code of Federal Regulations.</u> <u>C&S Program initiates efforts for post adoption implementation support</u>	<ul style="list-style-type: none"> • <u>DOE Final Rule published in the Federal Register</u> • <u>Communication with standard organizations committee members and other stakeholders to identify implementation support need</u>
<u>15</u>	<u>C&S Program promotes development of, and improvements to, infrastructure to ensure successful code change implementation</u>	<ul style="list-style-type: none"> • <u>C&S Program supported electronic infrastructure development and improvement including electronic repository, pre-processing of electronic documents, and electronic input to the permit process</u>
<u>16</u>	<u>Compliance electronic infrastructure is accepted and adopted by the CEC</u>	<ul style="list-style-type: none"> • <u>CEC approves and implements compliance electronic infrastructure</u>
<u>17</u>	<u>The adoption of stringent energy efficient standards accelerate market adoption of efficient technologies</u>	<ul style="list-style-type: none"> • <u>Increased market presence and acceptance of certified products</u> • <u>Initial compliance rates</u>
<u>18</u>	<u>The adoption of stringent energy efficient standards accelerates market adoption of efficient technologies</u> <u>The adoption of stringent energy efficient standards leads to more appliances meeting or exceeding code</u>	<ul style="list-style-type: none"> • <u>18a. Initial compliance rates</u> • <u>18b. Increased market presence and acceptance of efficient certified products</u>
<u>19</u>	<u>As market presence of high efficiency models increases, more products sold automatically meet the code requirement and compliance increases</u>	<ul style="list-style-type: none"> • <u>19a. Increased market presence of efficient products demonstrates improved compliance rate</u> • <u>19b. Energy and water savings calculations with compliance rates</u>
<u>20</u>	<u>Adopted and implemented codes lead to advancement towards long term strategic goals</u>	<ul style="list-style-type: none"> • <u>State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits</u>

**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

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**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

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Codes and Standards: Compliance Improvement Program Theory and Indicators

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Link	Program Theory	Potential Indicators
<u>1</u>	<u>C&S Program coordinates with advocates and industry stakeholders, CABEC, local government agencies, CEC/DOE/other code development bodies, Compliance Advisory Group (CIAG), other IOU portfolio programs, and other organizations</u>	<ul style="list-style-type: none"> • <u>Communication with collaborative members</u>
<u>1a</u>	<p><u>C&S program coordinates efforts with the appliance industry in improving code compliance through outreach to manufacturers, distributors and others to support appliance standards</u></p> <p><u>C&S program supports CEC outreach efforts</u></p> <p><u>C&S program staff attends trade shows, meetings and other outreach venues</u></p>	<ul style="list-style-type: none"> • <u>Number of manufacturers contacted</u> • <u>Number of meetings</u> • <u>Participation in trade shows</u> • <u>Number of training sessions</u>
<u>1b</u>	<p><u>C&S Program supports Certified Energy Analyst (CEA) examination development and maintenance, and training programs for various industry groups</u></p> <p><u>C&S program supports CABEC in developing technical and administrative guidelines to update the residential and nonresidential CEA examinations developed in 2010-2012 to properly test applicant CEAs under the 2013 standards and facilitating the roll out of the new certification process</u></p> <p><u>C&S Program assembles and trains a team of subject-matter experts to prepare exam questions</u></p>	<ul style="list-style-type: none"> • <u>A trained team of subject-matter experts</u> • <u>Set of exam questions</u> • <u>Blueprint for exam preparation</u> • <u>Alpha and Beta test developed</u> • <u>Exam standards developed</u>
<u>1c</u>	<u>C&S program in collaboration with Workforce Education and Training sub-program (WE&T) prepare and deliver role-based training for building departments, energy consultants, designers, contractors and technicians to improve current code compliance</u>	<ul style="list-style-type: none"> • <u>Number of courses prepared</u> • <u>Number of sessions delivered</u> • <u>Number of course participants</u>

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<u>Link</u>	<u>Program Theory</u>	<u>Potential Indicators</u>
<u>1d</u>	<p><u>C&S program coordinates with the CEC/ DOE to provide T24 and T20 implementation infrastructure support</u></p> <p><u>C&S Program identifies building department best practices, and compliance improvement barriers and solutions through a needs assessment</u></p>	<ul style="list-style-type: none"> • <u>Number of statewide/ CEC coordination meetings</u> • <u>Needs assessment recommendations</u>
<u>1e</u>	<p><u>C&S Program assembles and facilitates the Compliance Improvement Advisory Group (CIAG). CIAG acts as ‘ear-to-the-ground’ to identify and prioritize compliance improvement initiatives for the C&S Program</u></p> <p><u>CIAG members represent CEC, California State License Board (CSLB), architects, builders, home energy raters, contractors, energy consultants, compliance software developers, and building officials</u></p> <p><u>C&S Program collaborates with a select group of building departments across the state to identify best practices for enforcing Title 24</u></p>	<ul style="list-style-type: none"> • <u>An Advisory Group representative of key compliance improvement market actors</u> • <u>Number of CIAG coordination meetings</u> • <u>Number of participating building departments</u>
<u>2</u>	<p><u>C&S Program coordinates with the CEC to conduct outreach to equipment manufacturers on existing code requirements, and to facilitate compliance from both a technical and administrative perspective</u></p> <p><u>C&S Program assists manufacturers to ensure equipment sold in California meets the minimum technical requirements, and to successfully complete the certification process with the CEC</u></p> <p><u>C&S Program staff write articles for CEC Blueprint and other publications addressing T20/T24 requirements</u></p>	<ul style="list-style-type: none"> • <u>Campaign supporting materials</u> • <u>Number of manufacturers receiving assistance on use of CEC appliance database</u> • <u>Number of distributors informed</u> • <u>Number of articles published addressing T20/T24 requirements</u>
<u>3</u>	<p><u>C&S Program assists CABEC with the design, implementation and marketing of the CEA certification process, incorporating inputs from CEC</u></p>	<ul style="list-style-type: none"> • <u>CABEC certification process website</u> • <u>Number of certified Energy Analysts</u>
<u>4a</u>	<p><u>C&S Program collaborates with WE&T, CEC</u></p>	<ul style="list-style-type: none"> • <u>Needs assessment</u>

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Statewide Codes and Standards Program
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<u>Link</u>	<u>Program Theory</u>	<u>Potential Indicators</u>
	<u>and major industry trade groups to develop and deliver enhanced workforce education and training to ensure proper installation, commissioning and maintenance as per code</u>	<u>recommendations</u> <ul style="list-style-type: none"> • <u>Number of industry-specific courses</u> • <u>Number of training sessions</u> • <u>Number of participants</u>
<u>4b</u>	<u>C&S Program develops and implements compliance training to building departments, energy consultants and designers that expands beyond classroom-based training to include live webinars and other activity-based online training</u>	<ul style="list-style-type: none"> • <u>Number of training sessions</u> • <u>Number of courses developed</u> • <u>Number of training sessions</u> • <u>Number of participants</u>
<u>4c</u>	<u>C&S Program updates the current role-based building department and energy consultant training curriculum incorporating feedback from the CEC, WE&T and CIAG</u>	<ul style="list-style-type: none"> • <u>Updated curriculum to reflect 2013 Title 24 Standards</u>
<u>5a</u>	<u>C&S Program provides support to CEC/CPUC to develop a framework for an electronic repository database</u> <u>C&S Program coordinates with the CEC and Emerging Technologies Program (ETP) on needs assessment study to explore the potential for developing electronic compliance forms and technology options for a pilot online permitting process</u>	<ul style="list-style-type: none"> • <u>Needs assessment recommendations</u>
<u>5b</u>	<u>C&S Program provides feedback and support to CEC/CPUC to develop an improved user interface for the CEC appliance database</u>	<ul style="list-style-type: none"> • <u>Interface improvement recommendations</u>
<u>6a</u>	<u>CIAG prepares white papers that identify and prioritize compliance-specific issues, propose solutions and recommend next steps for C&S Program consideration</u> <u>C&S Program supports and maintains CIAG website that houses the white papers and collects feedback and disseminates information</u>	<ul style="list-style-type: none"> • <u>Issue-specific white papers (4-8)</u> • <u>CIAG website</u>
<u>6b</u>	<u>C&S Program, using information obtained from needs assessment and gap analysis, develops and tests building department-specific tools, training and strategies for optimizing Title 24 enforcement</u> <u>C&S Program works collaboratively with participating building departments to document best practices that are shared with local jurisdictions statewide</u>	<ul style="list-style-type: none"> • <u>Comprehensive best practices assessment and gap analysis report</u> • <u>Tools, training materials and implementation strategies</u>

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<u>Link</u>	<u>Program Theory</u>	<u>Potential Indicators</u>
<u>7</u>	<u>C&S Program outreach and coordination efforts results in increased awareness among manufacturers and distributors</u>	<ul style="list-style-type: none"> • <u>Increased number of certified products in CEC appliance database</u> • <u>Increase in availability of compliant products</u>
<u>8</u>	<u>Stringent CEA exam and certification process results in increased number of proficient energy analysts which leads to better code compliance</u>	<ul style="list-style-type: none"> • <u>Number of certified energy analysts</u> • <u>Increased number of compliant buildings</u> • <u>More accurate compliance documentation</u>
<u>9</u>	<u>Effective role-based and trade-based training results in increased code compliance knowledge among builders, contractors and designers which leads to better code compliance</u>	<ul style="list-style-type: none"> • <u>Increase in standards knowledge of training attendees (pre and posttests)</u>
<u>10</u>	<u>Improved processes and tools results in increased builder, designer, contractor and energy analyst code compliance knowledge</u>	<ul style="list-style-type: none"> • <u>Increased builder, designer, contractor and energy analyst knowledge of code compliance</u>
<u>11</u>	<u>Best practices study; CIA G white papers and website; improved Title 20/Title 24 electronic submission interface and database; and improved compliance software, repository, forms generator and permit submittal process increase the effectiveness of code compliance processes and tools, and reduce the frequency of compliance errors</u>	<ul style="list-style-type: none"> • <u>Reduced number of compliance errors due to resources and training</u> • <u>Reduced time for building officials to process paperwork</u>
<u>12</u>	<u>Outreach and compliance support in appliance manufacturing and distribution channels results in more appliances meeting code and greater utilization of efficient appliances and technologies</u>	<ul style="list-style-type: none"> • <u>Reduction in number of noncompliant appliances in the market</u> • <u>Increased utilization of efficient appliances and technologies</u>
<u>13</u>	<u>Improved compliance infrastructure, system and modeling software leads to more buildings meeting or exceeding T24 requirements</u>	<ul style="list-style-type: none"> • <u>Energy savings calculations submitted for permit approval with compliance rates</u>
<u>14</u>	<u>More effective enforcement processes, increased knowledge of code requirements throughout the market increases the number of appliances meeting or exceeding code, which results in verified kwh/ therm and water savings, and kw reduction</u>	<ul style="list-style-type: none"> • <u>Verified kwh savings</u> • <u>Verified therm savings</u> • <u>Verified water savings</u> • <u>Verified kw reduction</u>
<u>15</u>	<u>More effective enforcement processes, increased knowledge of code requirements</u>	<ul style="list-style-type: none"> • <u>Verified kwh savings</u> • <u>Verified therm savings</u>

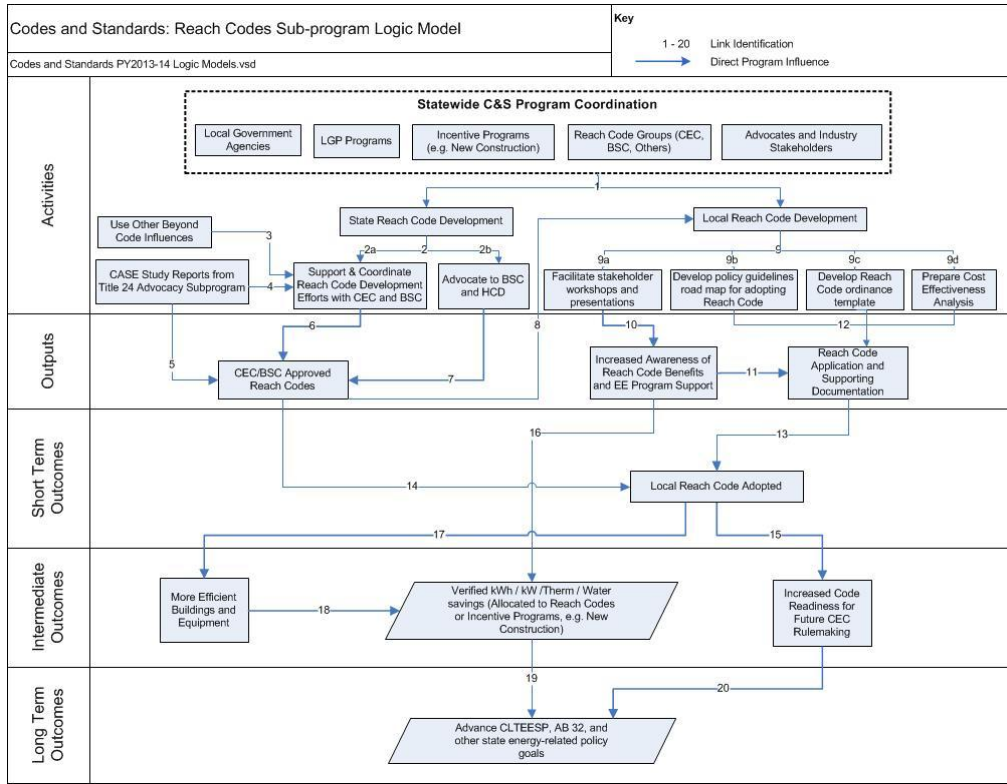
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Link	Program Theory	Potential Indicators
	<u>throughout the market increases the number of buildings meeting or exceeding code, which results in verified kwh/ therm and water savings, and kw reduction</u>	<ul style="list-style-type: none"> • <u>Verified water savings</u> • <u>Verified kw reduction</u>
16	<u>Adopted and implemented codes lead to advancement towards long term strategic goals</u>	<ul style="list-style-type: none"> • <u>State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits</u>

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Codes and Standards: Reach Codes Program Theory and Indicators

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<u>Link</u>	<u>Program Theory</u>	<u>Potential Indicators</u>
<u>1</u>	<u>C&S Program coordinates and supports internal and external efforts to drive reach codes development and adoption, using the resources offered by the IOU Energy Efficiency and Local Government Partnership programs; and working with the CEC, Building Standards Committee (BSC), and industry groups</u>	<ul style="list-style-type: none"> • <u>Communication and meetings with CEC, standard organizations committee members and other stakeholders for model reach code ordinances</u> • <u>Communication and meetings with local jurisdictions to develop their reach code ordinances</u> • <u>Quarterly updates to LGP (Local Government Partnership) program regarding reach code adoption progress and delivery of training to building departments</u> • <u>Coordination efforts with local government agencies in conducting rulemaking process</u> • <u>Coordination of reach code features with IOU energy efficiency program offerings where possible</u> • <u>Coordinated C&S program and LGP outreach efforts to local jurisdictions</u> • <u>Solicitation for stakeholder involvement and work with stakeholders</u>

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Statewide Codes and Standards Program
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<u>2</u>	<u>C&S Program collaborates with CEC and BSC to provide support for developing local reach code ordinances to encourage buildings to achieve exemplary performance in the areas of energy efficiency</u>	<ul style="list-style-type: none"> • <u>2a: Stakeholder meetings, outreach and on-going communication with CEC and BSC in development of statewide reach codes solutions such as CALGreen</u> • <u>2b: Communication with BSC and HCD to advocate the benefits of the reach code</u>
<u>3</u>	<u>C&S Program supports the CEC/BSC CALGreen Tier 1 and Tier 2 standards development by leveraging C&S Program involvement in ASHRAE Standard 189 and other “beyond code” activities (e.g. CHPS)</u>	<ul style="list-style-type: none"> • <u>Stakeholder meetings, outreach and on-going communication with CEC and standards organization staff</u> • <u>Participation in ASHRAE 189 committee meetings and other “beyond code” organization activities</u>
<u>4</u>	<u>C&S Program CASE reports presented at reach code development meetings</u>	<ul style="list-style-type: none"> • <u>CASE reports include data, analysis and documentation for reach code development</u>
<u>5</u>	<u>IOU proposed code change language is included in CEC adopted reach code standards</u>	<ul style="list-style-type: none"> • <u>Adoption of CEC-approved reach codes by BSC includes IOU proposed code change language</u>
<u>6</u>	<u>C&S Program efforts support the development of energy efficiency reach standards by CEC and BSC</u>	<ul style="list-style-type: none"> • <u>Adoption of CEC-approved reach codes by BSC</u> • <u>Support and contributions to CEC/BSC reach codes efforts, in particular CALGreen</u>
<u>7</u>	<u>C&S Program advocacy to BSC and HCD to support adoption of energy efficient standards into CALGreen</u>	<ul style="list-style-type: none"> • <u>Advocacy for industry energy efficiency standards, such as ASHRAE Std 189, influence the CEC-approved reach codes adopted by BSC</u>
<u>8</u>	<u>BSC adopted reach code (CALGreen) is used for the basis of local reach code development</u>	<ul style="list-style-type: none"> • <u>Local ordinance development begins with consideration of BSC adopted reach code (e.g. CalGreen Tier 1 or 2)</u> • <u>Increase in regional code consistency (countywide or geographically contiguous jurisdictions)</u>

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Statewide Codes and Standards Program
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9	<u>C&S Program conducts full range of advocacy efforts to support to rulemaking processes and ensure successful reach code development, completed in collaboration with the local government, CEC, BSC, and others</u>	<ul style="list-style-type: none"> • <u>9a. Stakeholder meetings, outreach and on-going communication</u> • <u>9b. “Road Map” of policy guidelines for adopting reach code</u> • <u>9c. Reach code ordinance “template” that establishes clear definitions of when the ordinance is triggered</u> • <u>9d. Reach code cost-effectiveness documentation</u>
10	<u>Stakeholder outreach by C&S Programs and LGP increase reach code awareness and knowledge</u>	<ul style="list-style-type: none"> • <u>Responses to requests for technical assistance from local government officials and stakeholders</u> • <u>Input to stakeholder comments and questions on proposed code changes</u>
11	<u>C&S Program supports local government officials in the reach code application process by responding to requests for technical assistance and support materials</u>	<ul style="list-style-type: none"> • <u>Technical support material and reach code policy and adoption guidance to local governments upon request</u>
12	<u>Local governments conduct rulemaking process, develop ordinance with technical support from C&S Program</u>	<ul style="list-style-type: none"> • <u>Local ordinance adoption proceedings</u> • <u>Reach code application developed with support from C&S Program</u>
13	<u>C&S Program support leads to adopted local reach code ordinances</u>	<ul style="list-style-type: none"> • <u>Reach code ordinance adoption published by local jurisdictions</u>
14	<u>CEC/BSC model reach code, with C&S Program proposed code change language, is adopted by local ordinances</u>	<ul style="list-style-type: none"> • <u>Reach code ordinance adoption published by local jurisdictions</u>
15	<u>Development of locally adopted reach code ordinances leads to integration of more efficient building practices into future CEC rulemaking</u>	<ul style="list-style-type: none"> • <u>Increased acceptance and experience of reach code measures by builders, designers, and contractors prepares the market for future CEC reach codes</u>
16	<u>Stakeholder outreach and technical support by LGP and C&S Programs increase awareness and knowledge of reach code and EE incentive program benefits, resulting in greater utilization of efficient appliances and technologies</u>	<ul style="list-style-type: none"> • <u>Increased utilization of efficient appliances and technologies</u> • <u>Reduction of noncompliant practices and appliances</u>

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<u>17</u>	<u>Adoption of reach code ordinances leads to more efficient buildings and equipment</u>	<ul style="list-style-type: none"> <u>Increased market acceptance of reach code requirements and practices throughout the state</u>
<u>18</u>	<u>More efficient buildings result in electric and gas energy savings, demand reduction, and water savings</u>	<ul style="list-style-type: none"> <u>Energy savings calculations or building energy and water usage</u>
<u>19</u>	<u>Adopted and implemented codes lead to advancement towards long term strategic goals</u>	<ul style="list-style-type: none"> <u>State policy objectives are met to achieve environmental, macroeconomic, and other non-energy benefits</u>
<u>20</u>	<u>Increased market acceptance of building practices resulting from reach codes leads to advancement towards long term strategic goals</u>	<ul style="list-style-type: none"> <u>Accelerated completion of state policy objectives to achieve environmental, macroeconomic, and other non-energy benefits</u>

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Appendix 2 - 2013 – 2014 Codes and Standards PIP Addendum

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Codes and Standards Program Overview

The Codes and Standards (C&S) Program saves energy on behalf of ratepayers by influencing continuous improvements in energy efficiency regulations, improving compliance with existing codes and standards, and working with local governments to develop ordinances that exceed statewide minimum requirements. C&S program activities extend to all buildings and potentially any appliance in California, for both advocacy and compliance improvement.

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The C&S Program consists of five subprograms: Building Codes Advocacy; Appliance Standards Advocacy; Compliance Improvement; Reach Codes; and, Planning and Coordination.

1. Building Codes Advocacy Subprogram

The Building Codes Advocacy subprogram primarily targets improvements to Title 24 Building Efficiency Regulations that are periodically updated by the California Energy Commission. The subprogram also seeks changes to national building codes that impact CA building codes. Advocacy activities include, but are not limited to, development of code enhancement proposals and participation in public rulemaking processes. The program may coordinate with or intervene in ratings organizations that are referenced in Title 24; for example, the National Fenestration Rating Council, and the Cool Roof Rating Council.

2. Appliance Standards Advocacy Subprogram

The Appliance Standards Advocacy subprogram targets both state and federal standards and test methods: improvements to Title 20 Appliance Efficiency Regulations by the California Energy Commission, and improvements to Federal appliance regulations by the US Department of Energy. Advocacy activities include, but are not limited to, development of code enhancement proposals and participation in the public rulemaking process (Title 20), and comment letters based on IOU research and analysis (USDOE), and participation in direct negotiations with industry. Additionally, the program monitors state and federal legislation and intervenes, as appropriate.

3. Compliance Improvement

The Compliance Improvement subprogram is a new subprogram that combines the previous Extension of Advocacy and Compliance Enhancement subprograms. It provides education, training, and other activities targeting building departments and other industry actors responsible for compliance with Building Energy Code and Appliance Standards requirements. Activities may include development of “best practices tools” and other infrastructure elements that serve multiple compliance improvement objectives.

4. Reach Codes Subprogram

The Reach Codes subprogram provides technical support to local governments that wish to adopt ordinances that exceed statewide Title 24 minimum energy efficiency requirements for new buildings, additions, or alterations. Support for local governments includes research and analysis for establishing performance levels relative to T-24 and cost effectiveness per Climate Zone, drafting of model ordinance templates for regional consistency, and assistance for completing and expediting the application process required for approval by the CEC. The subprogram also supports local governments that seek to establish residential or commercial energy conservation ordinances for existing buildings.

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5. Planning and Coordination

The Planning and Coordination Subprogram provides a formal process that aligns planning activities across the IOU energy efficiency portfolio within the Codes and Standards program activities. This subprogram supports efforts to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving Zero Net Energy.

Codes and Standards 2013-2104 Activities by Sub-Programs

Building Energy Codes Advocacy

The Building Codes Advocacy program will continue conducting many of the same activities as were conducted in the 2010– 2012 program cycle, but will focus on the upcoming 2016 Title 24 Energy Building Code cycle. In addition, the Building Codes Advocacy sub-program will expand activities at the national level. Primary activities for 2013-2014 include the following:

2013 Title 24 Energy Building Code

- Support implementation of adopted 2013 Energy Building Code:
 - Complete revisions to compliance manuals and forms

2016 Title 24 Energy Building Code

- Prepare CASE studies in coordination with CEC:
 - Conduct research for 2016 building code advocacy to advance State policy goals
 - Support activities to address Department of Finance review requirements
 - Research residential ventilation / IAQ requirements to reduce and control infiltration while maintaining and improving indoor air quality
 - Research and advocate methods to remove code barriers to the increased use of renewable energy in support of ZNE goals
 - Support development of 2016 compliance software

Appliance Standards Advocacy

The Appliance Standards Advocacy program will continue conducting many of the same activities as were conducted in the 2010–2012 program cycle, but will focus on preparing new measures pursuant to CEC’s adopted Order Instituting Rulemaking (“OIR”) for Title 20 Appliance Standards and U.S. Department of Energy’s ongoing rulemaking for Federal Appliance Standards. Primary activities for 2013-2014 include the following:

Title 20 Appliance Standards Rulemaking

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- Prepare CASE studies pursuant to CEC's adopted OIR:
 - Advocate and provide public testimony in State public proceedings
 - Conduct research and testing and submit supporting market and technical data to the CEC
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which CEC eventually adopts)
 - Develop voluntary agreements or reach standards

Federal Appliance Standards Rulemaking

- Provide support to DOE rulemaking process:
 - Advocate and provide public testimony in Federal public proceedings
 - Submit supporting market and technical data to the Department of Energy
 - Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which DOE eventually adopts)
 - Develop voluntary agreements or reach standards

Compliance Improvement

For the 2013-2014 program cycle, the C&S team will combine the former Extension of Advocacy and Compliance Enhancement Program activities into one Compliance Improvement subprogram to enhance understanding of program objectives and activities. The subprogram will strive to improve compliance with the Title 24 and Title 20 efficiency standards while implementing an effective sector strategy with the Workforce Education and Training Program. Primary activities for 2013-2014 include the following:

Title 24 Compliance

- Title 24 Standards Essentials Role-Based training for building inspectors:
 - Continue delivering training to plans examiners and energy consultants. Update curriculum to cover what's new in the 2013 code. (per OP 93)
 - Expand role-based training curriculum to additional compliance improvement market actors such as the building trades and design professionals as guided by needs assessment
- HVAC Quality Installation and Other Programs with Direct Code Requirements
 - Identify opportunities to insert code compliance modules in existing curriculum, such as training required for technicians
- On-line Compliance Training:
 - Explore training delivery mechanisms beyond the traditional classroom to include live webinars, activity-based on line training, and in-field demonstrations

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- Tools and Process Improvements:
 - Implement tools and process improvements as identified through the building department best practices study and the Compliance Improvement Advisory Group (CIAG)
- Forms and Compliance Documents:
 - Support development of improved forms and compliance-related documentation for 2013 Title 24
- Nonmonetary Compliance Improvement Incentives:
 - Explore a pilot project designed to improve compliance by providing incentives to local governments, contractors, or other key market actors. The pilot will be based on the CIAG's guidance and may include nonmonetary incentives such as training or provision of tools designed to streamline the permitting and inspection processes for additions and alterations (per OP 94)
- Target Low Compliance Problem Areas:
 - Collaborate with the CEC to identify problem areas and potential compliance improvement solutions through white papers developed by CIAG members (per OP 95)
 - Consider pilot project to improve compliance for measures with known challenges, which may include providing incentives to contractors for pulling permits, or motivation for other market actors. (per OP 95)
- Develop and Conduct Outreach Campaign to Improve Compliance:
 - Collaborate with the CEC to develop and implement an outreach campaign designed to improve compliance with Title 24 and Title 20 standards. The campaign will be based on the CIAG's guidance and may include activities such as developing flyers for contractors to provide to potential customers explaining the code requirements and benefits, mini measure-based code seminars for big box store employees, etc. (per OP 93)
- CEA exam development, facilitation support, and maintenance
 - Collaborate with the California Association of Building Energy Consultants to improve the working knowledge, skills, analytic ability and accountability of individuals using energy compliance software and preparing the appropriate Title 24 documentation for permit submittal. C&S will support updating the beta Residential and Nonresidential CEA examinations developed in 2010-2012 to properly test applicant CEAs under the 2013 standards and facilitating the roll out of the new certification process.

Title 20 and Federal Standards Compliance

- Surveys and Technical Support:

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- Conduct surveys and provide technical support to CEC and industry to facilitate compliance.

- Education and Outreach:

- Collaborate with CEC on implementing an education and outreach campaign targeted to distributors, retailers, contractors, and possibly consumers. (OP 93)

Reach Codes

For the 2013-2014 program cycle, the IOUs will continue to collaborate with the CEC and Local Government Partnership Program to identify, and provide technical assistance to, local jurisdictions interested in adopting Reach Codes. In addition, the IOUs will continue to collaborate with CEC to provide support for developing voluntary standards to encourage buildings to achieve exemplary performance in the areas of energy efficiency. Primary Reach Code activities for 2013-2014 include the following:

Reach Code Technical Assistance

- Cost Effectiveness Studies:

- Prepare Cost Effectiveness studies for each of the California climate zones (to be updated for 2013 Energy Building Code) that have been vetted with the CEC, resulting in expedited CEC review of reach code application submittals.

- Policy Guidelines:

- Provide a “Road Map” of Policy Guidelines for adopting Reach Code including an overview of some of the implications and important choices in writing and adopting these types of ordinances, and recommendations intended to improve implementation and compliance.

- Ordinance Template:

- Provide a Reach Code Ordinance “template” that establishes clear definitions of when the ordinance is triggered, including CEC-required language which states that all buildings shall meet all applicable requirements of the Building Energy Code.

- Workshops & Presentations:

- Facilitate public workshops and presentations to interested stakeholders including elected officials, city staff, industry organizations, and community groups that address the following:
 - Critical role that energy efficiency plays in reducing greenhouse gas emissions
 - Understand how Reach Codes and complementary new construction incentive programs such as California Advanced Homes help meet CalGreen’s voluntary Tier 1 and Tier 2 Energy requirements, accelerate

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advancement of zero net energy building practices, and mitigate project-level GHG impacts pursuant to CEQA requirements.

- Explain the process for developing and adopting a legally enforceable Reach Code pursuant to CEC requirements

- Work with industry organizations and other market actors to conduct outreach to local governments to inform them of available Reach Code assistance.

Planning and Coordination (Non-Resource Subprogram)

The Planning and Coordination Subprogram establishes a formal process that dynamically aligns planning activities across the IOU energy efficiency portfolio within the Codes and Standards program activities.

The Planning and Coordination Subprogram supports planning activities that improve alignment across the IOU energy efficiency portfolio with respect to future C&S program activities. C&S staff will coordinate with IOU energy efficiency portfolio programs to support efforts to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the CPUC Strategic Plan goals for achieving Zero Net Energy.

This subprogram will consist of four elements: 1) Strategic planning and coordination; 2) Outreach within each IOU to other program areas; 3) Statewide planning and coordination; and, 4) Workforce education and training. Primary activities for 2013-2014 include the following:

Strategic Planning (per OP 91)

- Codes and Standards Collaborative:
 - Maintain a Codes and Standards Collaborative to conduct strategic planning
- Code Readiness:
 - Establish cross-functional teams, including representatives from voluntary programs (incentive, emerging technologies, and education and training), the CPUC, and the CEC, will be established to identify code readiness priorities relative to policy goals, for example: zero net energy, AB 1109, and other Action Plan objectives.

Internal Coordination and Communications

- Periodic Meetings:
 - Conduct a variety of internal coordination activities based on respective needs of each IOU, including periodic meetings with program leads in other areas as well as management teams.
- Ongoing Communication:
 - Inform planners and support groups regarding future code changes, collaboration on evaluation and regulatory matters.

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- Solicit input from other groups re advocacy efforts, aligning education and training activities with incentive programs.

Statewide Collaboration

- Integrated Dynamic Approach to Portfolio Planning:
 - To support the state's Zero Net Energy objectives, the C&S team will work closely with new construction programs to develop an integrated approach to align new construction program offerings with base code requirements as well as reach codes where possible.
 - The C&S team will work with core retrofit programs as well as local government partnerships and third parties to coordinate offerings with anticipated code changes. (per OP 91, 152)
- CPUC Communication:
 - Conduct monthly calls with CPUC personnel to share progress and discuss issues (per OP 91)
- CEC Communication:
 - Maintain statewide weekly calls with CEC staff regarding building codes and appliance standards (per OP 91)
- National Stakeholders Communication:
 - Conduct regular conference calls with national stakeholders regarding appliances (per OP 91)
- Compliance Advisory Group Communication:
 - Host quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities (per OP 91, 152)
- Local Government Partnership Communication:
 - Provide quarterly updates to Local Government Partnership Program regarding reach code adoption progress and delivery of training to building departments (per OP 91)

Workforce Education and Training (WE&T)

- Sector Strategies for WE&T:
 - C&S and WE&T personnel will meet periodically to coordinate activities that will enhance support for the appropriate market actor roles responsible for new and emerging codes and standards implementation according to priorities established by needs assessments. C&S will collaborate with the WE&T Centergies sub-program to not only prepare contractors and technicians to implement current codes, but to also

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prepare them with technical training on advanced technologies that are projected to become part of reach codes and then the statewide code. (per OP 92 and OP 152)

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2013-2014 PIP Addendum

Program Name	Workforce Education and Training	Date Submitted	July 2, 2012
Subprogram Name	SW-WE&T-Centergies SW-WE&T-Connections SW-WE&T-Strategic Planning	Utility Name	SoCalGas
Program ID	SCG-3729, SCG-3730, SCG-3731	IOU Program Contact	Rodney Davis
		Program Cycle	2013 - 2014

This form is to be used to document any required changes to the Program Implementation Plans (PIPs). The following are triggers that will require a PIP change:

1. Changes to eligibiity rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission-Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

4. Portfolio Budget and Other Commission-Directed Changes

Driver of Change:

Revisions made to the WE&T Centergies and WE&T Planning PIPs as directed in Commission Decision 12-05-015. Revisions made to the Connections PIP to reflect program implementation changes for 2013-2014 bridge period. Revised logic models provided for Centergies and Connections subprograms.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

WE&T CENTERGIES:

Updates and new information as directed in the Guidance Decision are reflected in the attached documents:

- * 2013-2014 Workforce Education and Training Program Implmentation Plan in redline and clean versions
- * Attachment F – Statewide response to additional information as requested by Staff
- * Attachment 2 - List of SCG’s courses

WE&T CONNECTIONS:

The statewide Connections Program is continuing with the updated information reflected in the redlined changes attached, including a revised logic model.

New information for PG&E’s programs for 2013-2014 include:

Green Pathways:

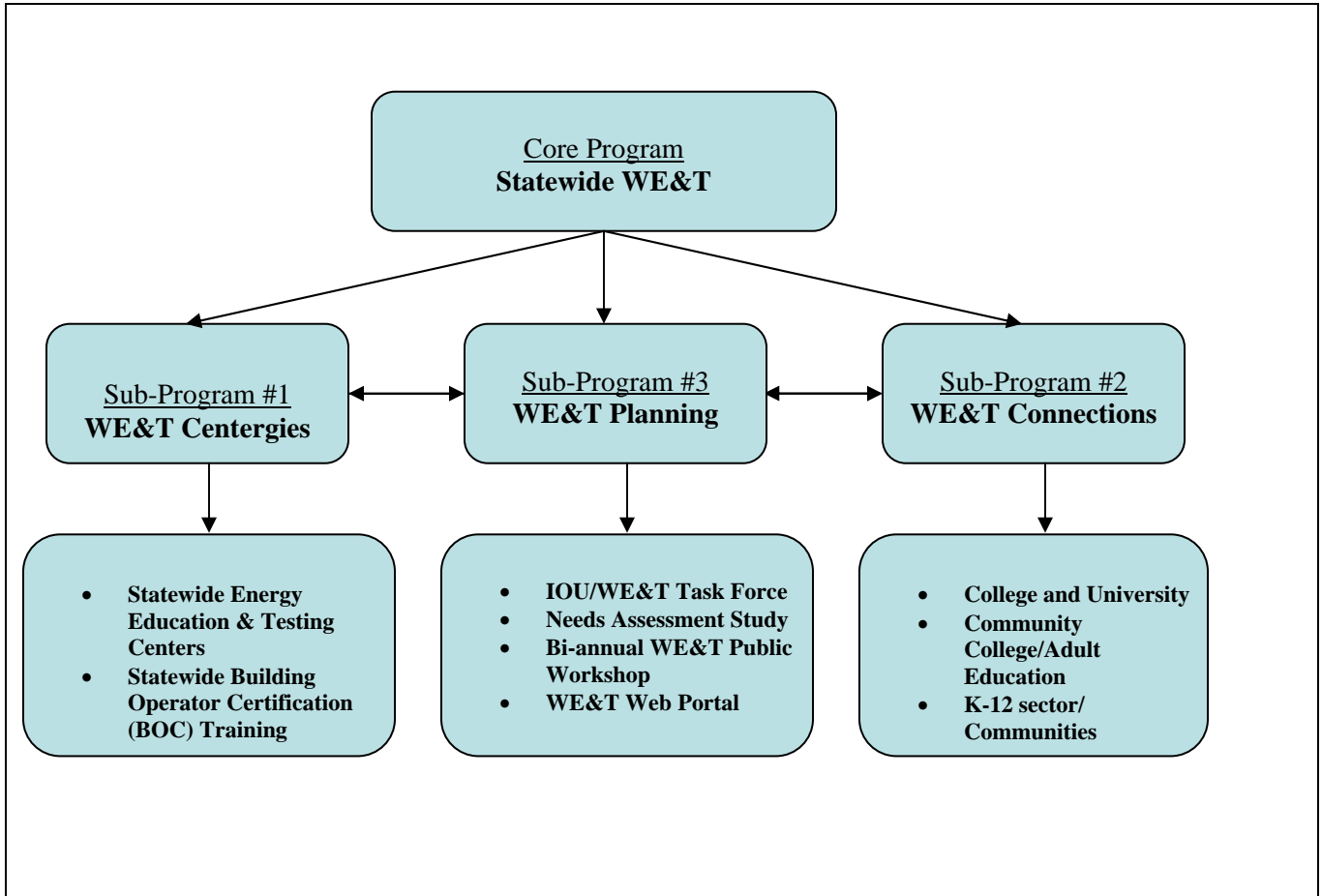
The innovative PG&E pilot exceeded the deliverables outlined in the 1/21/2010 Green Pathways Advice Letter (PG&E Advice 3080-G/3596-E), and is transitioning into a P&GE local program that will scale throughout the PG&E service territory in 2013-2014. Research findings from the pilot phase resulted in modifications to the scope, design and delivery to address the needs of the target market and to incorporate best practices.

Energenius:

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- 1. Program Name:** Statewide Workforce, Education & Training Program
Program ID: SCG3729 – SW-WE&T-Centergies
 SCG3730 – SW-WE&T-Connections
 SCG3731 – SW-WE&T-Strategic Planning
Program Type: Statewide Core Program

Diagram I: Statewide WE&T Core Program Implementation Structure¹



¹ Sub-Program write-up contains detail on cross-cutting coordination and strategies with market sectors and market segments, as well as descriptions of specific shared component activities, projects and implementation models.

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2. Projected Program Budget Table

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Workforce Education & Training Program					
3729	SW-WE&T-Centergies	\$436,169	\$258,206	\$4,305,597	\$0	\$4,999,972
3730	SW-WE&T-Connections	\$52,399	\$0	\$802,182	\$0	\$854,580
3731	SW-WE&T-Strategic Planning	\$15,812	\$0	\$284,188	\$0	\$300,001
	TOTAL:	\$504,380	\$258,206	\$5,391,967	\$0	\$6,154,553

3. Projected Program Gross Impacts Table

WE&T is considered a non-resource program and thus is not expected to provide energy savings impacts for the IOU Energy Efficiency portfolio for the 2013-2014 program years. However, as part of the ongoing efforts of the IOUs and recommendations taken from future study results, the IOU WE&T programs are continually seeking methodologies that can support energy savings contributions for WE&T activities.

Table 2

Program #	Main/Sub Program Name	2013-2014 Gross kW Savings	2013-2014 Gross kWh Savings	2013-2014 Gross Therm Savings
	SW Workforce Education & Training Program			
3729	SW-WE&T-Centergies	0	0	0
3730	SW-WE&T-Connections	0	0	0
3731	SW-WE&T-Strategic Planning	0	0	0
	TOTAL:	0	0	0

4. Program Description

a) Program description

The Statewide IOU Workforce Education and Training (WE&T) Program represents a portfolio of education, training, and workforce development planning and implementation funded by or coordinated with the Investor-Owned Utilities (IOUs): Pacific Gas and Electric (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Southern California Gas (SOCALGAS). Education and training are vital components of each of the IOU's energy efficiency portfolio filings for 2013-2014 and are integral in supporting the achievement of IOU energy savings targets and the workforce objectives set forth in the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). Workforce Education and Training has become an important crosscutting activity for the IOUs in an effort to not only educate and train current workers, but to prepare future workers to be better able to successfully perform the jobs needed to help achieve increased energy savings targets for the IOUs and California's clean energy goals.

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WE&T relies on statewide coordination to collaboratively create a comprehensive training platform that leverages the potential of key stakeholders with the resources, knowledge, and commitments to implement an education and training strategy that focuses on integrating existing workforce skills with new workforce needs, as well as expand outreach efforts to increase awareness of and demand for green careers.

California wants to expeditiously increase statewide workforce development and training relying on strategically coordinated planning and administration to deliver energy efficiency and demand side energy management in the public and private sectors. This effort will require concerted planning among secondary and post-secondary educational leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, construction and manufacturing businesses that deliver energy management and efficiency solutions.

The Strategic Plan's vision for WE&T is that "[b]y 2020, California's workforce will be trained and engaged to provide the human capital necessary to achieve California's economic energy efficiency and demand-side management potential."² To do this, the Statewide IOU WE&T Program must be constructed in an implementable form to: 1) initiate and drive long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs; 2) support community college and adult education efforts to develop education based on visible career paths in energy efficiency and related fields; 3) incorporate energy efficiency and integrated demand side energy management into traditional contractor and technician training; 4) support the creation or expansion of energy management and efficiency focused curriculum by college and university programs and foster this knowledge in clear view of students and faculty; 5) support development of K-12 curriculum to include a basic understanding of energy fundamentals, including environmental and greenhouse gas impacts as well as solutions to mitigate energy use impacts such as EE, DSM, and associated behavioral changes, identify how career education in energy-related fields can be incorporated across the grades, and bolster high school career counseling to improve community college enrollment in green job training programs; and 6) achieve the fullest participation by minority, low income and disadvantaged communities in training and education at all levels of DSM and the energy/resource efficiency industry. Diagram I illustrates the proposed program implementation structure for the Statewide IOU WE&T Program to best deliver the strategies outlined by the Strategic Plan.

Throughout the approved IOU Program Implementation period, the WE&T Program will strive to continuously initiate and facilitate ongoing dialogue with a broad group of market and education sector stakeholders to define, introduce and drive long-term WE&T development and solutions to establish EE and DSM education and training at all levels of California's educational system and accommodate the dramatic increase in EE activities envisioned by the Strategic Plan. The IOUs will modify curriculum and delivery methods to incorporate feedback and guidance from sources, including the

² California Long Term Energy Efficiency Strategic Plan, p. 74.

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California WE&T Needs Assessment, customer feedback from the 2010-2012 Process Evaluation, and the Guidance Decision for 2013-2014. Such modifications include, but are not limited to, approaching curriculum development with the sector strategy approach.

The Statewide IOU WE&T Program includes three pivotal Sub-Programs that form an integrated and cohesive structure for implementing WE&T curriculum and related activities in support of IOU energy savings targets and the long-term strategic goals for the state of California as prioritized and outlined by the Strategic Plan and Big Bold Energy Efficiency Strategies (BBEES). These three Sub-Programs include:

- i. The **WE&T Centergies Sub-Program** is generally organized around market sectors and cross-cutting segments to facilitate workforce education and training appropriate for achieving the energy savings, demand reductions and related energy initiatives required of the IOUs. The Energy Centers, which have many years of experience in creating and disseminating high-quality programs, represent the largest component of this Sub-Program and provide WE&T curriculum and related deliverables—training courses, seminars, workshops, clean energy technology demonstration, equipment efficiency testing, interactive training exhibits and lectures—to promote industry trends and developments for advancing energy efficiency as a professional discipline. For many years, they have served as the IOU’s primary delivery channels for mid- and upstream workforce education and training, information dissemination, and education/outreach coordination. IOU-administered Third Party, Local Government and Emerging Technology, Codes and Standards, Heating, Ventilation and Air Conditioning (HVAC), and Energy Savings Assistance (ESA) programs, as well as other community-based training efforts, are supported by the Energy Centers to sponsor workforce training courses. (Refer to WE&T Centergies Sub-Program Section 6.1 for a more detailed discussion of 2013-2014 program implementation.)

The Statewide Building Operator Certification (BOC) Training Partnership, the second component of this Sub-Program, will continue to play a major role in improving and maintaining California’s green collar building workforce stock of building engineers, stationary engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians, electricians, , and others in the facility operation and maintenance field. The IOUs have been collaborating with BOC to offer California building operators competency-based training and certification, resulting in improved job skills and more comfortable, efficient facilities. Operators earn certification by attending training and completing project assignments in their facilities. Training topics include facility electrical, HVAC, and lighting systems; indoor air quality; environmental health and safety; and energy conservation. The IOUs will work with BOC to shape and realign the BOC certification program to be consistent with the Strategy Plan.

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- ii. The **WE&T Connections Sub-Program** is organized around downstream and upstream relationships between the IOUs and the educational sector, entry and intro-level community-based training efforts that support workforce development in energy efficiency, energy management, and new emerging green careers. This Sub-Program emphasizes education curriculum and related activities that inspire interest in energy careers, new and emerging technology, and future skills development to advance the energy initiatives and goals of the state. This Sub-Program involves expanded relationship-building to foster curriculum development and related training that result from existing and expanding industry needs. IOUs will work with education institutions, labor and communities to nurture interest in green careers by K-12, community college, occupational, vocational, and major university students, as well as assist in the growth of low-income and transitional workforce targeted clean energy training programs. (Refer to WE&T Connections Sub-Program Section 6.2 for a more detailed discussion of 2013-2014 program implementation.)

- iii. The **WE&T Planning Sub-Program** involves the management and execution of several strategic statewide planning tasks and resulting project implementation actions initiated by the Strategic Plan. The tasks and projects are seen as instrumental in delivering mechanisms and protocols that facilitate ongoing momentum and focus on the achievement of workforce, education and training long-term goals. The WE&T Planning Sub-Program facilitates implementation and completion of the four key strategic tasks identified in the Strategic Plan to drive long-term WE&T development:
 - 1) Form an IOU/CPUC WE&T Task Force
 - 2) Conduct a Needs Assessment
 - 3) Create a WE&T Specific Web Portal
 - 4) Facilitate annual WE&T Public Workshops

(Refer to WE&T Planning Sub-Program Section 6.3 for a more detailed discussion of 2013-2014 program implementation.)

b) List of current measures/curriculum

Refer to WE&T Sub-Program Sections 6.1 and 6.2 for specific detail.

- i. WE&T Centergies
 - a. Statewide Energy Education and Testing Centers (Centers)
The Centers will continue to offer and expand their curricula to current and new audiences that make up California's energy efficiency workforce. The primary target audience for each of the Center's activities and that audience's significance to California's energy efficiency future are delineated in Attachment 2. Attachment 2also includes a more comprehensive list of

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existing and new educational seminars that the Centers will offer at the local and statewide level. The list reflects classes that are developed around specific technologies or installation methods as well as classes that present integration among DSM programs, including distributed generation and demand response. NOTE: The course topics listed in Attachment 2 will be modified during the program cycle, as new technologies are introduced into the marketplace and revised codes and standards are implemented.

- b. Statewide Building Operator Certification (BOC) Training Partnership
BOC will continue to be a WE&T partner with the IOUs. The IOUs will expand and improve the BOC partnership. The “measures” to be provided in the BOC program include delivery of the Level I (7-class series) and Level II (4-class series) certification courses. BOC will also track certification statistics.

ii. WE&T Connections

- a. College and University sector: The Statewide University program that operates at UC/CSU campuses offers the following as well as advances the Strategic Plan goals:
 - IOU and /or program staff will work with the UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields.
 - Student interns will work with many campus groups and organizations to promote energy efficiency and green careers to the student body.
 - Student interns will work with campus EOP Programs to ensure that minority, low income, and disadvantaged students are fully engaged in our energy efficiency and green career path programs. Many students do not apply for admission to college because no one in their family has ever attended college or because college seems too expensive. EOP aims to improve the access, retention, and graduation of students who have been historically disadvantaged, either socially or economically.
 - Student Interns promote energy efficiency throughout the campus by performing energy assessments and providing recommended actions to operate more efficiently.
 - The program provides a pathway to green jobs through professional development, training, mentoring, integrated academic curricula, internships, project based learning, and a broad-based professional networks.

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- Students are offered job shadowing and internships with IOUs, universities, other entities, and government agencies.
- b. Community College sector: The Community College program will better position California's workforce to meet the growing need for energy professionals as well as advance Strategic Plan goals:
- The California Community College training and education program currently provides energy efficiency courses for CCC facilities, operations, and maintenance staff in an effort to create an energy efficient environment, help in the development energy efficient policies, take advantage of DSM programs, and implement distributed generation programs,
 - IOUs are in the early stages of discussion with the Community Colleges to develop a Utility Workforce Education and Training program. The first step is to gather labor market information from employers in the energy sector and use this information to develop new certificate and degree programs that focus on energy efficiency and demand side management.
 - IOUs will work with campus EOP Programs to ensure that minority, low income, and disadvantaged students are fully engaged in our energy efficiency and green career path programs. Traditionally, minority, low income and disadvantaged students heavily favor community colleges because they are economically more feasible or because students' GPA or standardized test scores were not high enough to get into a university. EOP provides support and helps students transition to universities if that is the goal of the student. EOP aims to improve the access, retention, and graduation of students who have been historically disadvantaged, either socially or economically.
- c. K-12 sector: The various K-12 educational components all offer the following as well as advance Strategic Plan goals:
- Ensure that minority, low income, and disadvantaged communities fully participate in training and education programs: At least 50% of each program is offered in minority, low income, and disadvantaged communities, determined by school lunch program data.
 - Designed to promote green careers to K-12 students through energy and environmental curriculum and highlight green careers/jobs: Students will learn about a range of green jobs and participate in shadowing and training program and classroom instruction to help them consider and prepare for future green employment. A focus will be on experimental learning models, including contacts with both blue and white collar workers now working in the green economy.
 - Designed to educate students on energy, water, renewable energy, demand response, distributed generation, and greenhouse gases and

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impacts to the environment, with the goal of influencing the day-to-day energy efficiency decisions of students and their households (customer awareness focused).

- Designed to educate schools on the benefits of implementing energy efficiency policies and demand response programs at their sites to impact energy use in schools.
- The IOUs and/or our third party vendors will work with the State's Department of Education (Curriculum Commission) as well as Counties' Departments of Education to be included in curriculum development advisory boards so that we can contribute to tailored K-12 curriculum that includes the science of energy, energy efficiency, and some discussion about green careers.

c) List non-incentive customer services

i. WE&T Centergies

Common Center elements include:

- Educational seminars
- Technical consultations
- Outreach efforts
- Food Service Test Protocols
- Tool Lending Libraries
- Educational Partnerships
- HVAC sector strategy
- Energy Design Resources integration and collaboration

These non-incentive customer services will be used to direct the Centers' customers to the IOU's incentive programs through inclusion of program materials in class course books, through information integration on Centers' class websites, and literature displays in Centers' exhibits. (Refer to WE&T Centergies Sub-Program section 6.1 for specific details.)

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as "Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific

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market.”³ The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁴.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁵. Markets are social institutions⁶, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁷ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁸. According to York⁹, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of

³ California Public Utilities Commission Decision, D.98-04-063, Appendix A.

⁴ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁵ Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁶ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

⁷ Sebald, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.⁸ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation:

⁸ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁹ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

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successful market transformation¹⁰. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory¹¹, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹². Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹³. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"¹⁴ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁵, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁶. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers¹⁷ suggests that the first step is

¹⁰ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

¹¹ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹² Example in bottom chart of this graphic from NYTimes:
<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

¹³ Sebold et al (2001) p. 6-5,

¹⁴Nadel, Thorne, Sachs, Prindle & Elliot (2003).

¹⁵ CPUC (2008) Strategic Plan, p. 5.

¹⁶Nadel, Thorne, Sachs, Prindle & Elliot (2003).

¹⁷ Pelozo & York, (1999).

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not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Program Performance Metrics (PPMs)

Below are the approved PPMs and metric types for the Workforce Education & Training Statewide Program (Resolution E-4385, Appendix A). These PPMs will be extended into the 2013-2014 portfolio, with the clarifying definitions shown below:

WORKFORCE EDUCATION AND TRAINING (WE&T)		
<i>Centergies</i>	Percent increase in educational collaboration with partners from 2011 baseline. <u>(Tracked and reported by educational level, and by number of partners operating in Title-1 communities.)</u> * Educational “collaboration” is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	2. Percent increase in educational collaboration with organizations serving disadvantaged communities * Educational “collaboration” is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	3. Number of IDSM educational classes with substantial IDSM (EE, DR, and DG) content. * “Substantial” is defined as approximately 50% or more of class content must address IDSM subject matter. The WE&T Program staff have been in conversation with Energy Division to refine the definition of these metrics, which may change for the 2013-2014 reporting period.	2b
<i>Connections</i>	1. Percent increase in educational collaboration with partners. <u>(Tracked and</u>	2b

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	<u>reported by educational level, and by number of partners operating in Title-1 communities.)</u> * Educational “collaboration” is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	
	2. Percent of K-12 WET Connection program participants that are from Title-1 schools	2a
	3a. Complete <u>baseline study to determine the current number of partnerships.</u> (Y/N) 3b: Number of high school continuing education outreach partnerships** in WET Connection	2a* * Starting 2011.

b) Market Transformation Information

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms was presented at a public workshop on November 7, 2011 to allow for public comments and further discussion before being finalized. No MTIs were identified for the WE&T Program.

c) Program Design to Overcome Barriers

The Statewide IOU WE&T Program structure illustrated by this document is intended to address several new and recent challenges and existing barriers in order to implement a sustainable long-term education and training strategy, while leveraging the resources of the CA-IOUs to help influence energy efficiency curriculum and training content among education, labor and community sectors in a way that incorporates best practices and coordinates investment throughout the state.

The national, statewide and local economic downturn poses a real barrier to change, creating the risk of distracted focus and resistance to invest in projects. The IOUs currently represent a long and stable commitment to energy efficiency and demand-side management education and training. The IOUs have demonstrated the ability to offer a targeted breadth of education and training program, but market transformation toward a new green workforce will require an urgent commitment to change by educational sector stakeholders.

The challenge of introducing new technology into the marketplace has historically relied on coordination between technology development, research and technology commercialization. IOUs have demonstrated flexibility in identifying new and emerging technology training needs and introducing workforce training courses to both private and public sectors. However, market transformation to meet target dates associated with net zero new construction and code adoptions will require a rebound in the economy and interest in new investment.

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The IOUs offer a broad statewide contiguous view on workforce, education and training which few other parties have. The proposed implementation plan leverages the statewide IOU assets and resources to the extent possible to address gaps in the workforce landscape, and IOUs can act as conduits to identify new or successful local and regional workforce training models that can be migrated across the state into underserved areas via IOU implementation or IOU administration of third-party sponsored implementation. Such an effort cannot occur solely from IOU funding, so there will need to be additional financial stimulus from alternative resources.

WE&T Connections

Energy education is critical to assuring a stable and reliable supply of energy in California. Educating students will create a new generation of Californians who understand the significance of energy in their lives, their role in its efficient use and the importance of managing our limited resources for the future. This knowledge and information can also lead to life-long energy savings habits and a concern for the environment and its limited resources for not only the students but, for their family and friends. This knowledge and education can also lead the interest in a future green career path. However, given the budget cuts at schools, cuts to curriculum and longer work hours for teachers, getting this message across may not be possible without the assistance of these IOU sponsored programs.

WE&T Connections program components are designed to be both flexible and effective across diverse learning environments. All program components promote the science of energy, energy efficiency, demand response, distributed generation, and empower K-12 and college students to become advocates of smart energy management in their homes, schools, and communities. The program effectively combines classroom learning with hands-on activities such as:

The program will address lost opportunities in the schools market by implementing a comprehensive, innovative approach that involves incorporating:

- Some of the nation's leading energy education programs. These programs are 1) designed to promote green careers through energy and environmental curriculum, 2) designed to educate students on energy, water, renewable energy, demand response, distributed generation as well as green house gases and impact to the environment, with the goal of influencing day-to-day decisions of students and their households, 3) also designed to educate schools/facilities on the benefits of implementing energy efficiency policies and demand response programs at their sites so as to impact energy use in schools and, universities and to project energy and environmental leadership by example
- The program is developed in collaboration with natural gas, electricity and water agencies to promote and encourage the adoption of energy efficiency, demand response, distributed generation and water conservation options.

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- Collaboration and integration with residential and business incentive programs that result in firm energy savings for homes and schools.

The WE&T Connections program will address the needs of schools through a combination of student, teacher, and school administrator education programs that increase their awareness and knowledge as well as provide support in developing curriculum and/or lesson plans that support these objectives. Additionally, once school-aged children learn something new like energy efficiency, they become advocates by taking that knowledge home and teaching/motivating their parents and siblings to take actions to reduce energy and water consumption. University students can conduct valuable research and effectively educate their peers and campus administrators about energy efficiency:

- Educational campaigns can result in significant energy savings on campus facilities and dorms by changing behaviors and purchasing decisions;
- Students are effective advocates, able to reach their peers, communities and high-level decision makers in promoting green jobs on campus.
- IOUs will coordinate with the Department of Education Curriculum Frameworks and Instructional Resources Division to discuss how curricula on energy efficiency fundamentals, GHG issues and global climate change can be included in the Science Framework (PG&E has submitted an application to be on the Science Curriculum Framework and Evaluation Criteria Committee for the revision of Science Framework, adoption in 2012). Additionally, coordinate with the Dept. of Ed for inclusion of curricula of green career options in energy-related fields in the Career Technical Education Framework for 7-12.
- IOUs will update the “Resource Guide for Teachers” developed by PG&E that provides an annotated listing of sites and curricula for teachers and students covering issues related to energy, energy efficiency and the environment.
- IOUs will coordinate with partners to expand outreach into K-12 schools that have curricula on energy, water, and environmental issues (e.g., California Department of Education of Education, Water Districts, California Department of Energy, California Energy Commission, Air Quality Management Districts).
- As an outcome of the collaboration of partners representing curricula mentioned above suggestions on how to integrate career options in energy-related fields will be explored. In the interim the IOU’s will review the existing curriculum programs that they support and work together to see where career options can be incorporated into their curricula.
- The IOUs and/or our third party vendors will work with the appropriate (as described in program description) K-12, Community College and University agencies responsible for developing curriculum, courses and programs needed to educate students about energy, energy efficiency and prepare them for a green career path.

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d) Quantitative Program Targets

Refer to WE&T Sub-Program sections for specific details.

e) Advancing Strategic Plan goals and objectives

The proposed Statewide IOU WE&T program implementation structure, integrating WE&T Planning as a Sub-Program in parallel with the two other major statewide IOU Sub-Programs, WE&T Centergies and WE&T Connections is intended to better integrate long-term planning with WE&T implementation. As stated in the Strategic Plan, “This cross-cutting sector demands a truly statewide coordination effort that integrates energy efficiency training into a wide range of public and private programs. This effort will include the California Department of Education, the Department of Employment Development, industry and labor associations, educational institutions at all levels, technical and vocational training organizations, community based nonprofit organizations and the business community.”¹⁸

California today is faced with an unprecedented challenge: the generation of students graduating high school in 2009 will need to stabilize carbon emissions in the 30+ years of their work careers. Additionally, this generation will need to develop and train the next generation of energy technologies. Transforming California’s current building industry into one that exemplifies carbon neutrality by 2020 will require major changes in our existing market infrastructure and business models. This will result in many new jobs and industries.

One of the keys to success for future implementation of energy efficiency technologies is the need to train the next generation workforce in energy-related positions. The Statewide IOU WE&T Program, supported by the strategic activities of the WE&T Planning Sub-Program activities, establishes a connection among statewide implementers for increasing the knowledge and skills of the current generation - from local code officials, energy managers, and HVAC technicians to school teachers - to develop the muscle needed to achieve market transformation.

Achieving success in creating a workforce well educated in energy efficiency matters will require large-scale, ongoing, collaborative education, and training efforts to match evolving demands for both the type of jobs and number of workers needed to fully implement the Strategic Plan. Addressing human capital resource requirements will require collaborative efforts of federal, state, and local governments; financial institutions; community-based and non-profit organizations; industry and labor organizations and utilities. These entities present potential funding sources and opportunities for partnerships.

¹⁸ California Long Term Energy Efficiency Strategic Plan, p. 75.

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Students benefit from energy efficiency education and training opportunities with the ultimate goal of students entering careers in energy efficiency, advancing within their established career paths, and ultimately helping the state to meet very intense energy efficiency goals. A better trained workforce will advance the purpose of DSM implementation, policy, research and development, and education.

The educational components offered by the WE&T Connections program provide energy efficiency education and training at most levels of California's educational systems. The program also ensures that minority, low income and disadvantaged communities fully participate in training and education programs at all levels of the DSM and energy efficiency industry. The expected results are that:

1. Students develop careers, and existing workers develop skills and knowledge that advance DSM business, policy, research and development, and education; and
2. Individuals from the targeted communities take advantage of programs that specialize in energy disciplines at all levels of the educational system and successfully advance themselves into rewarding careers in the energy services fields.

The Statewide IOU WE&T Program is structured to implement workforce training and workforce curriculum development in cooperation with the California Community Colleges Chancellor's Office, the California Board of Education and Adult Education Leadership. WE&T Planning Taskforce and annual workshops will help to nurture technical training and education services that support community college and adult education within the first 12 months of the program cycle. Together, these relationships will be able to outline the foundational learning plan(s) needed to prepare students for career paths in energy efficiency and related fields. Based on experience, learning plan outlined through this collaborative effort could provide students with entry points for entering the field of energy efficiency and/or result in career development tracks within a traditional education system. IOUs would initially suggest learning plans be based on the "working backwards" exercise of asking what knowledge, skills, educational background and abilities are needed for particular sets of jobs and careers. Once these various attributes have been identified, learning plans shall be developed which will drive the development of curricula and training programs and support the knowledge and skills sets needed to prepare students for the "green collar" workforce. The Statewide IOU WE&T Program will build on existing training activities to address "gaps" in the learning plans as appropriate and diagnosed by the needs assessment.

The Statewide IOU WE&T Program is modeled to generate stronger linkages to K-12, advising on energy curriculum and coordination between K-12, Community Colleges Chancellor's Office and the adult education sector. The Statewide IOUs will exchange instruction and curricula with community colleges, industry and labor on HVAC, Energy Audits, Home Performance Retrofits and Building Operator Certification. The Statewide IOU WE&T Program will also advance consistency among the IOUs to use training

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curricula through established partnerships with the community colleges, vocational / technical / trade schools and apprenticeship programs.

The Statewide IOU WE&T Program establishes a framework for cross-sectional expansion of training curricula and related workforce development programs to address HVAC quality installation and maintenance, building construction, home performance audit and retrofit services, building operator certification, facilities maintenance, and other technical fields. The Sub-Programs will build on the established partnerships with key actors to deliver technical information through a wide variety of training and education services for upstream stakeholders such as contractors, installers, inspectors, plan checkers, designers, architects, engineers, vendors, installers, and other technical skilled personnel to increase actions, awareness, and attitudes toward energy efficiency.

The Statewide IOU WE&T Program as structured supports the Big / Bold Strategies adopted by the CPUC in the Strategic Plan by continuing to offer training programs on quality installation and maintenance of HVAC systems and equipment selection based on whole building design, training and certification, compliance improvement and new technologies. Education and Training will continue its focus on the building envelope and overall home performance by providing HVAC quality installation, maintenance and service courses based on ACCA (Air Conditioning Contractors of America) and other appropriate standards. Education and Training will also continue to offer programs on new and emerging technologies in HVAC (e.g., variable refrigerant flow (VRF) systems) and will encourage HVAC participants to become certified under the North American Technician Excellence (NATE) certification program or other appropriate credentials as a means of demonstrating technicians and installers' ability to perform quality work.

The Statewide IOU WE&T Program will work with Marketing Education and Outreach implementers on effective marketing and outreach strategies that will be designed to maximize participation in green career paths. For example, to increase awareness of the availability of training and career development programs, WE&T will contribute to the Web portal project to ensure that "green education" opportunities are accessible through the Web portal.

During the first 24 months of the program cycle, the Statewide IOU WE&T Program will be a guide for collaboration among the Department of Employment Development, community colleges, technical and vocational schools, industry and labor associations specifically on building job training programs and internships for students and preparing them for energy efficiency careers and related career paths. Collaboration will be aided by recruitment of key resources to help in promoting to students and continuing education participants the types of employment prospects available in energy derived from the WE&T Assessment study and other market data.

Within the first 24 months of the program cycle approval, the Statewide IOU WE&T Program structure will demonstrate its effectiveness to drive statewide coordination among key stakeholders to expand continuing education and college extension programs

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to include a greater focus on energy/resource efficiency, sustainability and green technologies. The Statewide IOU WE&T Program structure clearly shows the inclusion to collaborate with the UC/CSU system and California's community colleges to bring an expanded focus on energy/resource efficiency to students and faculty; utilize the extension programs available through the colleges and universities to incorporate a continuing education curriculum component; and work with these educational institutions to help them with expansion of their green degree programs. The Statewide IOU WE&T Program will seek ways of increasing awareness of the importance of energy efficiency, sustainability and green technologies to California, and the key partners will be able to positively impact participation and enrollment in educational programs and green careers.

The Statewide IOU WE&T Program enhances relationships with K-12 public and private educators to share best practices to attract students and facilitate interest in energy efficiency careers and the study of energy efficiency and GHG emissions. The WE&T Connections Sub-Program implementation, in collaboration with WE&T Planning activities, will engage industry experts and educational specialists including but not be limited to: the State Department of Education, educators working at County Offices of Education, leaders in teacher organizations [e.g., California Science Teachers Association (CSTA), California Regional Environmental Education Community (CREEC), Regional Occupational Centers and Programs (ROCP), California Integrated Waste Management Board (CIWMB), and the California Environmental Protection Agency for the K-12 market to determine the inventory of educational resources, funding mechanisms, and include a breakdown of workforce development and strategic planning needed to establish career training for energy-related fields.

The California EPA and the California Integrated Waste Management Board (CIWMB) are involved in the implementation of AB1548. This is the development of a "unified education strategy to bring education about the environment into California's primary and secondary schools."¹⁹ Identified are fourteen specific environmental topics where curriculum is currently being developed. The WE&T will engage in the State Department of Education Science Framework revision to encourage incorporation of energy efficiency and renewable energy emphasis.

The Statewide IOU WE&T Program will help steer more training outreach and green careers education toward minority, low-income and disadvantaged communities. The IOU administered ESA program is expected to dramatically expand the number of units that will receive education and weatherization services during the 2013-2014 program cycle. To meet the significantly higher goals, more communication and joint WE&T coordination will be necessary and desirable. The Statewide IOU WE&T Program creates an implementation framework to focus on expanding behavior modification in existing training programs to increase emphasis on energy efficient practices, steps that will enable installers, weatherization crews and energy specialists to build on the

¹⁹ www.calepa.ca.gov/Education/EEI/workgroups/envirotopics

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information they provide to minority, low-income and disadvantaged communities to achieve California’s economic energy efficiency potential.

6. Program Implementation

a) Statewide IOU Coordination

As part of the overall Program Implementation Strategy, the statewide IOU WE&T program plans to institute protocols and processes to identify and facilitate statewide migration of quality training models into each IOU service area, as well as into underserved communities within the respective IOU service areas, where appropriate.

Summary table of WE&T target sectors, program implementation and implementers:

Workforce Education and Training	Sub-Program	Sub-Program coordinated implementation
Schools	Green Campus; Energenius; PEAK	WE&T; IOU UC/CSU/CCC Partnerships
Commercial Market Segments	Tool Lending; Food Service; Building Design Training; Building Operations and Maintenance	WE&T (Energy Centers); Statewide Commercial Resource Programs; IOU Local Government Partnerships; BOMA; BOC; USGBC; New Construction; Codes and Standards
HVAC Industry	Tool Lending ;ACCA; IHACI - QI/QM (ACCA standards inclusive)	WE&T (Energy Centers) Community Colleges Statewide Residential and Commercial Resource Programs, including their HVAC Sub-Programs
Residential Market Segments	Building Design and Construction Training; Energy Partners (PG&E); CLEO (SOCALGAS/SDGE)	WE&T (Energy Centers) BIA – Remodelers; Statewide Residential Resource Programs; New Construction;

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		BPI; ESAP
Industrial/Agriculture Market Segments	Tool Lending; Audits/Assessments	WE&T (Energy Centers) Statewide Residential Resource Programs; DOE

b) Program delivery and coordination

Three areas of focus for the IOUs to deliver training curriculum to expanded audiences are:

Joint statewide training and seminars – comprehensive energy efficiency and clean energy educational seminars and conferences jointly hosted, promoted and sponsored among the IOUs, municipalities, government agencies, non-profits and industry experts.

Distance learning – web-based platform for synchronous and asynchronous access to digitally transmitted and pre-recorded (catalogued) on-line education and training modules. Distance learning enables webcasting as a communication tool to reach larger workforce audiences with specific training topics in a low cost manner. IOUs can explore co-production and access to on-line training curriculum with other agencies (i.e., CARB, CAL-EPA) to provide more comprehensive energy solutions training.

Outreach – Assist community-based training programs that offer energy efficiency and hands-on training green job curriculum to trainees in minority and other disadvantaged communities. These types of relationships will be coordinated with Low-Income Energy Efficiency programs and likely piloted regionally by IOUs to develop best practices, determine cost effective designs and fine tune a model for turnkey statewide migration. IOUs can help community training programs implement best practices, measure impacts and revise programs, while helping to shape and form standardize integrated resource curriculum (i.e., water, air emissions) beyond what can be offered by IOUs.

i. Emerging Technologies Program

The Statewide WE&T Program will collaborate with the Emerging Technologies program in an improved manner to allow external participation in the ET process. Working closer with ET to increase knowledge and confidence in emerging technologies, the WE&T programs will help with implementation of these new technologies disseminating information and training to enhance market transformation and acceptance into the marketplace.

ii. Codes and Standards Program

The Statewide WE&T Program structure segregates Sub-Program curricula to make it easier to identify training opportunities that: 1) enhance interest in C&S career positions, 2) provide training on the codification process of energy

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efficiency and green laws, 3) provide direct industry training on energy and green implementation strategies in response to current or impending codes and standards, and 4) prepare the workforce for code compliance improvement tasks.

WE&T Centergies will work closely with the Codes and Standards Program to support development of a sector strategy to support workforce development in an area with low compliance, for example, in HVAC. WE&T will maintain ongoing communications with the C&S staff to ensure coordinated development and inclusion of code-related content.

iii. WE&T Efforts

The Statewide WE&T Program will support the other IOU EE Programs as appropriate. Refer to Section 6.b.iii for each Sub-Program for additional plans, if applicable.

iv. Program-specific marketing and outreach efforts

Refer to Section 6.b.iv. for each Sub-Program, if applicable.

v. Rationale for selection of sub-contractors

Refer to Section 6.b.v. for each Sub-Program, if applicable.

vi. Non-energy activities of program

Refer to Section 6.b.vi. for each Sub-Program, if applicable.

vii. Non-IOU programs

The proposed Statewide IOU WE&T Program structure is very significant in that they represent a feasible and respected leader to help flesh out the common ground for delivering and coordinating statewide workforce training program among IOU and non-IOU sponsored trainers. WE&T as a strategic platform can help facilitate energy neutral training, coordination and funding among not only IOUs, but other stakeholders linked to California's energy plans. Refer to Section 6.b.vii for each Sub-Program for additional plans, if applicable.

viii. CEC work on Electric Program Investment Charge (EPIC)

Not applicable.

ix. CEC work on C&S

Please see Section 6.b.ix. for each Sub-Program, if applicable.

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- x. Non-utility market incentives

Refer to Section 6.b.x. for each Sub-Program, if applicable.

- c) Best Practices

In addition to showing the relationship of the Statewide WE&T Program and Sub-Programs, Diagram I also illustrates the bi-directional interaction anticipated between the Sub-Programs under this structure. This represents IOU commitment to the WE&T strategic plan and its objectives, as well as IOU interests in facilitating stakeholder input in presenting, identifying and supporting IOUs efforts to create well-coordinated processes to connect and migrate local and regional WE&T models across the state based on best practices identified by a variety of stakeholders. The WE&T taskforce, with CPUC, IOU and statewide stakeholder roles can have a long-term impact on WE&T implementation plans of IOUs by maximizing the benefits of the structure presented. Regularly scheduled meetings among WE&T taskforce members will ensure that voices can be heard, IOUs implementation plans can be discussed and long-term WE&T strategic progress is addressed. As has been described in this section in some length, by layering the strategies outlined in the Strategic Plan on the Statewide IOU WE&T PIP, the IOUs see that as a sustainable framework for achieving the various goals sought by the CPUC from the IOUs.

- d) Innovation

Refer to Section 6.d. for each Sub-Program, if applicable.

- e) Integrated/coordinated Demand Side Management (IDSMD)

The statewide WE&T team will continue to coordinate IDSMD education and training efforts by working with IDSMD program staff and as a member of the IDSMD Task Force.

- f) Integration across resource types

Refer to Section 6.f. for each Sub-Program, if applicable.

- g) Pilots

No pilot programs are planned for WE&T in 2013-2014.

In 2012, the IOUs have started work to develop an HVAC sector strategy approach, to be implemented in 2013-2014. Details are provided in the Centergies Subprogram.

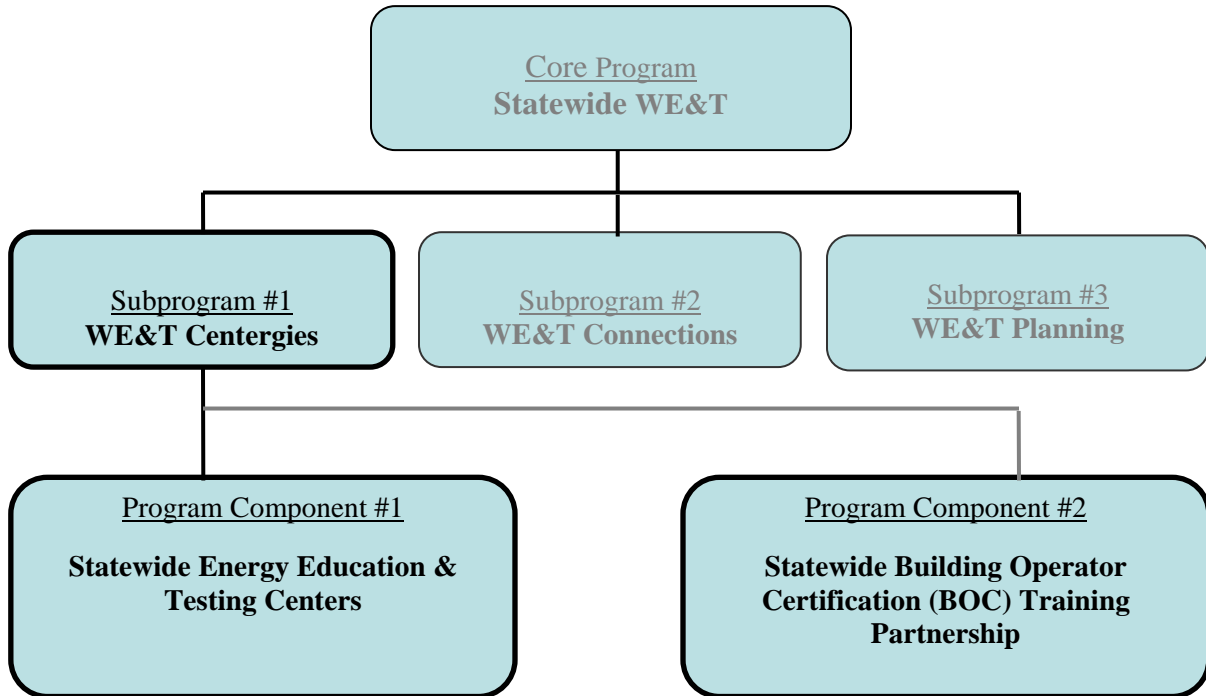
- h) EM&V

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The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

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6.1) Sub-Program Implementation – WE&T Centergies – SCG3729



a) Statewide IOU Coordination

i. Program name

The Statewide WE&T “Centergies” is a Sub-Program within the Statewide WE&T Core Program. The “Centergies” Subprogram has two primary components which are diagrammed above and described in greater detail below. Parts to the “components” shall be referred to as “elements”.

ii. Program delivery mechanisms

The IOUs will continue to deliver workforce education and training through two delivery mechanisms: Statewide Energy Education and Testing Centers and through the Building Operator Certification (BOC) program.

Statewide Energy Education and Testing Centers

Through their energy education and testing centers (Centers), California’s IOUs have been supporting the energy efficiency workforce and partnering with 3rd Party and Local Government Partnerships, in some cases, for over 30 years. The Energy Training Center (ETC), Food Service Technology Center (FSTC), and

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Pacific Energy Center (PEC) will align with the statewide WE&T goals of the Strategic Plan by addressing the training needs of the midstream and upstream mass market, commercial, industrial, and agricultural actors through state-of-the-art classes designed to enable building professionals to reduce energy consumption in new and existing residential and small commercial buildings. As disseminators of information, the Centers are structured to deliver integrated energy efficiency, demand response, and renewable energy program information through their offerings described below. The Centers serve as a “public face” in interactions with the community and as a conduit to California’s local and statewide energy efficiency programs. Through the 2013-2014 transition period, the Energy Centers will partner with appropriate California industry and labor organizations, professional organizations, trade and vocational schools, community colleges, universities, third-party entities, government partners serving low-income or disadvantaged communities, and other IOU and POU education and training centers. By delivering technical information through a wide variety of courses and technical consultations, the Energy Centers will support and enhance programs which address demand side management (DSM), demand response (DR), distributed generation (DG), water and energy use, codes and standards, emerging technologies, renewables, and all incentive programs. The Energy Centers will ensure maximum effectiveness and impacts needed to achieve long-term energy savings goals for California. With some variation at the local level, the Centers have and will continue to evolve their elements to:

- Deliver high-quality integrated educational seminars to train members of the energy efficiency workforce, including entry-level contractors, disadvantaged community members, university and community college students, architects, food service facility designers and operators, HVAC engineers, equipment installers, manufacturers, developers, and commissioning agents. Based on factors, including changes in technology, changes in codes and standards, and feedback from seminar participants, seminars will be modified to more effectively integrate topics such as distributed generation, DR, and EE as described in section 6.2.e and 6.2.f. Seminars will continue to include transferring skills on energy audits to members of the EE workforce at various stages in their careers—novices to seasoned energy auditors.
- Provide technical consultations and equipment demonstrations through building design plan and equipment schedule reviews, technical advice on new equipment and system technologies, technical advice on best-practice methods, and site visits for identifying energy efficiency opportunities. Site visits shall not replicate the efforts of the energy audits program, but rather be conducted when necessary to provide technical advice.
- Where Outreach falls under the local Center, provide on- and off-site outreach programs for disseminating technical EE information, and promoting utility energy efficiency incentive programs to green- and white-collar building

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professionals. Outreach programs will include, but not be limited to: on-site facility tours, off-site short presentations about Centers' offerings, participation in environmental fairs and events. Centers shall work with their IOU's marketing groups so as to collaborate, but not duplicate efforts.

- Design, certify, and maintain food service equipment test protocols that allow for unbiased measurement of energy efficiency and production capacity while engaging manufacturers and chain operators to test equipment and build user accessible performance results databases. This data provides the foundation for future training programs across the Food Service spectrum as well as the technical support for rebate and other programs provided by the IOUs.
- Expand and integrate tool lending library programs that provide building and system performance measuring instrumentation, instrument use information, and measurement protocols. Tool lending libraries will loan tools free of charge to people working on short-term EE projects in California. Patrons will include building operators, facility managers, designers and other professionals who use the tools for building diagnostics, site analysis, power and energy consumption studies, research projects, and educational efforts.
- Expand energy efficiency educational partnerships with institutions that include government, professional, and trade organizations that will help Centers deliver IOU programs and information to a broader audience. Examples of such groups include, but are not limited to the U.S. Green Building Council, Building Owners and Manufacturers Association, American Institute of Architects, American Society of Heating, Refrigerating, and Air-conditioning Engineers, the Association of Energy Engineers, the Illuminating Engineering Society, Institute of Heating and Air Conditioning Industries, Air Conditioning Contractors of America, Affordable Comfort Inc., Building Performance Institute, Residential Energy Services Network, Apprenticeship Training Programs, North American Technician Excellence, the National Restaurant Association, Foodservice Consultants Society International, North American Foodservice Equipment Manufacturers, National Environmental Balancing Bureau, Stationary Engineer Unions, U.S. Environmental Protection Agency / Department of ENERGY STAR, American Society for Testing and Materials, the California Energy Commission, California Division of Apprenticeship Standards, International Brotherhood of Electrical Workers, National Electrical Contractors Association, Sheet Metal and Air Conditioning Contractors' National Association, Counselors of Real Estate, Institute of Real Estate Management, and the International Facility Management Association. More detail on educational partnerships is available as part of the Statewide WE&T Connections Sub-Program.
- Support building energy efficiency by developing training sessions to prepare the marketplace for new HVAC codes (acceptance testing and HERS

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verification), technologies, and innovative whole building approaches to new and existing buildings. Since the HVAC Big Bold initiative will expand training and education aimed at the HVAC industry, the WE&T program will coordinate carefully to complement HVAC industry training by providing educational support to related market actors such as energy consultants, Home Energy Raters, engineers, architects, and home performance contractors. It is anticipated that the robust HVAC industry training proposed by the HVAC program will create important collaboration opportunities to not only increase training opportunities, but to embellish energy center offerings and impacts.

- Increase statewide Energy Design Resources (EDR) Integration. (EDR) is an existing statewide energy efficiency resource website featuring design materials on how to effectively integrate energy efficient designs into nonresidential facilities. EDR has begun developing the structure to expand the materials and tool offerings to include residential design requirements. While EDR is not funded through WE&T, EDR content is very relevant to the Centers' WE&T direction and goals. Centers will integrate EDR content (online classes, case studies, materials, etc) as statewide resources that are relevant to specific classes, outreach efforts, and consultations. The table below summarizes common Center elements defined above.

Centers' Elements	SCE AGTAC	SCE CTAC	PG&E ETC	PG&E PEC	PG&E FSTC	SDGE SDERC	SoCal Gas ERC	SoCal Gas FSEC
WE&T Seminars	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Technical Consultations	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outreach	No**	No**	Yes	Yes	Yes	Yes	Yes	Yes
Food Service Test Protocols	TBE	Yes	N/A	N/A	Yes	TBE	N/A	Yes
Tool Lending Library	Yes	TBE	Yes	Yes	TBE	Yes	TBE	TBE
Educational Partnerships	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

TBE = To be established (based on information collaboration with other Centers)
 ** Outreach efforts not part of this Center and occurs in other parts of the utility
 N/A = Not applicable to Center's primary target audience

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SoCalGas - Centergies Program Goals

Program Name	Program Target 2013	Program Target 2014	Totals
WE&T Seminars (Training)	125	125	250
Technical Consultations	220	220	440
Outreach	40	40	80
WE&T Food Service Test Protocols	15	15	30
Tool Lending Library	tbd*	tbd*	

* SoCalGas has not developed a feasible way to manage tool lending. Continuing discussions with other Energy Efficiency program areas to identify potential opportunities.

A. Changes for 2013-2014 Statewide Program Coordination through IOU Energy Centers:

The IOUs will modify Centergies curriculum and delivery methods to incorporate feedback and guidance from sources, including the California WE&T Needs Assessment, customer feedback from the 2010-2012 Process Evaluation, and the Guidance Decision for 2013-2014. Such modifications include, but are not limited to, approaching curriculum development with the sector strategy approach.

1. Heating Ventilation and Air Conditioning (HVAC)

IOUs will incorporate and integrate HVAC education and training programs into its Workforce Education and Training Centergies sub-program to deliver a dedicated, industry-specific education and training opportunities targeted at all levels of the HVAC value chain. As part of this effort, IOUs will convene various stakeholders from, but not limited to, community colleges, trade organizations, professional organizations, employers, and apprenticeship/pre-apprenticeship programs including through the IOU-sponsored Western HVAC Performance Alliance stakeholder collaboration group, which has WE&T-specific committees already built into its structure. This will allow for identifying skill gaps and to identify opportunities for collaboration in a coordinated effort toward implementing recommendations needed to close gaps at all levels of the industry.

HVAC Sector Strategy Plan:

In response to the Guidance Decision, the IOUs began work in 2012 to develop a plan as described below to expand their educational efforts toward more

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direct effect on trade organizations that have memberships involved with installation and maintenance of commercial HVAC systems. IOUs will tested a non-residential HVAC sector strategy. A core component will be the development of a multi-stakeholder partnership to develop a full implementation plan to apply the CALCTP sector strategy approach to the HVAC non-residential industry. The IOUs began with Quality Maintenance to provide the foundation, and then included a Quality Installation sub-strategy. Cornerstones of the Quality Maintenance implementation plan include identifying priority emerging technologies for improving EE related non-residential HVAC systems, identifying the knowledge, skills and abilities (KSAs) professionals need to install and maintain systems efficiently and safely as well as the linkage of these KSAs to ANSI or ISO certifications, and, developing a steering committee.

IOUs will collaborate on a statewide memorandum of understanding (MOU) with the California Division of Apprenticeship Standards. The MOU will provide a framework for partnering with labor, trade, and professional organizations that resembles the existing CALCTP program. Such an MOU will help to reinforce cooperation in achieving goals of the sector strategy test of having certified training modules, performance based principles to test and diagnose the HVAC system, site information for the contractor to design and implement real solutions for customer comfort and efficiency, training that takes good HVAC technicians to the next level and gives them the tools to maximize efficiency, comfort and safety of customers in the construction of new systems, and real-time analysis to track and maintain data from completed projects by trained participants.

Because of early activities with sector strategies, IOUs will be applying recent lessons learned from their related efforts within Commercial EE to the HVAC sector strategy, as it develops.

IOUs will work with qualified partners to institute a test that will enable HVAC workforce member to attend various HVAC classes and receive credit towards industry-recognized certifications or other appropriate credentials. The IOUs will also contact and extend partnership opportunities designed to improve installation and maintenance quality of Commercial HVAC units.

The IOUs have initiated discussions to determine the parameters of an HVAC sector strategy, to be deployed in 2013. The IOUs have identified a core group from across lines of business, and externally, the IOUs have begun to discuss pilot concepts with the other IOUs and external stakeholders such as the Western HVAC Performance Alliance and the Division of Apprenticeship Standards.

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Based on best practices from CALCTP the IOUs recommend starting with a Needs Assessment to determine where gaps and opportunities exist, prior to determining the HVAC sector strategy's specific objectives and goals.

With Quality Maintenance as a test, the IOUs intend to glean lessons learned from that approach, to be subsequently extended into the quality installation approach to the HVAC sector strategy.

The IOUs will endeavor to have skills standards for HVAC installations established by the end of 2013. The IOUs will continue to provide necessary training as a component of the quality installation and quality maintenance programs. The current design is geared toward providing the highest possible level of installation and maintenance expertise for contractors and technicians working within the HVAC subprograms. The IOUs will continue to use the basic foundations of Title 24 acceptance testing regulations and the consensus HVAC industry standards as the basis of requirements for this training. The IOUs will continue necessary training as a component of HVAC programs. These programs will continue to evolve as needed to meet program changes as they develop.

2. Support for California Advanced Lighting Controls Training Program (CALCTP)

The IOUs will continue to partner with CALCTP to offer CALCTP trainings as part of their portfolio of classes to various sectors of the advanced lighting controls workforce, including electricians, contractors, business managers, installers, specifiers, marketing reps, and designers. Where appropriate, IOUs will serve as program advisors and instructors, and provide direct financial and in-kind support to help sustain the program. IOU contributions will augment funding and support from other stakeholders, including employers, unions, other training partners, and manufacturers. Where appropriate, IOUs will continue to provide letters of support to secure grants to help support CALCTP and will continue to serve on the CALCTP board of directors and advise CALCTP curriculum developers.

To assess mandatory or voluntary incentive-based approaches to promoting high-road skills standards as part of the HVAC sector strategy initiative or CALCTP training, IOUs will work with relevant resource program managers to identify opportunities to create or enhance incentive programs that are linked to the participation of members of the workforce who have specific qualifications and/or credentials. For example, IOUs will explore the opportunity to provide an additional incentive directly to the customer if the customer hires a CALCTP certified electrician, in order to help create demand for participation in IOU-supported training programs such as CALCTP. The same model can be applied to the HVAC industry as well as other sector strategy approaches.

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In response to the guidance decision (at p. 283), the IOUs provide the following information about the CALCTP program.

Request	CALCTP Information
(1) Data or estimation of the incremental customer cost, if any, of requiring skill standards;	(1)When the program requires CALCTP certified installers, the cost to the customer for the labor component of the project may be 10% - 15% more than prior when no certification was required.
(2) Data or estimation of the average and range of permitting/compliance costs across permitting jurisdictions in the IOUs' service territories;	(2) Compliance and permitting cost are directly associated to the cost of proper training programs for designers, installers, manufacturers, etc. which may be equivalent to an additionally 20% to the project cost. However, proper collaboration with industry associations and manufacturers may offset this cost.
(3) Data or estimation of impacts, if any, mandatory skill standards would have on program participation rates;	(3) With proper incentive levels and education of the segment, it is anticipated that adoption/participation would increase since the misperceptions of advanced lighting control systems, potential for demand response and how DR or ADR works will be corrected causing more demand for the control solution.
(4) Data or estimation of impacts, if any, mandatory skill standards would have on program participation rates;	(4) It has been proven with advanced lighting control system assessment projects at PG&E, SCE and SDG&E that the customer will achieve a minimum of an additional 30% savings over traditional lighting efficiency measures. And dependent upon the level of control allowed to individual employees, savings may increase an additional 5% - 10%. With the opportunity to participation in DR, the customer will achieve even greater cost savings due to the ability to shave or control peak loads. The actual dollar values will be determined as the program adoption occurs and customer site performance is monitored and data collected.
(5) Any other potential benefits associated	(5) Additional benefits include: a. systems

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<p>with higher standards, such as fewer call-backs, lower frequency of customers over-riding control systems, lower life-cycle costs, and increased consumer uptake of measures based on higher quality and certainty.</p>	<p>do not get overridden due to better understanding as well as the system being designed and installed. Also, ease of proper training of customer personnel regardless of turnover with the local certified installer; b. IOU assessments have shown that fewer, if any, call backs will be experienced when the system is installed by a certified installer. In contrast, numerous call backs were experienced before the system was able to be commissioned when a non-certified installer was used. c) increased proper maintenance, d) higher visibility of actual energy use in lighting due to the potential of graphic interfaces and other reporting. e) ability to track GHG emission reductions. f) create market disruption as customers begin talking to others about how well their advanced lighting control system is working and saving them money due to proper design and installation.</p>
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3. Coordination with Energy Upgrade California’s Whole Home Upgrade (EUC - WHUP)

The IOUs will continue to develop and produce a core set of offerings in 2013-2014 that will be geared to providing interested contractors and technicians with the program knowledge necessary to provide entry, as well as support for their continued participation into WHUP.

To increase emphasis on workforce training for WHUP, the utilities will work with various “trade organizations” to share existing and future course offerings for their membership. The sharing of these courses is intended to expand the relevant knowledge base of partnering organizations, with regards to WHUP, and thereby improve the quality of energy efficient products installed throughout California.

SoCalGas will continue its current efforts to offer “continuing education credits” for organizations such as NATE, BPI, AIA, NARI, and other certification programs to be approved.

In consultation with local governments, the utilities will expand their training networks to include specific contractor and technician training. In addition, the utilities will work with local governments to identify geographic listings

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of contractors and technicians who will address community needs and comply with local codes and standards. In addition, the IOUs will conduct a gap assessment with local governments to identify additional needs not currently addressed.

SoCalGas will continue to work through our local government partnerships to ensure we have identified and marketed to contractors in areas served by those local jurisdictions, including multifamily programs.

- Coordination with Energy Savings Assistance Program (ESAP) Training and Certification

In 2012 the IOUs will engage with various Community Based Organizations, Local Training Facilities and Community Colleges to identify the most appropriate methods to partner with them to serve disadvantaged members of their communities. In 2013-2014, based on results of discussions with other relevant organizations, the IOUs will develop agreements to offer or share existing curricula with these partners to better serve their communities. These curricula will be designed to provide potential employment tracks within EE through entities such as trade organizations, IOU weatherization programs and weatherization programs offered through State agencies.

Partnership with the Energy Savings Assistance Program has provided low income utility customers with a variety of energy efficiency improvements for their homes for over 30 years.

The community colleges and the community based organizations have demonstrated that they can offer equivalent training for skills based training through their facilities which results in a reduced cost to contractors wishing to hire new assessors and installers for the program. The result of the articulation also reduces the initial cost of training for participating contractors (a key consideration in the hiring decision) making the individual more likely to be successful in their employment search. In addition, the contractors that have taken advantage of this symbiotic relationship have also found it has resulted in essentially these prescreened candidates are more likely to be long term employees of the program.

- Real Estate Agent Training

In 2012 the IOUs will make an initial introduction of courses designed to stimulate interest within the Real Estate community to expand their knowledge of benefits of EE in resale of residential and commercial properties as well as provide continuing education opportunities through

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partnership with various local, state and national oversight entities. Consultations in 2012 with relevant stakeholders are planned to continue into 2013-2014, so that ongoing feedback can lead to continuous improvement of these efforts. In 2013-2014 these offerings will be restructured, if necessary, and expanded to meet increased needs of these groups.

The utilities in 2012 will make initial entries into partnerships with various real estate groups within their territories in an attempt to gauge possible obstacles to WHUP trainings to enhance knowledge of EE by their memberships. In addition, the first forays into workshop offerings will be targeted at areas likely to be receptive to the sessions. In 2013-2014 the partnerships and offerings will be increased to provide a better understanding of the value of WHUP in real estate transactions. Consultations in 2012 with relevant stakeholders are planned to continue into 2013-2014, so that ongoing feedback can lead to continuous improvement of these efforts.

4. Additional information Required in Guidance Decision

- **Serving Low Income and Disadvantaged Communities**

IOUs will build partnerships with community-based organizations to offer on-location joint utility workshops in disadvantaged communities. These workshops will promote IOU low income programs, training, and certification opportunities at IOU Energy Centers and community-based organization locations. IOUs will explore providing presentations and materials in languages other than English, as appropriate to each community and partnership, to overcome any barriers of communication to customers in the disadvantaged communities. Please see additional information regarding efforts to serve low income and disadvantaged communities in Attachment 1 to this addendum.

- **Other Program Coordination**

WE&T will work with the Continuous Energy Improvement Program to introduce the CEI process, lessons learned, and case study input to community colleges and universities. CEI has a goal of integrating into energy engineering curriculum. IOUs will also work with CEI to assess and determine specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges. IOUs will also continue with WE&T coordination and cost sharing to transition the linkages and integrate sector strategy approaches.

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SoCalGas has begun implementing a sector strategy to accelerate the development of the Commercial demand-side management workforce needed by IOUs and larger EE industry. This implementation is the result of statewide research and cross-stakeholder collaboration, with a focus on deepening partnerships between education and industry. Moving forward, SoCalGas will be refining those programs, developing new programs and building an overall project plan for deliverables in 2012 as well as in 2013 and beyond. This strategy has already begun to provide key lessons for application towards similar strategies within other priority sectors.

In 2013-2014, WE&T will work with the Benchmarking and IDSM Programs in similar manner as proposed for the Continuous Energy Improvement Program to introduce the processes, lessons, and case studies curriculum to working energy management professionals, industry professionals, IOUs will consider a sector strategies approach in furthering development of these collaborative effort.

- **Safety Related Training**

The IOUs currently conduct Natural Gas Appliance Testing (NGAT) training where appropriate, and in particular when working with providers of low income weatherization programs. No lead or asbestos abatement certification is currently required as part of IOUs' low income weatherization training programs, only identification of potential conditions, because licensed contractors are expected to obtain such training as required.

SoCalGas through many of its contractor training programs currently provides training and consulting services for the appropriate combustion safety protocols (Natural Gas Appliance Testing (NGAT) or LIHEAP Combustion Appliance Safety (CAS) protocols for the Energy Savings Assistance Program's weatherization programs, and augmented Building Performance Institute (BPI) protocols for Whole Home Upgrade Program non-low income weatherization programs.

- **Attachments to Addendum**

Attached to this addendum in Attachment 2 is SoCalGas's list of courses and programs planned for 2013-2014, using the template provided in the Guidance Decision (Appendix C). Course offerings may be modified, based on market training demands and input from industry stakeholders. Per WE&T's Joint Advice Letter²⁰, IOUs will redesign and structure select courses offered in 2013-2014 such that they become part of a series.

²⁰ SDG&E 2260-E-B/2041-G-B, SOCALGAS 4249-B, SCE 2588-E-B, and PG&E 3212-G-B/3852-E-B

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Statewide Building Operator Certification (BOC) Training Partnership

In addition to IOU coordination of Energy Center activities, the IOUs will continue to offer Building Operator Certification training to the commercial building workforce in their territories.

Building operators are a sector of California’s green collar workforce that will continue to play a major role in improving and maintaining California’s energy efficient building stock.

Buildings at all scales—small commercial to high-rise commercial and universities—that are designed to operate at a high level of energy efficiency and comfort often fall short of design expectations for many reasons, including unexpected occupancy or use patterns, malfunctioning controls, incorrect installation, and equipment that falls out of calibration over time. Building operators and facility managers play major roles in ensuring buildings are performing at the level of efficiency and comfort they were designed to perform.

Building Operator Certification (BOC®) is a national program providing education and accreditation in the field of energy efficiency of commercial and institutional buildings. BOC has been recognized by the American Council for an Energy Efficient Economy (ACEEE) as one of the country’s “Exemplary Programs.” With more than 6,000 facility professionals earning the credential, BOC is widely recognized by key employers as a means to distinguish skill proficiency for energy management in buildings.

As an active national training program, BOC is well positioned to provide training for workers looking to establish or enhance their building energy efficiency skill sets as well as those who may need foundational building and energy efficiency training as an entry point to a growing clean energy career path. BOC’s target workforce audience includes building engineers, stationary engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians, electricians, operations supervisors, operations technicians, and others in the facility operation and maintenance field.

The BOC curriculum supports a credential at two levels. The Level I certification provides a strong grounding in commercial building systems, the key energy using equipment within the building, and how improved energy management technology and practices can reduce operating costs, improve comfort and productivity, and reduce the building’s carbon footprint. The Level II certification builds on the Level I competencies with additional technical specificity in key building energy use areas such as HVAC, controls, and electrical equipment. In total, the BOC curriculum offers a comprehensive 130 hours of training. A list of class topics for Level I and II are provided in the Attachment 2.

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BOC Beyond the Classroom

BOC offers a classroom training component supplemented by both an exam process for credentialing and a practicum component. Participants utilize a set of project assignments which help ensure that energy management principles are well understood and can be actively applied in buildings. The program has had numerous third party evaluations over the past 10 years and has been rated very positively by participants and their employers. These evaluations have consistently reported significant energy savings for employers who utilize credentialed BOC employees. Utilities across the country are supporting BOC and many utilize the core training program as a means for professional development of their internal staff.

Employers and BOC

BOC is being used by employers across the country for their energy management training needs. Public agencies, private employers, property managers, schools, universities, and healthcare institutions are all active BOC participants. Many companies and public institutions use BOC as a component of their professional development track for their employees. Examples of employers using BOC include California State University System, Irvine Company, Providence Health System, Raytheon, State Farm Insurance, and Washington State General Administration.

IOUs and BOC

The IOUs have been collaborating with BOC to offer California building operators competency-based training and certification, resulting in improved job skills and more comfortable, efficient facilities. Through a coordinated effort, the four California IOUs offer BOC training to their commercial and institutional customers. The statewide program combines classroom training, exams and in-facility project assignments to train and certify building engineers and O&M technicians in the practice of energy efficient building operation and maintenance. NEEC has implemented the program for the IOUs since 2002.

The IOUs will work with BOC to shape and realign the BOC certification program to be consistent with the California Long Term Energy Efficiency Strategy Plan (Strategic Plan) as well as other guiding documents, including the California WE&T Needs assessment and the Guidance Decision. Changes to the BOC curriculum and program will include:

- Following up with program participants to assess content implementation into existing facilities;
- Expanding the number of and improving the dissemination of case studies of model energy efficiency projects conducted by program participants in combination with other demand side management (ex: onsite generation and demand response) improvements when applicable;

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- Incorporating BOC materials and findings into broader IOU Centers’ curriculum and vice-versa;
- Better integration between BOC and other utility and utility-sponsored integrated EE, DR, and distributed generation programs;
- Better integration between BOC and other utility-sponsored energy efficiency education and other demand side management programs, including the BOMA Energy Efficiency Program (BEEP);
- Continuous updating of curriculum materials to include information about monitoring and operating zero-net energy buildings;
- Emphasizing diagnostic and troubleshooting strategies in BOC curriculum and including materials of the use of measurement equipment; and
- Developing an annual awards program for BOC program participants annual awards program to recognize graduates for their energy efficiency building operations implementation efforts, including improved building performance from measured energy savings, documented improvement in occupant satisfaction/comfort, or document tenant complaints.

- Per feedback received from the 2010-2012 Process Evaluation via Opinion Dynamics, offering the BOC four-part webinar series as a cost-effective way to address a growing demand for web-based learning, increasingly limited budgets among building operations staff, and for continuing education credits for maintaining certification.

- As resources allow, working with local workforce investment boards (WIBs) to develop specific programs to offer BOC trainings to experienced, but displaced building operators at a significant discount. Such programs will also include opportunities to implement course material into actual buildings as well as development of “soft skills,” including resume writing and interview techniques.

Local BOC Program Variations among IOUs:

IOUs will implement the BOC program statewide as described above throughout their territories.

2013-2014 BOC Course and 4-Part Technical Webinar Series Targets

	2013			2014		
	Level 1	Level 2	Webinar	Level 1	Level 2	Webinar
SCE	4	2	0	4	2	0
PG&E	4	4	2	4	2	2
SoCalGas	1	1	1	1	0	1
SDG&E	2	0	1	1	1	1

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iii. Incentive levels

Not applicable.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

Over the years, the Energy Centers have identified and cataloged these individuals as having the greatest capability of exerting significant influence on the energy efficiency decisions of customers based on the multiplier effect. Energy Centers will continue to expand their marketing efforts by incorporating innovative and creative approaches to reach new target audiences including industry and labor partners, colleges and universities, local governments, and third party partnerships, and will continue to cross-market their courses through its established relationships with various professional organizations. Energy Centers have and will continue to rely on email promotions to people in their combined database of potential students. The Centers will continually update their database to ensure accuracy and targeted marketing for seminars.

Training sessions and workshops will be marketed through SoCalGas's Internet Event Business Management System (IEBMS) training website (www.SoCalGas.com/erc), the Whole Home Upgrade Program web site, professional organizations' websites, HVAC distributors and vendors, California Community Colleges, energy fairs, trade shows, and energy efficiency / environmental events designed to increase awareness of the Energy Centers and their education programs to prospective participants.

Over the past several years, the Energy Centers have worked with labor and industry to qualify many of their courses for accreditation. Through these outreach efforts, the Energy Centers have been able to certify many of its for continuing education credits from the following organizations: Build It Green (BIG), North American Technical Excellence (NATE), American Institute of Architects (AIA), National Council for the Qualification of Lighting Professionals (NCQLP), and the National Association of the Remodeling Industry (NARI). The U.S. Green Building Council (USGBC) will soon begin a continuing education program for its LEED™ Accredited Professionals to maintain their accreditation, thus providing another target audience for the Energy Centers' courses. The Energy Centers will continue to reach out to these and other industry groups and labor organizations, and will expand their marketing to vocational training institutions and programs which serve low-income, disadvantaged communities.

The Energy Centers will leverage their long-standing partnerships with the California Community Colleges, UC/CSU system, State of California Community Services Department, USDOE Industrial Technology Program, the Building Operator Certification (BOC), and the California Energy Commission Industrial and Agricultural Programs during 2013-2014 as part of its overall marketing and

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outreach efforts to attract and train the next generation of the green collar workforce. In addition, the Energy Centers will partner with the Energy Savings Assistance Program (ESA) to improve, expand, and extend training offerings to disadvantaged communities. The Energy Centers will also coordinate with the ESA Program to enhance recruitment of low-income workers.

FSTC works directly with SCE and SoCalGas on coordinating the seminars and events relating to food service. The statewide food service energy center team provides the technical support for the statewide Energy Wise Food Service Equipment rebate programs and for target market incentives for food service. The target audience for FSTC and the statewide energy center activities is to a significant extent; corporate or franchise customers whose decision makers are located outside of PG&E's service territory or, more likely, outside of California. FSTC maintains close communication with the other IOUs and the food service energy center teams in order to provide coordination of programs or information aimed at these customers.

- v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

Carbon neutrality – Energy Centers will support AB32 compliance by incorporating waste and greenhouse gas (GHG) emissions reduction information into all appropriate training courses. Energy Centers will prioritize its training and DSM efforts based on the carbon content of sources used to meet building energy loads and by challenging people to eliminate carbon consumption. Technical expertise, educational programs and support for the Big Bold Zero Energy New Home goal and California's vision of achieving zero net energy residential buildings by 2020 and commercial buildings by 2030 will also be made, as well as training on methods needed to achieve deep energy savings retrofits for existing homes.

Codes and Standards – The Energy Centers will continue their long-standing partnership with the Codes and Standards team and the California Energy Commission (CEC) to offer training on the latest updates to the Title 24 Energy Standard through improved code compliance and design / installation methods for exceeding code requirements in residential new construction and HVAC retrofits.

FSTC and the statewide food service energy center team provide technical support to staff of the CEC as Title 20 appliance regulations are developed for commercial food service equipment. Efficiency regulations for commercial kitchen equipment tend to go hand-in-hand with the voluntary ENERGY STAR program. The ENERGY STAR database and criteria are used to qualify (through testing and labeling) the top quartile of equipment efficiency while CEC seeks to through regulation the bottom quartile of equipment on the same list.

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FSTC works with the Bay Area Air Quality Management District (based in San Francisco) directly or through ASHRAE on projects and technologies aimed at efficiently reducing food service effluents. For the major equipment categories and candidates for national energy and water savings, the FSTC and the statewide food service energy center team will provide technical support to establish efficiency criteria for EPA's ENERGY STAR program. On an appliance-by-appliance basis, FSTC and the statewide food service energy center team will work with EPA and leading manufacturers to implement ENERGY STAR for commercial food service equipment and to support the Federal Energy Management Program (FEMP) interagency program on energy-efficient federal purchasing.

FSTC and the statewide food service energy center team will continue to work with the LEED "Working Group" to finalize the list of recommended prescriptive measures and baselines for energy modeling of commercial food service facilities. This group provides insight and submits formal CIRs on EA Credit 1 to the Retail Core Committee to help mature the language to yield a clear guideline for all types of retailers, including restaurants.

vi. Similar IOU and POU programs

The food service (FS) programs offered by the three IOUs are coordinated through two levels, first at the FS program level through interactions between FSTC (PG&E), FSEC (SoCalGas), and the Energy Innovations Center (SDG&E) to develop program offerings, schedule combined outreach programs, and develop support programs such as Rebate Workpapers. Second, the FS programs are coordinated at the Energy Center level through the statewide Energy Center coordinating committee. The Food Service Coordination deals with the scheduling and logistics of cooperative events such as seminars and supporting outreach materials, workshops, Executive Planning Committee meetings, outreach events such as trade shows, joint energy efficiency program advertisements, and trade articles and general promotion of both the seminar and rebate programs.

b) Program delivery and coordination

Between 2013-2014, the Energy Centers will work closely with all programs to coordinate and conduct seminars and workshops that address the knowledge and skill gaps of builders, developers, contractors, designers, installers, plant engineers and operators, agricultural owners and managers, and city and county building department staffs. Additional services will include technical assistance and support, consultations and tool loans.

i. Emerging Technologies program

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The Energy Centers will continue to coordinate and collaborate with the Emerging Technologies program to introduce new equipment, installation practices, and whole building concepts to key market actors. Such support helps expand implementation of new energy efficiency products and services. For example, Energy Centers partner with Emerging Technology projects by: developing demonstration and testing facilities, jointly developing curricula, organizing product showcases, and incorporating new products into training sessions.

The ERC will collaborate with the Emerging Technologies (ET) program to coordinate training programs for training the trainer and training programs with information about technologies on the horizon for introduction to the marketplace. ET will also play a significant role in advising the PEC on fixed and portable displays and exhibits for its interactive lighting classroom.

The IOUs will coordinate efforts with the Codes and Standards program and with the California Energy Commission to identify critical early planning workforce training needs for advanced technologies.

IOUs will collaborate with their respective Emerging Technologies groups, the statewide Emerging Technologies Coordinating Council, State agencies, and IOU codes and standards groups to identify and deliver on opportunities for teaching targeted parts of the workforce about emerging technology products as they relate to energy savings opportunities through energy efficiency and demand response. WE&T programs will also include content on proper installation and commissioning of ET products/systems.

ii. Codes and Standards Program

The Centers will collaborate through their educational seminars with compliance improvement efforts planned by the Codes and Standards (C&S) Program. Typically, these efforts will focus on training of building department staff. Centers will focus on building standards training for architect, engineers, energy consultants, home performance contractors, home energy raters, and green building programs.

The Energy Centers will directly impact improved compliance with Title 24 energy standards through rigorous updates that go beyond new construction to include revolutionary impacts on the existing housing market. The ETC and PEC will work with HVAC contractors and building department officials to overcome information and training barriers to code compliance and enforcement. Since 1998, the Energy Centers have proactively offered training on Title 24 code updates and changes to residential / small commercial building standards. The ETC and PEC will continue to go “beyond code” by providing state-of-the-art,

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building science-based information about the best available systems, technologies and techniques for minimizing building and operational energy consumption while optimizing whole building or system performance and occupant satisfaction or enhanced productivity. Additionally, the FSTC and the statewide food service energy center team provide technical support to C&S staff for Title 20 appliance and Title 24 building regulations as relating to commercial food service equipment, operations and facilities.

In collaboration with WE&T, C&S will enhance support for the appropriate market actor roles responsible for new and emerging codes and standards implementation according to priorities established by needs assessments. C&S will collaborate with the WE&T Centergies sub-program to not only prepare contractors and technicians to implement current codes, but to also prepare them with technical training on advanced technologies that are projected to become part of reach codes and then the statewide code.

In support of the Zero Net Energy goals, C&S will continue to build on existing training offerings and will expand activities to coordinate more closely with WE&T. In collaboration with WE&T, C&S will develop a sector strategy to support workforce development in an area with low compliance, for example, the Commercial Air Conditioning Quality Maintenance and Installation Program. C&S will maintain ongoing communications with WE&T staff to ensure coordinated development and inclusion of code-related content WE&T programs will offer market actor-specific training on Codes and Standards to address ongoing code changes and code compliance.

iii. WE&T efforts

Energy Centers

The Centers will collaborate and coordinate where possible to be in alignment with California's Strategic Plan. Statewide collaboration among Centers will increase sub-program consistency and information/cost sharing for what the Centers offer to their customers (seminars, tool lending library development assistance, portable exhibits).

BOC Program

In alignment with the goals of the Strategic Plan, BOC's curricula incorporate relevant information about the Emerging Technologies, Codes and Standards, and HVAC Quality Installers/Quality Maintenance programs. As appropriate, BOC instructors will enhance the depth of the learning experience by discussing new technologies and ways to meet and exceed the state's code and standards.

Through its two levels of training and certification, BOC offers supplemental training in existing technical positions by providing knowledge and skill building for technician-level facilities personnel including building engineers, stationary

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engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians, electricians, general repairers, and head custodians.

BOC has been recognized by several industry and labor organizations as one of value to its members. This recognition reflects the program's efforts to meet the needs of these organizations through solid, industry relevant curricula development. Among the organizations recognizing BOC's training program are the International Facility Management Association (IFMA), the Building Owners and Managers Institute (BOMI), the National School Plant Management Association (NSPMA), local chapters of the society of healthcare engineering, and the California State Employees Trades Council (SETC). NEEC also partners with California statewide partnerships including the UC/CSU/IOU Partnership and other Local Government Partnerships (e.g. Association of Monterey Bay Area Governments).

- iv. Program-specific marketing and outreach efforts (Budget provided in Table 1)

Energy Centers

Each of the Centers will distribute their own print calendars to a more focused target audience to ensure notifications of Centers' offerings reach key actors. Innovative and creative approaches will be applied to attract and retain new customers and market actors to the Centers. This will include aligning the Centers' activities with corporate and statewide direction. Centers will contribute content to the Statewide Web portal described above and below. Classes and other Center activities will be promoted through the following venues: the Centers' print calendars, collaboration with professional and trade organizations, Center's Web sites, Centers' email communications with students who have opted in to receiving email notifications, and other partnerships, including non-profit organizations and existing academic channels (community colleges, UC/CSU).

Centers will continue to promote and collaborate on marketing efforts with established and new partnerships involving other utility segments, across utilities, and with government, academic, research, professional/trade, and non-profit organizations focused on efforts supporting the Strategic Plan.

BOC Program

Northwest Energy Efficiency Council (NEEC) works closely with the IOUs to promote Building Operator Certification (BOC) seminars. IOU-sponsored BOC classes shall be mentioned in Energy Centers' calendars and email-marketing campaigns targeting commercial and institutional customers. NEEC will also target potential participants with direct marketing materials including informational brochures, case studies and bi-annual bulletins. The program's website also serves as a promotional channel. In 2013-2014, BOC will undertake promotional activities that build on customer interest in national initiatives such

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as the ENERGY STAR® Challenge and LEED for Existing Buildings. It will also work with large employers to organize closed-enrollment sessions for facilities engineering departments at a single site. Where the IOUs offer the Building Owners and Managers Association (BOMA) Energy Efficiency Program seminars, BOC shall be cross-marketed.

BOC will continue to promote training and certification through its highly successful educational partnerships with professional associations representing the facilities engineers. These include the International Facility Management Association (IFMA), Building Owners and Managers Association (BOMA), Association of Physical Plant Administrators (APPA - higher education), National School Plant Management Association, and the American Society Healthcare Engineering (ASHE). BOC will participate in the annual events and program meetings of these associations to share information about opportunities to reduce operating costs through energy efficient building operations.

v. Non-energy activities of program

The Centers and BOC shall remain focused on delivering content centered around integrated DSM programs, including EE, DR and distributed generation. The Centers have and will continue to explore other program topics that do not have direct energy connections, but that do contribute to improving California's building stock. Such topics include indoor air quality, occupant comfort, recycling, and environmental stewardship and preservation. The LEED™ Green Building Rating System provides an outline for other topics that can help inform Centers' program managers and instructors about other resource types.

The Energy Centers provide low-cost centralized meeting space for the benefit of program implementers. Volume of activity for non-energy program participants lowers the average cost of energy efficiency training due to volume discounts. Non-energy participants are not subsidized by this program.

FSTC supports water conservation through its work on hot water heating and use in FS, hot water systems research, testing and rating of water using cooking and refrigeration equipment. Air Quality work is being coordinated with Air Quality Districts on reduction of kitchen effluents.

vi. Non-IOU Programs

IOU program will interact with CEC, ARB, Air Quality Management Districts, local government programs and other government programs as applicable. The Centers will interact with the CEC to develop and deliver training to support improved compliance with building and appliance standards. Compliance with retrofit HVAC requirements is a key strategy in the Big Bold Initiative that will rely on collaborative training efforts.

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The Sacramento Municipal Utilities District (SMUD) operates its Energy Technology Center (ETC) that provides similar functions as the IOU's Centers. The IOUs will reach out to SMUD to collaborate on WE&T elements. The IOUs are active partners with Community Colleges to support and embellish green career technical education. This collaboration will provide professional development for instructors to aid in adjustments to curricula to support green job training. Such an endeavor may set the stage for expanded collaboration to support instructors and develop additional programs.

BOC has and will continue to support CEC adoption of minimum energy efficiency standards.

- vii. CEC work on Electric Program Investment California (EPIC)

Not Applicable

- viii. CEC work on codes and standards

The Centers will work with the CEC and the IOU C&S programs to improve code compliance through coordinated education and training delivery. For more details on these integration efforts, refer to the HVAC WE&T PIP.

- ix. Non-utility market initiatives

The Energy Centers collaborate with certification and training initiatives by the following organizations: North American Technician Excellence (NATE), Affordable Comfort, Inc. (ACI), Building Performance Institute (BPI), National Association of the Remodeling Industry (NARI), American Institute of Architects (AIA), BuildItGreen (BIG), and Home Energy Rating System (HERS) Providers [California Building Performance Contractors Association (CBPCA), U.S. Green Building Council (USGBC), American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE), California Home Energy Efficiency Rating System(CHEERS) and CALCerts].

FSTC and the statewide food service energy center team utilize their relationships with ENERGY STAR and various restaurant and food service industry organizations to promote their programs and leverage these relationships to pursue efficiency objectives. (Refer to Section 6.2.b.v. above.)

c) Best Practices

Centers will develop classes, displays, and materials with current information that highlights and demonstrates best practices for efficient installation and equipment through field-experience and case studies from existing programs, including Savings by Design and Energy Design Resources. Centers' offerings will emphasize whole building

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and system performance in conjunction with design intent. Implementation of hands-on learning methods that are applied in the field creates an opportunity for partnering with EM&V and/or 3rd party evaluators to follow up with course participants to assess impact upon practice and/or energy savings. A description of this pilot program appears in Section 6.1-g below. The Centers will continue to implement best practice methods as prescribed in prior statewide evaluation reports, including “Evaluation of the 2003 Statewide Education and Training Services Program” by Wirtshafter Associates, Inc., 2005 and “2004-2005 Statewide Education, Training and Services Program Evaluation” by KEMA, 2007.

Many of the training programs conducted through the Energy Centers incorporate adult learning theory by utilizing a “hands-on” approach that enables students to visualize and experience the impact proper system design, installation and maintenance can have on operation and energy efficiency.

Throughout the 2013-2014 transition period, the Energy Centers will develop additional training props and equipment for use in many of the courses offered to enhance learning and provide real-world experience in the classroom. In addition, both Energy Centers will expand their courses to include more “Train the Trainer” classes to expand the reach of their training efforts and materials.

FSTC, through its research, testing, and constant customer contact continually updates its technology and operational practices knowledge base. The Best Practice partner Program is a manifestation of this constant improvement.

The ETC also interacts with Affordable Comfort, Inc., in a leadership, planning and strategic mode to audition and recruit the best talent and state-of-the-art topics for delivery in California, capitalizing on long-term relationships that gain access to best practice providers.

BOC teaches commercial and institutional facility staff how to operate and maintain building systems for energy efficiency, optimal performance, and occupant comfort. BOC combines classroom training, exams, and in-facility project assignments to train and certify building engineers and operations and maintenance technicians in the practice of energy-efficient building operation and maintenance. The curriculum was developed to provide knowledge and skill building for technician-level facility personnel including HVAC technicians, electricians, general repairers, and head custodians. BOC curriculum is taught by practicing professionals who implement best practice building operations strategies toward improving building energy efficiency. The curriculum is updated on a regular basis. Trained instructors share best practices with one another as BOC curriculum is updated on an annual basis.

d) Innovation

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In 2013-2014, the IOU Energy Education and Testing Centers will undertake three pilot projects that will serve to shape programs for future filings. These pilot projects are discussed in Section 6.1-g below. The Centers will also continue to keep their Centers and offerings up-to-date with current and upcoming technologies.

- *Increased use of the Internet to deliver education and training programs as real-time simulcasts, real-time Webinars, and archived on-demand classes:* While these applications have been implemented by some Centers in the past, all Centers will implement and progress this delivery method further to reach a wider audience and to increase program cost-effectiveness.
- *Expanded curriculum to support California Energy Efficiency Action Plan for 2020:* The IOU Centers will develop teaching material on topics such as climate change, energy neutral growth, effective mass transit and Plug-In Hybrid Vehicles, and effective implementation of green technologies. Centers will need to pilot, experiment and partner with local Universities, science museums and other parties with expertise to provide a balanced view on these complex topics.
- *Emphasis on Adult Learning Principles:* Centers will complete the revision of seminar content and curriculum based on adult learning principles to which they were exposed as part of the KEMA program evaluation effort “2004-2005 Statewide Education, Training and Services Program Evaluation”, submitted in 2007. Such learning principles emphasized hands-on “learn by doing” training. Some members of the Centers’ training staff at the centers have been trained on these principles and will integrate them with the goals of promoting energy efficient behavior participating in available EE programs. The expected benefit of utilizing Adult Learning Principles is an increase in participant retention of knowledge, awareness and comprehension leading to greater EE behavior and program impact.
- Centers will work together and collaboratively with other utility groups (i.e. Emerging Technologies) to develop new exhibits with up-to-date technology that can be either replicated and/or shared across utilities to maximize cost-effectiveness of new exhibit development.
- Centers will work together and collaboratively with other utility groups and stakeholders to create an educational series describing paths to zero net energy residential buildings by 2020 and commercial buildings by 2030. This is in support of CPUC and CEC commitments and directives.

BOC Innovation

As a credential program, BOC is uniquely positioned to maintain a long term relationship with graduates through its certification renewal program. Graduates must earn continuing education hours annually to maintain the BOC credential. This provides an opportunity to direct graduates to the utility education and training centers to earn continuing education hours towards renewal.

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Energy efficiency project work also qualifies for continuing education. Graduates may earn continuing education hours through engagement of EE and DR projects at their facilities. In 2006, almost 20% of BOC graduates earned hours through completion of efficiency projects. Finally, BOC graduates and their supervisors are informed about energy efficiency and demand response program opportunities through the BOC Bulletin, a bi-annual newsletter mailed to 1,500 California IOU customers.

Continue, and even increase, utility presence at BOC trainings: Students expressed satisfaction with utility account representative presentations in BOC classes. This should be continued and even expanded on by involving account reps in promoting BOC to key accounts in advance of the course series start date.

e) Integrated/coordinated Demand Side Management

Centers will develop their programs to incorporate other DSM opportunities, including demand response (DR), and distributed generation. The Centers have taken the first steps toward integrating DG and energy efficiency into their exhibits and educational seminars. They have also developed seminars and exhibits focused on DG, EE, and DR. The next step is to work with the DG and DR groups to develop programs that integrate the three in a way that is consistent with other utility programs and with the long-term energy efficiency strategic plan towards zero net energy residential buildings by 2020 and commercial buildings by 2030. Centers will integrate training offerings with codes and standards programs as described in section 6-b above.

NEEC recognizes California's demand side management needs are not fully addressed through energy efficiency alone, but rather through a blend of multiple DSM options including rigorous building codes and standards, demand response, and on-site generation. The BOC curricula are structured to offer flexibility for the incorporation and promotion of relevant demand side management options (rebate and non-rebate) available through the IOUs. NEEC has and will continue to work with the IOU's to customize BOC curriculum to the California market to address technologies and practices associated with demand reduction and to stimulate uptake of utility programs in energy efficiency, demand response, and on-site generation. In 2005 and 2006, BOC curriculum modules were supplemented with material on the topics of enhanced automation strategies for demand reduction and operational best practices to ensure persistence of savings from building retro-commissioning. In 2008, BOC curriculum modules were supplemented with material on the topic of O&M practices for sustainable buildings covering a full range of resource conservation topics. The curricula are also flexible to include information pertaining changes and/or implications to support implementation of and compliance with the CEC's Title 24 to Title 24 2008 Building Energy Efficiency Standards, AB32 (Greenhouse Gas Reduction bill), and other initiatives.

In 2013-2014, WE&T will work with the Benchmarking and IDSMS Programs in similar manner as proposed for the Continuous Energy Improvement Program to introduce the processes, lessons, and case studies curriculum to working energy management

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professionals, industry professionals, IOUs will consider a sector strategies approach in furthering development of these collaborative efforts.

f) Integration across resource types

IOU Centers recognize that energy efficiency can be achieved through programs that go beyond traditional energy efficiency education and training. The Centers have and will continue to offer seminars and build partnerships that remain focused on energy efficiency and go a step further to show the benefits of energy efficiency upon other areas (e.g., air quality). The Centers will also work together and collaboratively with other utility groups and stakeholders to incorporate the benefits of achieving efficiencies with other types of resources (e.g. water efficiency) upon whole building energy use. This integration can be achieved by developing courses on specific topics like water efficiency since any use of water requires energy consumption. The highest impact for water efficiency integration occurs when water is also heated on site. The LEED™ Green Building Rating System provides an outline for other topics that can help to inform Center program managers and instructors about other resource types.

BOC's Level II course structure offers unique flexibility to integrate the curricula from other resource management areas relevant to building operation and maintenance such as water, waste, and indoor air quality. Level II supplemental classes are offered in tandem with core classes to customize the course series to regional and topical interests in the California building operator market. Three one-day supplemental classes in the topics of water efficiency, O&M for sustainable buildings, indoor air quality, and demand response have been developed and successfully delivered to 500 building operators since the program's inception.

g) Pilots

No pilots are proposed for Centergies Subprogram. Several sector strategy initiatives will be pursued in coordination with IOU programs, as discussed in previous sections.

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

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7. Program Diagram

See above Section 6.2.

8. Program Logic Model

Below is the logic model for the WE&T Centergies Subprogram.

The activities specified in the logic model focus on several types of actions. One is to promote and market center services to target audiences. These activities involve gathering labor market information from employers in the energy sector and designing programs to meet their needs. They also include leveraging existing relationships with colleges, and professional and trade organizations to market courses and other energy center offerings.

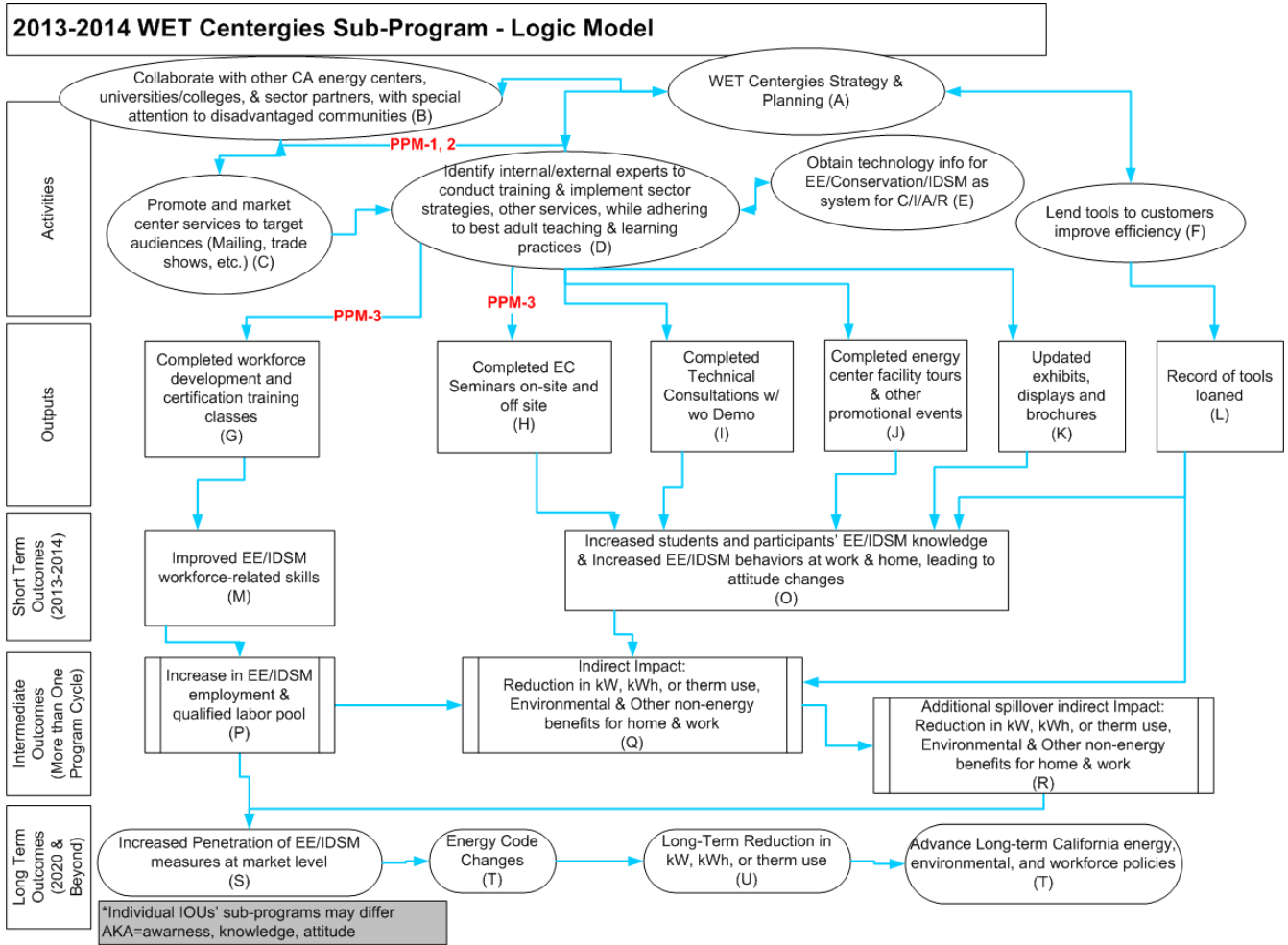
A second activity focus is marketing and reaching out to disadvantaged communities to facilitate energy-related job skills in those communities. This will be accomplished by partnering with industry and labor organizations, professional organizations, trade and vocational schools, community colleges, third-party entities, government organizations and other partners that service low-income or disadvantaged communities in order to reach members of these communities and bring them into energy center training programs.

A third activity focus is to identify internal and external experts to conduct training and other services, while adhering to best practices in adult learning. The centers are developing and using many new training props to give students first-hand experience with how energy-saving technologies and practices work and how they produce savings. They are also including energy modeling tools to teach students to estimate savings resulting from the technologies and practices they learn in the classes. In addition, the centers are reviewing seminar content to be sure the adult learning principles are being incorporated.

A fourth activity in the logic model is the lending of tools to customers that will allow them to judge the energy efficiency of their equipment and make changes and adjustments to increase efficiency.

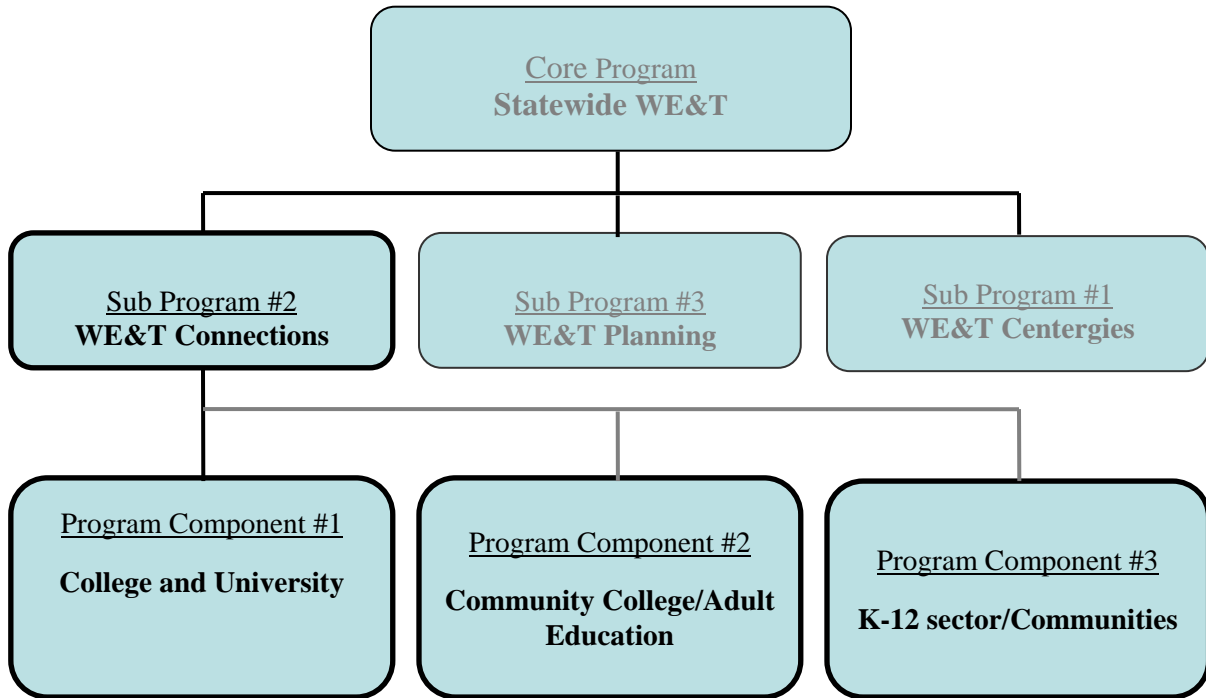
All of these activities are all expected to result in classes, consultations, promotional events, exhibits, and tool lending that increase participants' energy efficiency and IDSM knowledge and behaviors. Ultimately, these activities and outputs are expected to result in indirect energy savings.

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6.2) Sub-Program Implementation – WE&T Connections SCG3730



1. Program Description

a) Describe program

WE&T Connections is a three-fold marketing, outreach and workforce education and training program. This Sub-Program offers K-12, Adult Education (post-high school), Technical Training, Community College and University level education programs that support the Strategic Plan’s vision for educating and training California’s workforce for “green” jobs.

- First, the programs promote green careers to K-12, Adult Education (post-high school), Technical Training, Community College and University students through energy and environmental curriculum, college credit courses at high schools, college degree programs, job shadowing and internships.

The IOUs and/or our third party vendors will continue to work with California Department of Education (Curriculum Commission) as well as curriculum coordinators from the County Offices of Education to be included in curriculum development advisory boards so that we can contribute to tailored K-12 curriculum that includes the science of energy, energy efficiency, Demand Response, Renewable Resources and some discussion about green careers. We will also work with the

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California Community College Chancellor's office, UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields. Throughout the process, we will also work to incorporate and promote a green career path.

- Second, the programs are intended to educate students on energy, water, renewable energy, demand response, distributed generation as well as greenhouse gases and the environmental impact, with the goal of influencing day-to-day decisions of students and their households.
- Third, the programs educate K-12/Community Colleges/Universities on the benefits of adopting energy efficiency and demand response policies at their facilities to help them save energy and money. Having these programs at schools and campuses serves to reinforce that schools practice what they preach. Some students truly pay close attention to see if the schools are just providing lip service or if they are leading by example.

b) List measures

WE&T Connections program offers five energy education program components— Green Campus, DEEP, PEAK, Energenius, LivingWise, Green Pathways and Green Schools— and effectively integrates specific content for the science of energy, energy efficiency, water conservation, renewable energy, demand response, distributed generation, greenhouse gases to address awareness in the communities, barriers faced by schools as well as growth and demand for green careers. These programs are designed to be both flexible and affective across diverse learning environments as well as to empower K-12/college students to become advocates of smart energy management in their homes, schools, and communities. Each program component will also leverage all other available energy efficiency, demand response, and distributed generation programs for consumers as well as existing business incentives for schools, all to achieve immediate and long-term energy savings and demand reduction in homes, communities, schools and universities.

c) List non-incentive customer services

WE&T Connections is a non-incentive based, education and training sub-program.

2. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

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See core program Section 5.a. for program performance metrics (PPMs) and Section 5.b. market transformation information.

b) Market Transformation Indicators (MTIs)

There were no market transformation indicators (MTIs) identified for the WE&T program.

c) Program Design to Overcome Barriers

Energy education is critical to assuring a stable and reliable supply of electricity in California. Educating students will create a new generation of Californians who understand the significance of energy in their lives, their role in its efficient use and the importance of managing our limited resources for the future. This knowledge and information can also lead to life-long energy savings habits and a concern for the environment and its limited resources for not only the students but, for their family and friends. This knowledge and education can also lead the interest in a future green career path. However, given the budget cuts at schools, cuts to curriculum and longer work hours for teachers, getting this message across may not be possible without the assistance of these IOU-sponsored programs.

WE&T Connections program components are designed to be both flexible and effective across diverse learning environments. All program components promote the science of energy, energy efficiency, demand response, distributed generation, and empower K-12 and college students to become advocates of smart energy management in their homes, schools, and communities. The program effectively combines classroom learning with hands-on activities.

The program will address lost opportunities in the school market by implementing a comprehensive, innovative approach that involves incorporating:

- Some of the nation's leading energy education programs. These programs are 1) designed to promote green careers through energy and environmental curriculum, 2) designed to educate students on energy, water, renewable energy, demand response, distributed generation as well as greenhouse gases and their impact to the environment, with the goal of influencing day-to-day decisions of students and their households, and 3) also designed to educate schools/facilities on the benefits of implementing energy efficiency policies and demand response programs at their sites to impact energy use in schools and, universities and to project energy and environmental leadership by example.
- The program components are developed in collaboration with natural gas, electricity and water agencies to promote and encourage the adoption of energy efficiency, demand response, distributed generation and water conservation options.
- Collaboration and integration with residential and business incentive programs that result in firm energy savings for homes and schools.

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Energy costs for schools can be an enormous expense and are often the second largest expense for schools after employee salaries. Declines in school funding over the last 20 years have left little to no room in budgets for incorporating high performance measures during major repairs or renovation in existing buildings. This is where our business incentives programs come into play when promoting these educational programs to schools. Not only are these educational components funded by the IOUs, but the schools can also see a measurable utility savings. Also, when the schools teach something that children can take home that helps parents save on their utility bills, the parents are more likely to be active in their students' education. Failure to take advantage of these educational and facility programs represents a significant missed opportunity.

The U.S. Department of Energy estimates that schools could save approximately 20% of their energy costs by incorporating energy efficiency measures²¹. To start, schools can begin with no cost behavioral and operational changes. Additional funds and/or incentives are needed before schools would seriously consider the more serious energy efficient options.

IOUs will continue to promote low-to-no-cost energy efficiency measures, as well as retrofits programs for their school facilities. In most cases, the benefit of the IOUs assisting school in ways to save on energy cost is the selling point to getting school district cooperation in implementing the educational components. Schools practicing what they teach with respect to energy efficiency, demand response, distributed generation and other helps reinforce the importance of practicing smart energy management with students, thus creating a new generation of energy smart citizens and potential future members of a green workforce.

The WE&T Connections program will address the needs of schools through a combination of student, teacher and school administrator education programs and increase their awareness and knowledge as well as provide curriculum and/or lesson plans that support these objectives. Also, once school-aged children learn something new like energy efficiency, they are great advocates for taking that knowledge home and teaching/motivating their parents and siblings to take actions to reduce energy and water consumption. University students can conduct valuable research and effectively educate their peers as well as campus administrators about energy efficiency:

- Students are effective advocates, able to reach their peers, communities and high-level decision makers in promoting green jobs on campus.
- Educational campaigns can result in significant energy savings on campus facilities and dorms by changing behaviors and purchasing decisions.
- The IOUs and/or our third-party vendors will develop curriculum and lesson plans for K-12 as well as work with the appropriate community college and university agencies responsible for, college courses and programs needed to educate students about energy, energy efficiency and prepare them for a green career path.

²¹ Per DOE website. [<http://www.eere.energy.gov/buildings/info/schools/>]
[http://eere.energy.gov/buildings/energysmartschools/howto_operating.html]

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Addressing the interaction between energy and water use is essential, as well as the link between energy conservation and the reduction in greenhouse gases. Water conservation lowers energy use and energy bills; particularly, when energy used to heat water can be reduced and energy conservation reduces emission and global warming. The utilities and water agencies will extend the reach of their programs and services and promote integrated solutions.

The primary goal of the program is to educate and create awareness among K-12 and college students about the importance of energy and water efficiency and how to apply at home and in their communities what is learned at school and to promote green careers to K-12 and college students to meet California’s need for green jobs, A secondary goal of the program is to improve public education facilities and inform facility operators and administrators about the benefits of energy efficient equipment and operation practices.

The basis of the program theory is that increased awareness will result in increased levels of energy and water efficiency in communities and at home where energy conservation starts, and increase conservation efforts at schools and universities. The combination of education and environmental awareness at schools and campuses are expected to motivate students not only to change their energy use behavior, but also to provide them with another very real and worthy option for a career path.

d) Program Targets

The proposed targets may be modified due to funding restrictions.

Program Name	Program Target 2013	Program Target 2014
University Sector		
Green Campus (Statewide)	16 campuses	16 campuses
Community College Sector		
DEEP (SCE only)	3 campuses	3 campuses
K-12 Sector		
PEAK (Statewide)	20,000 students	20,000 students
Energenius (PG&E)	60,000 students	60,000 students
Green Pathways* (PG&E)	1,000 Online Course/Community Participants	3,300 Online Course/Community Participants
LivingWise (SoCalGas, SCE)	30,000 students	30,000 students

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Green Schools (SCE)	25,000 students	25,000 students
<p>Note: There are approximately 6,000,000 K-12 students currently enrolled in California, and our K-12 programs are expected to touch only 7% of the student population over the next 2 years. However, the programs at these schools will serve as a test/pilot environment for energy efficiency and green career curriculum. * Green Pathways serves grades 9-12; goals will be determined upon approval of final budget. transition</p>		

e) Advancing Strategic Plan goals and objectives

See core program PIP.

3. Program Implementation

a) Statewide IOU Coordination

i. Program delivery mechanisms

WE&T Connections programs will be taking a sector strategy approach around education collaborations with K-12 and College stakeholders and organizations. The strategy’s multi-faceted goals include increasing engagement of all students, particularly minority, low-income or disadvantaged, in energy-related coursework and programs, poising them for careers in Energy Efficiency (EE) and a life-long appreciation of energy conservation and efficiency.

The California Public Utilities Commission has provided a framework to make EE a way of life in California by refocusing rate-payer funded EE programs on achieving long-term savings. Goals of this framework include (1) establishing EE education and training at all levels of California’s educational systems; and, (2) ensuring that minority low-income and disadvantaged communities fully participate in training and education programs at all levels of the Demand Side Management and EE industry.

Education collaborations are integral to achieving the goals laid out above. The K-12 and College Sector Strategy, led by the IOUs and implemented by a cross-stakeholder driven partnership, will include the below key elements to ensure these goals are achieved.

While traditional sector strategies often include specific employer hiring commitment or funding, the K-12 Sector Strategy will not directly include this component due to the target population being years away from career entry points. However, other sector strategy hallmarks will be included in this approach. These include:

- Developing a regional partnership which includes a cross-section of stakeholders from the EE sector.
- Ensuring employer commitment to help align training to market demand.

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- Working towards career pathway development, including “stackable” credentials that enable students’ education to build upon previous trainings.

Ultimately, via the Sector Strategy work, the IOUs will have a thorough understanding of K-12 and College resources and programs that currently exist, and, *through collaborations*, (1) propose enhancements to current programs, (2) identify new program needs that fill gaps understood from our mapping work, and (3) create opportunities to “link” programs and build education pathways. The ultimate goal is to increase the engagement of students in energy-related K-12 programs, and ultimately, energy efficiency careers.

Key Elements

- Supporting K-12 and college efforts to assist students to develop education based on visible career paths in EE and related fields.
- Creating and/or expanding college and university programs with EE focus.
- Fostering green campus efforts to apply EE knowledge in clear view of students and faculty.
- Continued refinement of existing curriculum to ensure EE fundamentals are included.
- Identifying career options in energy-related fields.
- Continue incorporating career exploration into programs and developing a systematic effort to institutionalize energy awareness and career awareness programs that is aligned with state content standards.
- Expanding collaborations with career academies, regional occupational programs and community colleges.

Proposed Objectives

- Students develop an awareness and appreciation for energy, energy conservation and the impact to the environment;
- Students develop careers that advance DSM business, policy, research and development and education; and
- Individuals from the targeted communities take advantage of programs that specialize in energy disciplines at all levels of the educational system and successfully advance themselves into rewarding careers in the energy services fields.
- Linking existing training programs, across modalities, so that students’ options are increased and pathways begin to be developed, e.g., pathways to post-secondary programs.
- Increase engagement of at-risk or disadvantaged students in energy-related coursework.

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- A plan for more fully leveraging utility training centers for K-12 stakeholders.

College and University sector

Green Campus (statewide)

The Green Campus Program is implemented on college and university campuses by student interns engaged and/or enrolled in environmental studies and/or other related areas. This team of 2 – 6 student interns per campus engages other students through forums, and other means on the importance of energy conservation and the link to the environment. They also lead the way in addressing energy efficiency in the higher education sector by meeting with faculty, staff and administrators and work with them to incorporate energy, energy efficiency and discussions about a green career path into their courses/programs as well as work with campus officials to implement energy efficiency projects on campus and add value with educational outreach campaigns. Green Campus addresses behavioral and operational changes and product retrofits for campus facilities as well as serves as a direct pipeline of emerging environmental/energy professionals.

Green Campus WE&T aspects are exemplified by the advanced technical and professional development skills that the students develop as part of their internship, and that non-intern students develop from interaction with Green Campus interns. Green Campus projects include dorm energy competitions, energy efficiency curricula development, building energy assessments and recommendations, technology pilots, and outreach events. Interns actively market their projects and the program by completing monthly newsletters, working with campus and local media and presenting at conferences – including biannual program convergences.

Green Campus Program is being reviewed to determine if it qualifies as a resource program.

Program Delivery

Student Intern assistance to Facility Management stakeholders; Housing and Dining; and energy service companies (ESCOs), as appropriate, to help them increase measurable energy savings: Green Campus Interns play a key role in helping campus staff, administrators and energy efficiency professionals with their energy savings targets. As a means to this end, students will organize such activities as dorm energy competitions, laboratory fume hood educational campaigns and competitions, technology pilots, office energy assessments and recommendations.

- *Recruit, train and support Green Campus Interns at each campus in implementing program activities.* Interns are hired and trained to implement many aspects of the program throughout the school year. Green

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Campus program staff works closely with interns, campus stakeholders, utility partners and ESCOs as they identify their objectives and draft a detailed implementation plan.

- Hold a fall planning meeting with student organizers and IOU program managers, campus administrators, facilities staff, faculty, IOU program managers and, energy service company representatives at each campus. After conducting implementation planning exercises prior to or early in the fall term, Green Campus Interns will bring new participants up to speed on the program goals, expectations, report on activities conducted to date, unveil future plans, and solicit feed-back.
- *Building in Efficiency to the Fabric of the Academic Framework:* Program staff will work with the UC Office of the President, Office of Academic Affairs, CSU Office of Degree Programs and Educational Opportunities, or Office of the Chancellor to:
 - develop a database of EE-related courses on UC and CSU campuses,
 - consult with system-level as well as campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields, and
- Utilize the Green Campus program as a tools to promote energy, sustainability, environmental and other related courses on campus
- *Ramping Up Green Campus Reach:* Every aspect of the Green Campus Program offers a pathway to green jobs –academic course offerings, training in technical and “soft” professional skills, experiential hands-on energy efficiency projects, and providing a statewide network composed of utilities professionals, other professionals and academics, students, and program alumni. We plan to increase the number of students who participate in Green Campus activities through growing the “concentric circles” of GC activities:
 - Students who are employed as GC interns (approximately 60 students)
 - Increase the number of volunteers who participate in GC activities without being paid
 - Interns conducting awareness campaigns on campus will invite students to sign up as honorary Green Campus students and pledge to advance the WE&T message across campus. They will carry the message forward and ask others to do the same. Interns will gather pledge information so that they can be contact via email to gather information on courses they are taking or jobs they might be in.
 - Increase the number of students who take classes taught or facilitated by GC interns (currently over 600 per year total)
 - Students who are exposed to Green Campus messages on campus (This is already 400,000 student contacts per year statewide)

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- *Ensure that minority, low income and disadvantaged communities fully participate in training and education programs.* Green Campus program will be made available at campuses serving low-income, minority and disadvantaged communities.
- *Mid-year and year-end meetings of all Green Campuses.* The mid-year meetings bring interns together with IOU program managers, campus administrators, faculty, and facilities staff from various campuses to share successes, discuss challenges, and plan Green Campus activities for the next half of the academic year. The year-end meetings are used to review the year's progress, recognize group and individual accomplishments or best practices, and plan for the summer and following year.
- *Coordinate with other IOU departments to promote consumer and business incentive programs.* Green Campus through IOU Account Executives will provide information to campus administrators and facilities managers about Business Incentive Programs and encourage them to take advantage of these opportunities for making energy efficiency changes more cost effective. These facilities energy savings projects are needed for numerous reasons 1) for students to see that campuses are practicing what they are teaching, and 2) to serve as a lab for students to practice energy efficiency through identification and implementation of projects on campuses, and 3) building a career pathway.

Community College Sector

CCC IOU Partnership

The 2013-2014 California Community College program will build upon, enhance, and streamline the implementation strategies employed in the 2010-2012 partnership and adopt new strategies over the life of the program as they emerge or are proven as ready for the market. The implementation plan will be refined to adopt best practices and lessons learned program elements for the 2013-2014 programs will include:

- An improved program management and structure that adopts lessons learned from the past cycle resulting in a more streamlined, effective approach;
- In the process of expanding the existing CCC training and education program from simply training facilities, operations and maintenance staff to include working with community stakeholders on curriculum development for students and industry with the objective of developing future energy professionals and a green workforce. Please refer to Advancing Strategic Plan goals and objectives for details on IOUs role in developing a Utility Workforce Education and Training program as well as our plan to ensure low income, minority and disadvantaged students are included.

Adult School/Post High School (SCE)

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The delivery mechanisms include in-language seminars, outreach to schools, community events, faith-based organizations and Workforce, Education & Training.

- In-language seminars: The objective of in-language seminars will be to provide a classroom style forum to empower residential customers to conserve resources by teaching them simple ways of saving electricity, gas and water. This strategy will also align itself with a goal of the WE&T Strategic Plan so that minority, low-income and disadvantaged communities fully participate in education programs by providing elements that will seek to encourage interest toward careers in the energy efficiency industry. Seminars will also be used to promote other IOU program offerings such as Comprehensive Home Performance and of course demand response and other integrated DSM offerings like Summer Discount.
- Community booths: CLEO will continue participating in prominent ethnic cultural booths such as the ‘Chinese New Year’ and ‘Harvest Moon Festivals’. This will also include coordinating with SCE’s and SoCalGas’s Energy Centers and faith-based organizations and other cultural opportunities.
- Schools outreach: In 2013-2014, the CLEO program will expand its schools outreach efforts by providing a comprehensive schools initiative. In addition to continuing the ‘Energy-Artist’ contest, this initiative will also introduce a ‘Carbon Footprint’ contest where schools could potentially compete against each other for the highest decrease in energy use. The PEAK Program will be utilized to encourage energy efficiency behavior for fourth graders. Outreach efforts will also include coordination with SCE’s Mobile Energy Unit and will also target Adult Education centers. Primary focus will involve K-12 elementary schools.
- Faith-Based Organizations (FBO’s) and Community Center outreach: Local community FBO’s and religious forums form the backbone of the ethnic community. FBO’s also provide a forum for community events and an excellent platform to market and encourage energy efficiency. CLEO will cultivate and add to the existing relationships with churches and local community centers to effectively cultivate program participation and promote energy conservation
- Community / city partnership and outreach: This outreach strategy will build upon existing relationships with the cities of Monterey Park, San Gabriel, Alhambra, Walnut, Diamond Bar and others to promote energy efficiency in the community. CLEO will place information kiosks at city community centers and will participate in community events to further promote energy efficiency in the community. CLEO will also integrate components of the program with other existing partnership programs with higher ethnic populations.
- Workforce, Education and Training: CLEO will expand its reach in the Workforce, Education and Training (WE&T) area by providing in-language energy efficiency education and training at various Adult Learning Centers and Community Colleges. The focus will be on educating those whose primary language is not English. Program participants will learn about the green jobs industry, energy efficiency measures / technologies, programs and services offered, as well as be placed on a ‘green’ career-path for participants to build upon.

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K-12 Sector

Some of these programs target the same grade levels but, none of the current or proposed programs target the same districts/schools. We have and will continue to ensure that students participating in one program will not also participate in another similar IOU provided program.

PEAK (statewide) SoCalGas

For 2013-2014, PEAK is proposed as a continuation of a successful program by PG&E, SDG&E, SoCalGas and SCE. The participating IOUs will continue to work together to ensure that the program design and delivery is consistent across the IOUs.. Other changes planned for 2013-2014 are revisions to include lessons on Water/Energy Nexus to reflect WE&T goals.

Brief description of the program.

PEAK Student Energy Actions (PEAK) is a standards-based energy education program for grades 3rd through 7th grade (with possible expansion into other grades), that empowers youth to save energy in their homes, schools, and communities and promotes workforce development in energy-related industries.

Program Key Elements

The core of this program is built on four PEAK Student Energy Actions which are used thematically to educate students on how their personal behavior and the behavior of others has a direct impact on the demand for energy and on the environment. The four PEAK Student Energy Actions are: 1) Shifting Use Off Peak Demand Times 2) Cutting Waste Through Conservation 3) Plugging Into New and Efficient Technologies 4) Exploring Renewable Energy

Overall Program Goals:

- Deliver high-quality energy education to the next generation of energy consumers.
- Actively engage students, their families, and schools to save energy through energy efficiency, smart resource management, sustainability and demand response awareness.
- Provide career awareness, career exploration, and/or career preparation to appropriate grades on industries related to energy and environmental sectors.
- Create sustainable behavioral changes that result in the achievement of immediate and long-term energy savings and demand reduction in schools and homes.
- Promote positive relationships between the end user, the community, and their serving utility.

Program Rationale

PEAK complements each level of the Integrated Demand Side Management model by using education as a means of shifting behavior. The Energy Coalition's PEAK

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program will support IOUs in meeting recommendations outlined in the California Long Term Energy Efficiency Strategic Plan (CLEESP) and Workforce Education and Training (WE&T) Needs Assessment by providing integrated education on demand response, energy efficiency, energy and water conservation and sustainability through its curriculum. Participating students will receive workforce education related to career awareness, career exploration, and career preparation in order to ensure that they are equipped with the necessary pathway to enter the workforce. PEAK also promotes various rebate and incentive programs such as the Home Energy Efficiency Survey offered in Southern California Edison and Southern California Gas Company service territory.

Alignment with CLTEESP

PEAK is aligned with the following CLTEESP Workforce Education and Training goals: 1) Establish energy efficiency education and training at all levels of California's educational system 2) Ensure the minority, low-income and disadvantaged communities fully participate. The PEAK program supports the state in meeting its 2020 goal to have a workforce that is trained and fully prepared to achieve California's economic energy efficiency and demand-side management workforce potential.

Core Program Coordination

The PEAK program fits with the current IOU WE&T programs in that PEAK both provides and continuously develops 3 – 7 grade curriculum to include energy efficiency fundamentals (e.g. math, science, behavior) and identify career pathway options in energy-related fields. In addition, PEAK supports existing IOU programs by funneling participating student families into energy efficiency programs including distribution of IDSM education through student take-home materials. The Energy Coalition will work with the utility to further connect additional utility rebate and incentive opportunities that support energy efficiency management at the school facility level.

Target Audience

PEAK is designed to engage students, educators, school district officials, school site administrators, parents, and community members. The PEAK program is tailored to educate 3rd through 12th grade students as change agents within the utility territory and develop educator expertise that supports the program core energy concepts as well as environmental education. In alignment with the CPUC's goals, PEAK will place emphasis on enrolling schools into the program that have been designated as low-income.

Implementation Strategy

Implementation strategy consists of the following components:

Professional Development

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- Provide a Teacher Orientation & Training session for all new PEAK teachers. Offer advanced Teacher Training and Orientation to returning teachers.
- Support innovative project development in the areas of energy and the environment.

PEAK On-site Support

- Complete up to 2 PEAK educational campaigns or contests per school year.
- Conduct PEAK Events and Site Visits upon request or as deemed appropriate by PEAK and school staff.
- Provide on-site career explorer/career preparation opportunities upon request or as deemed appropriate by PEAK and school staff.

PEAK Curriculum Development

- Enhancements to improve relevance and comprehensiveness include: STEM and service learning-components, expansion to out of school time (OST), extension to 3rd -12th grade education, and expansion of components to include , Water-Energy Nexus, Smart Meters, renewable energy and other sustainability concepts.
- It is essential for PEAK to focus its efforts on career development especially in the areas of unemployed and underemployed workers. Two components will be developed: career exploration (grades 3-8) and career preparation (grades 9-12) if applicable. The Energy Coalition will realign the current curriculum so that students will explore the careers in the energy field as they engage in energy action activities, thus providing practice and engineering for success. For the career preparation component, The Energy Coalition will develop curriculum alongside the energy education to incorporate hands-on job preparation opportunities as the students prepare for the jobs of the future.

Program Activities

Water/Energy Nexus module: PEAK will create a new module/s to include Water/Energy Nexus and how the use of one impacts the use of the other.

Classroom Lab Toolkit: PEAK teachers receive a toolkit that contains the supplies needed to complete each hands-on lesson for a class of 36 students. Toolkit supplies are replenished on an as-needed basis.

Energy Challenge Software: PEAK's website at www.peakstudents.net houses interactive games that allow students to simulate the effects of energy efficient behaviors at home and in the community. The web page will be expanded to include new program features; renewable energy; demand response; greenhouse gases and, their environmental impact.

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Energy Education in the Community: PEAK staff facilitates educational assemblies featuring Bulbman, PEAK's energy-saving mascot. Participants learn such concepts as how electricity is generated, how much energy is saved by a CFL, demand response, greenhouse gases and the 4 Student Energy Actions.

Saving Energy at Schools Facility Audits: Facility audits and retrofits will be offered to PEAK schools to improve facility energy use and enhance PEAK energy education. This initiative serves as an additional hands-on student learning opportunity, where students are encouraged to participate in the process and learn about the impacts of proposed changes. Students are also more engaged in energy conservation when they see that the schools are also practicing what they teach. In fact, most districts have energy managers that manage the green effort at schools and, students are able to see a green career in action.

Coordinate with other IOU departments to promote and facilitate Consumer and Business Incentive Programs.

Coordinate events with Mobile Energy Unit (MEU) where available: PEAK program activities are tailored to suit the needs of PEAK participants. This customized approach is implemented in all PEAK activities including planning special events and product distributions, developing teacher trainings, promoting green jobs through career discussions, and organizing student field trips. PEAK's proactive support generates a feedback loop which lends itself to quality internal program monitoring and ensures a constantly evolving, living program. PEAK education ultimately produces behavior modifications and attitudinal shifts that result in immediate measurable kW, kWh and therm reductions in both the student's school and home.

PEAK complements each level of the Integrated Demand Side Management model by using education as a means of shifting behavior. PEAK's comprehensive, hands-on program is correlated to the State of California's science, math and language arts standards for grades three through seven. The program teaches students the science of energy and instills an ethic of smart energy management as well as engages students on discussions about green jobs. Throughout their participation in the PEAK program, students are presented with the necessary tools to formulate thoughtful conclusions about energy usage at the individual and community levels.

LivingWise (SoCalGas and SCE)

For 2013-2014, LivingWise® is proposed as a continuation of a successful program partnership between SCE and SoCalGas. LivingWise® program target 5th and 6th grade students, and is usually incorporated into the science and math classes over a 4 week period. Local water providers are also contacted regarding their interest to co-sponsor the LivingWise® Program in their service territories. LivingWise® provides classroom learning activities and take-home kits to elementary and middle school classes. The kit contains energy and water-saving products such as a compact fluorescent lamp and high efficiency showerhead as well as other items to introduce

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energy efficiency and water conservation to children and their parents. The program features a blend of classroom learning activities, hands-on energy survey and installation projects which students complete in their homes with parental assistance. In addition, LivingWise® participants will be provided lesson plans as well as classroom discussion in the area of energy efficiency, demand response, distributed generation, water conservation and careers and job opportunities in the new green economy. These lesson plans come in the form of an activity booklet that addresses electric, gas and water conservation as well as greenhouse gases, renewable energy and careers in green jobs.

Program Activities

Interactive: Interactive school-to-home program for students

LivingWise® Activity book: The LivingWise Teacher Activity Guide enables teachers to meet academic content standards in science, math, and environmental. Lessons are designed to be fully comprehensive and contain the following: student learning objectives, post-activity reflection and environmental impacts.

The activity books contain the following lessons:

- Electricity;
- Natural gas;
- Water conservation;
- Renewable energy;
- Distributed generation;
- Greenhouse gases;
- Demand response; and
- Careers in the new green economy.

Classroom activity: Teacher-designed classroom activities that reinforce student work on critical State Standards for core subject areas (math, Science, environmental).

Hands-on: Hands-on projects that utilize kits containing energy and water efficiency technologies that students directly install in their homes, thus reinforcing education results.

Family involvement: Involvement of parents to shape family habits and awareness of the benefits of energy and water efficiency

Fully integrated energy efficiency program: Collaboration with Southern California Gas Co and local Water agencies ensures that program covers electric, gas, and water as well as greenhouse gases, renewable energy and careers in green jobs.

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Coordinate with internal departments to promote and facilitate Consumer and Business Incentive Programs.

Teachers are required to incorporate lessons from each of the following areas; electricity, natural gas, renewable resources, GHG and green jobs into their math, science or environmental classroom activities as possible. This program is very adaptable to different teaching styles and compliments California's science and math curriculum.

Initial implementation includes program customization to promote utility energy efficiency programs, demand response, distributed generation, water conservation as well as a green career path. The program also features a) pre-survey – that kids complete at the start of the program to determine their knowledge of energy efficiency, b) Household report card – that provide valuable information about household environment and conservation behaviors, c) post-survey – the kids complete after going through the program and allows us to see program effects on their knowledge.

College and University sector

Green Campus

Marketing and outreach efforts to increase the transparency of campus energy efficiency goals and results, as well as Green Campus projects: Green Campus Interns will launch termed and ongoing educational campaigns for students, faculty, staff and administrators. In order to achieve and sustain cross-campus buy-in for energy efficiency goals and projects set by individual campuses and/or utilities, the program will:

- Promote campus awareness of energy efficiency opportunities and work being done on campus. Green Campus Interns will publish a monthly newsletter describing their ongoing campus outreach efforts, in order to increase awareness about their projects and those of the campus stakeholders and university system.
- Distribute IOU Energy Savings brochures containing details about our commercial and residential EE, DR, DG and Renewable energy programs are provided on campus to administrators and students, and
- Place an emphasis on working with minority and disadvantaged groups throughout the campus.

Community College Sector

California Community College IOU Partnership

The partnership will implement a training and education (T&E) program focusing on energy efficiency courses for CCC facilities, operations and maintenance staff.

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The partnership is also actively working with other CCC and community stakeholders on curriculum and Workforce Education and Training Strategies (WE&T) for students and industry to develop a green career path and workforce in support of the Strategic Plan goals. The basis of the T&E program will be to coordinate with the IOU training centers to customize existing course offerings in the HVAC, controls, lighting, commissioning, and green building areas and deliver them to the CCCs via direct training at the campuses or via telecasts or webinars to many campuses on a distributed basis.

Adult School / Post High School

CLEO

The CLEO program will promote all energy efficiency and demand reduction programs that would benefit that community using brochures and written materials, interactive displays, newspaper advertising, radio advertising, online website presence, and static displays.

The CLEO program message will encourage customers to participate in SCE's programs and services, and will coordinate with SoCalGas and the local water agencies and will promote increased awareness for customers to understand the structure and opportunities for energy conservation and efficiency, both at home and in their businesses.

K-12 Sector

PEAK (statewide)

This program will be targeted to associations, school districts and teacher conferences. Part of this marketing will include targeting low income and disadvantaged communities. The method used to identify low income and disadvantaged communities is by the percentage of students on school lunch programs. In fact, our goal is that 50% of program participants come from the low income and disadvantaged groups.

- Design & production of PEAK tradeshow marketing materials including a new marketing brochure and other targeted marketing pieces that are consistent with statewide marketing.
- Participate in community events that support marketing of program.
- Enhance the peakstudents.org website.

LivingWise® (SoCalGas and SCE)

Marketing consists of targeted mailing to schools and districts within the affected service area. Information about the program is mailed, emailed, faxed and made available via a web site. Interested schools or teachers would contact the third party vendor to participate in the program. The third party vendor first validates the schools are in IOU service area by contacting the IOU. Once schools have

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been involved with the program, they request it again in following years as well as refer other teacher to the program.

- Marketing will also target low income and disadvantaged communities and, our goal is that 50% of program participants come from the low income and disadvantaged groups. Low income and disadvantaged communities are identified by the percentage of students on a school lunch program.
- Information about our residential EE, DR, DG, and renewable energy programs are provided through the LivingWise® program. This information will be included as part of class discussion as well as taken home to be discussed with parents.
- Teachers truly see the benefit of this program and the impact it has on the students and their families and, it is evidenced by requests year after year to have this program at their schools.

K-College Outreach

- Will continue to work with State Department of Education (Curriculum Commission) on the development of Energy and Utilities Sector Curriculum Standards that includes the science of energy, energy efficiency and some discussion about green careers.
- Will also work with the UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields.
- Will work with CBOs, FBOs, NGOs, and others as part of the through a WE&T taskforce in an effort to advance WE&T goals.
- Will work with water management agencies, air management agencies or other government entities to establish a network of internship opportunities for students in pursuit of a green career.

b) Program delivery and coordination

i. Emerging Technologies Program

This program will have regular communication with the ETP, as emerging technologies will be very important in what is taught all levels of the education system.

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ii. Codes and Standards Program

We have discussed this WE&T effort with Codes and Standards and have agreed to keep the lines of communication open and schedule ongoing discussions.

iii. WE&T Efforts

The WE&T Connections Subprogram will support the other IOU EE Programs as appropriate.

iv. Program-specific marketing and outreach efforts (Budget provide in Table 1)

Refer to Section 6.2.a.iv. for all discussion of marketing and outreach plans.

v. Non-IOU Programs

We currently collaborate with local water agencies with a few of our programs and will continue doing so for the 2013-2014 cycle. Additionally, we will work to involve and coordinate some of our educational efforts with environmental agencies/groups to show the linkages between energy conservation and the environment.

vi. CEC work on PIER

No anticipated direct work with PIER from this Subprogram's activities.

vii. CEC work on codes and standards

The IOUs will work with the CEC and the IOU Codes and Standards programs to improve code compliance through coordinated education and training delivery.

viii. Non-utility market initiatives

Refer to WE&T Planning Subprogram Section 6.3 for more discussion on efforts in the education and community sectors.

c) Best Practices

These programs have incorporated already California Needs Assessment Study recommendations and will work to incorporate Opinion Dynamics study recommendations as the study is released in 2012.

Green Campus – Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in

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program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, the California Needs Assessment recommendation have incorporated has been included in the redesign for 2013-2014.

CLEO - Media marketing has proven to be the primary mechanism to generate community awareness about the CLEO Program and its offerings. Internal metrics further outline the importance of the marketing mix, as well.

The program relies on a dynamic EM&V to gauge the program's success and to listen to the customer for feedback. These are transformed to 'lessons learned' and incorporated in to the program strategy and offerings. For example, in 2006-2008, costly television spots were swapped for effective newspaper and radio spots, as illustrated above.

PEAK – The first PEAK program was launched in Laguna Beach in 1979 and since then has evolved into the comprehensive, standards based program that exists today, reaching thousands of students across California. Past experiences have lead to best practices in the following years. Additionally, PEAK is the recipient of the 2010 Governor's Environmental and Economic Leadership Award.

Another important practice that has increased in importance over the years is the early involvement of classroom teachers beginning with pre-development focus groups. Teachers are recruited to review draft materials and submit written evaluations. The piloting of selected lessons and activities with students is encouraged. Input from teachers, both formal and informal, has been valuable in the development of the teacher guides, student activity books and other materials found in the eight Energenius programs.

Exhibiting and meeting teachers at educational conferences has been another important practice. Besides providing a "pulse" to what is going on in schools teachers at these conferences offer numerous comments and ideas related to existing and future materials. Teachers for example, at an early childhood conferences were asking when PG&E will have its pre-kindergarten program as we know that "good energy-saving habits" begin early.

LivingWise® - Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, the California Needs Assessment recommendations have been incorporated in the redesign for 2013-2014 .

Green Schools - Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, the California Needs Assessment recommendations have been incorporated in the redesign for 2013-2014.

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d) Innovation

This area will be addressed once process evaluations are complete.

e) Integrated/coordinated Demand Side Management

IDSM concepts are incorporated in Connections programs on an age appropriate basis, as described in previous sections.

f) Integration across resource types

All of the University, Community College, and K-12 components will include curriculum to help students understand the science of energy, energy efficiency and conservation, demand response, and renewable and distributed generation, as well as the environmental and economic impacts of energy consumption. Also, the goal is for students to understand the energy-related environmental connections, such as global climate change and the linkage between greenhouse gas emissions and energy use. In addition, materials will go beyond the energy efficiency fundamentals and introduce information on careers and job opportunities in energy-related fields and in the green economy.

g) Pilots

No pilots are being proposed for SoCalGas.

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

4. Program Diagram

See above Section 6.2.

5. Program Logic Model

Below is the logic model for the WE&T Connections Subprogram.

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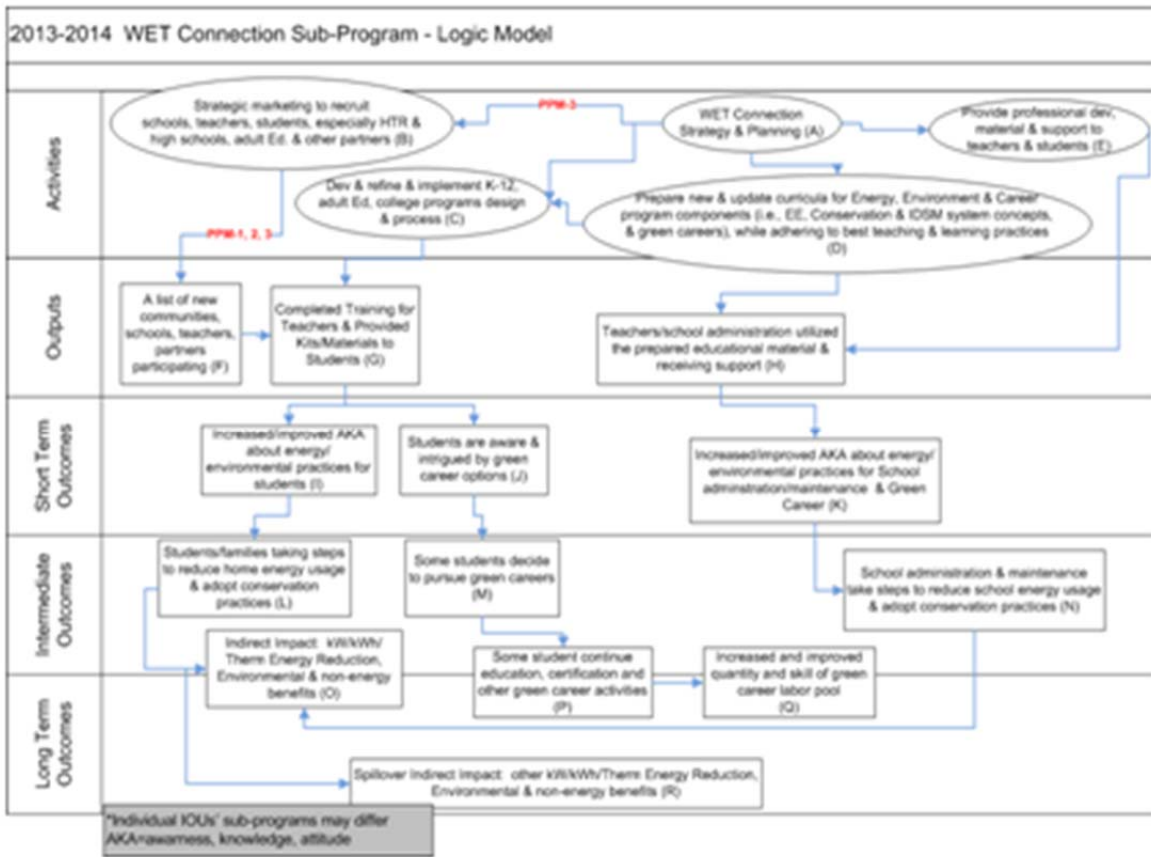
The activities shown in the Connections logic model fall into two primary categories. The first is focused on marketing programs, especially to hard-to-reach and disadvantaged communities. In addition to marketing efforts directed at Title 1 schools, this activity will include partnering with organizations that operate in the communities of Title 1 schools.

The second focus of the Connections activities is on preparing new curricula and refining program design and processes. It is expected that these activities will produce programs and curricula that lead students to understand energy and conservation and their importance, as well as how to use energy efficiently in their households. They are also expected, as a result, to influence their families to do the same. Likewise, some curricula support the incorporation of energy efficient practices and technologies in classrooms and schools.

The curricula and program design will include information and resources on career options in energy-related fields, with an intended outcome being that some of the students exposed to green career resources will ultimately decide to pursue green careers as a result.

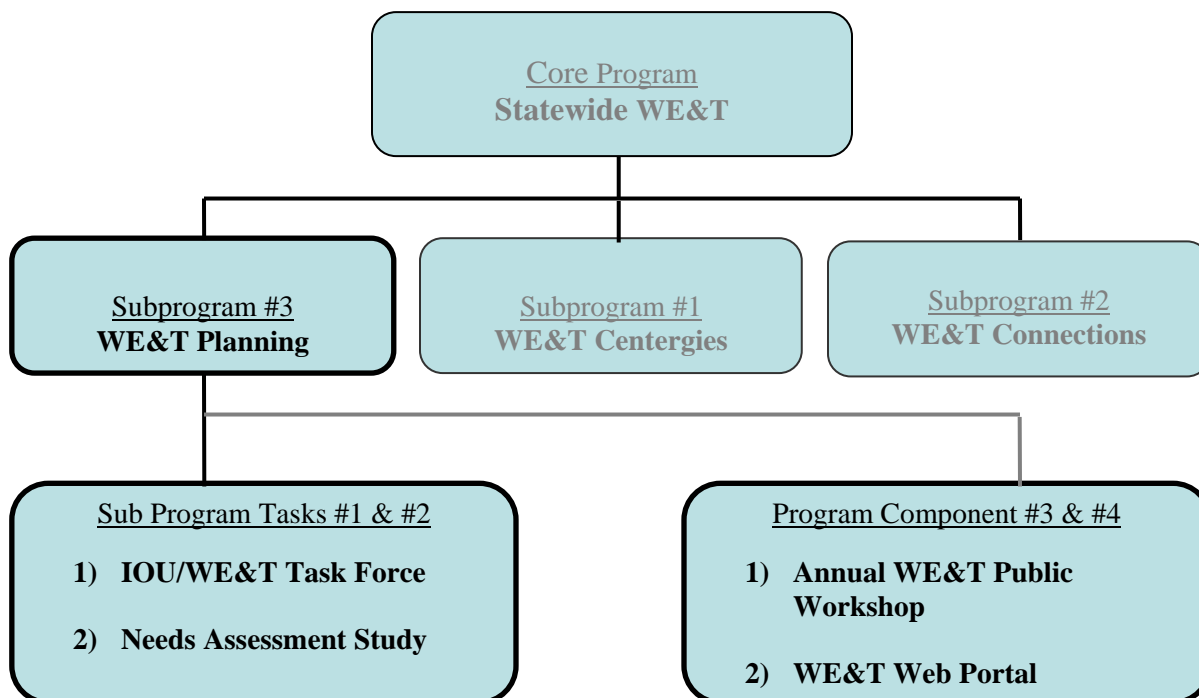
All of these activities are expected to lead to classes that improve AKA of students, their families and teachers and encourage students to pursue green career options. Activities focusing on saving energy on school campuses will also lead to improved AKA about energy and environmental practices within the school and at home for the students. Ultimately, these activities and outputs are expected to result in indirect energy savings.

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6.3) Sub-Program Implementation – WE&T Planning – SCG3731



a) Statewide IOU Coordination

i. Program name

Statewide WE&T Planning is a Sub-Program within the Statewide WE&T Core Program, formed by the IOUs as a direct response to the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). The WE&T Planning Sub-Program involves management and execution of several strategic statewide planning tasks intended to help sustain momentum in long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs.

The WE&T Planning Sub-Program was created to facilitate implementation and completion of the four key strategic tasks identified in the Strategic Plan to drive long-term WE&T development:

- 1) Form an IOU/CPUC WE&T Task Force
- 2) Conduct a Needs Assessment
- 3) Create a WE&T Specific Web Portal
- 4) Annual WE&T Public Workshops

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In order to meet the state's growing workforce demand, a concerted planning effort that includes a variety of initiatives and funding sources beyond ratepayer funds is required. Such an effort will demand the collaboration and involvement of secondary and post-secondary education leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, and construction and manufacturing businesses that deliver energy efficiency solutions. The IOUs will support the larger statewide effort, and will help ongoing development of WE&T programs through their WE&T Planning coordination.

ii. Program delivery mechanisms

Implementation activities will be informed by the statewide scoping study and needs assessment. The IOUs are expected to direct much of the work needed to complete the assessment, which will identify existing WE&T infrastructure and capacity, anticipate future needs, and specify urgent gaps that need to be addressed.

Based on the statewide needs assessment, a strategic plan, outlining at least existing and anticipated green collar jobs and the skill sets that are likely to be demanded by industry, will be presented. Organizing these skill sets into practical career paths should influence communication, development, and implementation of future WE&T programs.

Funding for actions based on the above mentioned scoping study, needs assessment, dialogue with stakeholders and task force conclusions will be required to impact the WE&T needs in time to support the urgent needs of the Integrated Demand Side Management (IDSMS) Portfolio. Such implementation actions may include collaboration with appropriate educational sectors as prioritized by the needs assessment to act as catalysts to enhance conventional educational efforts to accelerate the mainstream adoption of green career support.

The statewide IOU Planning tasks will be shared among any other statewide planning and training implementers and be coordinated, where plausible, with the IOU WE&T Centergies and IOU WE&T Connections Sub Programs. A statewide WE&T web portal could ultimately serve as a central repository for exchanging training and job opportunities, as well as statewide and national developments linked to California workforce initiatives.

Four specific key actions to be completed in the near term to drive long-term WE&T development and strategic planning. The Taskforce formed from the California strategic plan is intended to identify funding streams other than ratepayer funding, identify market sector specific needs, and inform short-term actions to initiate longer-term strategies for each market and educational sector.

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- 1) *Energy Efficiency WE&T Task Force.* The Task Force is expected to be comprised of energy efficiency and demand side management IOU program representatives, CPUC staff, labor, industry representatives, and educational experts to fulfill administrative functions including: developing a needs assessment RFP; selecting the third party to conduct the needs assessment; and managing the needs assessment evaluation. The Task Force members will continue to help implement the goals and strategies set forth in this Strategic Plan. Beyond the representation listed above, the WE&T Task Force will rely on commitments for involvement from educators and educational administrators, labor representatives, community-based job training leaders and other non-IOU energy efficiency program implementers

The WE&T Task Force is in the early stages of formulation. Reports on existing WE&T related programs and efforts as well as discussion of new WE&T programs and efforts will be core topics of these meeting sessions. The Taskforce will provide a formal framework for all members to get updates, provide feedback and be actively involved in discussing studies, programs, projects, and WE&T efforts being implemented under the strategic plan and other related state initiatives. Task force meetings represent work sessions to review and refine WE&T coordination efforts among stakeholders.

During 2013-2014, the Task Force is no longer in its early stages of formulation and will continue to engage with stakeholders and provide updated reports on WE&T programs and efforts.

An update on Needs Assessment recommendations was provided in the Joint IOU WE&T Annual Report, submitted on May 1, 2012. Per the Guidance Decision, the IOUs will work with Commission Staff on the WE&T Task Force to develop a data request template to be submitted by Staff as needed for periodic updates on the status of the utility's Sector Strategy activities. This provides a more specific and extended role for the Task Force.

- 2) *WE&T Needs Assessment:* The Workforce Needs Assessment study identifies preliminary findings, and in some instances, recommendations, for statewide WET program and/or subprogram considerations. The Joint Utilities worked collaboratively with Energy Division staff to select a subset of these findings and/or recommendations to evaluate implementation feasibility as part of the 2010-2012 program activities, which were approved by the Commission through a joint WE&T Advice Letter. The findings of the Needs Assessment (ordered in Decision 08-09-040) and recommendations were presented within one month of dissemination at a public workshop to allow for public comments and further discussion. The findings were made publicly available through posting to the energy efficiency web portal to the service list in this

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proceeding and the Distributed Generation and Demand Response proceedings. Within 60 days from the date of the workshop the utilities will jointly file an Advice Letter to modify the existing Workforce Education and Training statewide program consistent with the Needs Assessment.

Update from May 2012 PIP Addendum:

In compliance with Commission Decision 09-09-047, a joint IOU advice letter was approved by Energy Division by letter dated October 28, 2011.

SoCalGas has initiated steps to develop sector strategies in other sectors, including the commercial building HVAC sector, the architectural design sector, and small/medium business building audits. IOUs have restructured educational programs toward structured course series to serve particular sectors. SoCalGas has often allocated resources and partnered with community colleges and workforce investment boards to assist unemployed building operators toward completing a certificate program series.

Details on these efforts will be provided in the 2012 WE&T Annual Report.

IOUs will implement WE&T sector strategy programs started in 2012. In compliance with Decision (D.) 09-09-047, the Investor Owned Utilities submitted for approval their joint IOU Advice Letter (AL) and supplemental filing proposing modifications to the existing Statewide Workforce Education and Training (WE&T) program based on the recommendations of the WE&T Needs Assessment. The Needs Assessment recommendations focused on a Sector Strategies approach, working closer with trades associations, collaborating with more parties on credentials and certifications, restructuring Energy Center course presentment, support for curricula development, targeting of disadvantaged workers, and evaluation of workforce outcomes. Other relevant Needs Assessment recommendations focused on collaboration with the all educational sectors, career education, and evaluation plans on K-12 programs.

The AL provided a general outline of the plan the IOUs would be following to achieve progress for enhancing and more clearly demonstrating necessary changes to the IOU WE&T program to align with shifts in IOU resource program requirements and industry workforce demands. Comments submitted prior to the Guidance Decision illustrate the varying uncertainty on long-term career pathways into green jobs. The IOUs indicated actions to be achieved during 2012 based primarily in response to the Needs Assessment recommendations, recognizing there were impending change forthcoming in such areas as IOU Residential, Commercial and HVAC SW programs. The current 2013-2014 Guidance Decision provides significant guidance that will allow the IOUs to move more decisively on its Sector Strategies action plan. The general plan of action proposed for 2012 will take greater shape and the 2013-2014 period will

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provide a critical space to apply and align Sector Strategies approaches with the Residential sector Whole Home Upgrade Program, Emerging Technologies, Commercial Buildings programs and Codes & Standards.

Per the AL, activities to develop sector strategies that are currently in progress and will be put into place as other workforce sectors become part of the Energy Centers' focus include:

- Develop partner criteria desired to help achieve goals and objectives for each targeted Sector Strategy area
- Identify potential Sector Strategy Partners based on desired criteria and existing collaborations as well as necessary “new” ones for each targeted Sector Strategy area
- Outreach to identified partners for each targeted Sector Strategy area
- Initiate IOU / Partner working group for each targeted Sector Strategy area.
- Identify shared goals & objective for each targeted Sector Strategy area.
- Develop a shared vision & mission statement with corresponding goals & objectives for each targeted Sector Strategy IOU / Partner working group
- Identify and develop timelines & roadmaps / action items / roles & responsibilities for each targeted Sector Strategy IOU / Partner working group
- Identify reporting vehicles and reporting schedule for each targeted Sector Strategy IOU / Partner working group
- Within each Sector Strategy working group, initiate identification of lessons learned / best practices and executable partnership activities that help achieve goals and objectives previously identified. These lessons learned, best practices and activities will be included in program planning for the next program cycle.

The IOUs propose continuation of the approved joint IOU AL plan of action through 2013-2014 in coordination with changes occurring among resource programs directed in this Decision, as well as workforce skills and qualifications demanded in the market place.

- 3) *WE&T Web Portal*: The web portal will include links to various demand-side management (DSM) related training programs and will allow for a single point of communication. The portal will also serve as a repository for demand-side management and energy efficiency training, educational conferences, and career opportunities. This portal will be created and funded in collaboration with other appropriate entities, and linked to the statewide energy efficiency web portal. The initial planning was to develop the WE&T web portal within the existing EE Web Portal (www.engage360.com). However, the October 13, 2011 Assigned Commissioner's Ruling from Commissioner Ferron required that IOUs suspend all spending on the EE web portal. Further direction was provided in D. 12-05-015 (OP 127) that the web portal content from Engage 360, shall be fully migrated to the Energy

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Upgrade California Whole Home Upgrade Program web portal, with the Engage 360 web portal decommissioned, by no later than the end of 2013. Once the web portal content has been migrated, the WE&T Program seeks to also minimize web portal maintenance costs while maintaining its commitment to delivering a workforce portal. IOUs will work with the ME&O program to explore creating web content linked to the statewide Whole Home Upgrade Program web portal.

IOUs propose continuing portal development of relevant WE&T functionality under EUC portal as part of 2013-2014:

- Including links to training programs, adult educational facilities, labor and trade organizations, as well as IOU training.
- Include an events and activities component that highlights upcoming green energy conferences and workshops.
- Feature a Career Center that will be organized around the Whole Home Upgrade Program.
- Include information on industry authorities, associations and advisory bodies, including the WE&T statewide Task Force.
- Leverage features of the EUC web portal that support profile pages, online repository and connectivity with IOU programs and market opportunities. Integrate/utilize available social web technologies/applications to build online interaction.
- Leverage connectivity tools/functionality of the EUC web portal to connect users with specific interests, job listings, training program announcements, webinars, and conferences.
- Explore the ability for users to communicate with other users, hosted on the site.

4) *Identify And Implement Specific Programs For Each Educational Sector:* WE&T needs are best studied and approached by supporting educational sectors. Thus, five educational sectors have been identified as key in fulfilling WE&T needs and opportunities: Kindergarten through high school, adult education and community colleges, technical training, colleges and universities, and minority, low income and disadvantaged communities.

iii. Incentive levels

Not applicable

iv. Marketing and outreach plans

Market Transformation Information

Completion of the Needs Assessment, along with the aggregation of other developing study workforce training could be used to establish baselines from which to establish measureable goals. A few reasonable metrics to measure

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market transformation in the interim might be identifying funding streams for statewide parties to implement WE&T programs; WE&T Taskforce initiated actions, status and results; measuring utilization of WE&T web portal statistics.

Market Barriers and Solutions

The WE&T Planning Sub Program is intended to focus performs tasks that keep statewide stakeholders connected and focuses on delivering a sustainable long-term education and training network that creates a green jobs workforce. The tasks to be completed involve leveraging the resources of the CA-IOWs to help disseminate available statewide energy efficiency curricula and training from among education, labor, industry and grassroots community sectors. This will require a considerable commitment and trust among disparate agencies and entities that make up these sectors where there are inherent barriers which make it difficult to form an effective energy career training network.

The WE&T Planning is a complimentary program to make the best use of IOU resources to achieve multiple objectives. The IOU education and training activities primarily center around utilization of Energy Center and Training Center assets, but training efforts now reach beyond the internal walls of IOU facilities shown in the form of relationships with non-IOU training contractors, education institutions, community groups and governmental agencies. This is important in order for IOUs to help share a role in the growth of coordinated statewide workforce education and training. But just as the IOUs have pursued statewide consistency in offering education and training over several years, expectations to see the same occur among California's various education and training stakeholders cannot be over simplified.

The IOUs have represented a reliable and experienced delivery channel of education and training program curricula when few other options have been available. Like other service providers, all parties must expect a process that will involve progressive steps toward solutions that make achievement the State's energy objectives reasonably possible.

Advancing Strategic Plan goals and objectives

In support of the Strategic Plan vision that "by 2020 California's workforce is trained and engaged to provide the human capital necessary to achieve California's economic energy efficiency and demand-side management potential," IOUs plan to implement a variety of workforce development strategies that encourage and nurture the development of "green collar" jobs through their strategic planning initiatives, and education and training programs.

Training that advances the business of DSM, EE, and green energy technology benefits students, who then enter green careers and advance the State's very intense energy efficiency goals. Statewide IOU representatives, key traditional education sector representatives, the business community and professional /

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industry associations at all levels will work together to share protocols and best practices for energy efficiency education through the WE&T Taskforce.

WE&T Planning tasks are intended to outreach to minority, low income and disadvantaged communities for greater participation. This more focused and targeted step will be coordinated with IOU Low-income, Community outreach and Community affairs departments, as well as coordination, where possible, with Marketing, Education and Outreach.

California must quickly increase and integrate statewide efforts to train people at all levels to plan, administer, and deliver energy efficiency in the public and private sectors. The effort will require planning among secondary and post-secondary educational leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, and construction and manufacturing businesses that deliver energy efficiency solutions. The Statewide IOU WE&T Program is directed to initiate ongoing dialogue with market participants and education stakeholders by means of annual stakeholder public workshops to help advance a long-term workforce training designs and plans at all levels of California's educational systems and accommodate the dramatic increase in energy efficiency potential envisioned by the Strategic Plan.

The proposed Statewide IOU WET Program relies on collaboration among CPUC Staff, representatives from the education sector, state bodies, each of the IOUs, professional/trade organizations, and the business community to be successful in initiating energy efficiency training needs, along with recommended existing and potential educational delivery strategies and resources that will serve each market an educational sector in the Strategic Plan through 2020 and beyond.

The WE&T Program is constructed to work in cooperation with the IOUs and the WE&T Taskforce to identify sponsors and funding sources to design and expand effective workforce training activities and projects throughout the state.

Strategy 1-1: Define, initiate and drive long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs.

Implementation Actions:

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Potential Stakeholders	<ul style="list-style-type: none"> • Statewide IOU Team, including other utilities as well as internal partners • CPUC Staff • Key traditional education sector representatives, including UC/CSU, community colleges, and accreditation programs • Business Community • Professional organizations, including the AIA and United States Green Building Council
Sub Program Implementation	<ul style="list-style-type: none"> • Conduct an in-depth formal statewide energy efficiency training and education resource inventory and needs assessment. • Assess current and alternative funding and partnership mechanisms for WE&T activities. • Create a WE&T specific Web portal and identify entities to co-fund and co-sponsor the Web portal with utilities. Partners shall contribute content toward Web portal • Initiate regular on-going dialogue with broad group of market participant and education stakeholders by way of annual workshops. • Establish task force to oversee and help to evaluate utility specific WE&T activities.
Delivery Channel	<p><i>WE&T Taskforce</i> – Conduct resource inventory and needs assessment.</p> <p><i>WE&T Taskforce</i> – Assess and summarize various funding mechanisms for WE&T activities as a needs assessment element.</p> <p><i>WE&T Taskforce</i> – Work with statewide team to develop Web portal for workforce needs.</p> <p><i>WE&T Taskforce</i> – Facilitate the convening of stakeholders for initial and ongoing dialogue with stakeholders.</p> <p><i>Ed Train</i> - Collaborate with WE&T program to inform the process.</p> <p><i>WE&T</i> – Be specific about the scope of work to define what can/will be done and what lies outside the scope of the task force.</p>

Other long-term strategies and implementation efforts included as goals for the Statewide IOU WE&T Program are addressed in detail within the WE&T Centergies and WE&T Connections Sub-Program sections of the PIP. In summary however, they include:

Strategy 1-2: Support the community college and adult education efforts to allow students to develop their education based on visible career paths in energy efficiency and related fields

Potential Stakeholders	<ul style="list-style-type: none"> • California Community Colleges Chancellor’s Office • California Board of Education • Adult Education Leadership • Department of Employment Development • Industry and Labor Associations • Business Community • Professional organizations with members who need to maintain accreditation • Building Operators Certification Program (BOC)
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Sub Program Implementation	<ul style="list-style-type: none"> • Utilize community colleges to provide technical training, such as HVAC maintenance and building operator certification. • Develop appropriate linkages with K-12 programs, focusing on high-school “green academy.” • Coordinate with the community colleges and adult education sector to incorporate energy and resource efficiency. Component into their career laddering concept. • Explore ways of disseminating materials electronically through effective use of the Internet.
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Strategy 1-3: Incorporate energy / resource efficiency and demand side energy management into traditional contractor and technician training, such as for plumbers and electricians, and expand training resources to produce target numbers of trained workers.

Summary:

Potential Stakeholders	<ul style="list-style-type: none"> • California Community Colleges Chancellor’s Office • Community College HVAC program • California Board of Education • Adult Education Leadership • Department of Employment Development • Industry / Labor Associations • Technical and Vocational Training Programs
Sub Program Implementation	<ul style="list-style-type: none"> • Expand or establish training curricula and training and professional career development programs in building construction, services, building operator and other energy efficiency technical fields. • Establish or expand key financial and placement partnerships that demonstrate employment prospects for trained personnel. • Expand upon existing certification programs to try to include student certificate in “green workforce.”

Strategy 1-4: Create or expand college and university programs with energy efficiency focus and foster green campus efforts to apply this knowledge in clear view of students and faculty.

Summary:

Potential Stakeholders	<ul style="list-style-type: none"> • California Community Colleges Chancellor’s Office • WE&T Task Force • UC/CSU education system • ACEEE education committee
Sub Program Implementation	<ul style="list-style-type: none"> • Utilize existing UC/CSU extension programs to incorporate a continuing education curriculum component. • Work with Universities and colleges to expand professional energy related degree offerings and contribute to tailored curriculum. • Work with colleges and universities to formalize internship opportunities with energy and resource efficiency institutions, including engineering firms, architecture firms, and utility programs.

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Strategy 1-5: Develop K-12 curriculum to include energy efficiency fundamentals (e.g., math, science, behavior) across various content areas and identify how career education in energy-related fields can be incorporated across the grades.

Summary:

Potential Stakeholders	<ul style="list-style-type: none"> • CPUC Staff • Key traditional education sector representatives • California Board of Education • WE&T Task Force • Business community • After-school community education programs
Sub Program Implementation	<ul style="list-style-type: none"> • Identify opportunities to leverage governor’s career technical initiative. • Identify opportunities to work with the California Department of Education to develop curricula with specific content for energy and GHG issues. • Support outreach into • K-12 schools on energy, water and environmental issues. • Support K-12 schools to develop curricula that support their local communities as part of class assignments.

Strategy 2-1: Collaboratively identify appropriate goals and strategies to build California’s energy efficiency workforce through 2020, focusing on training that increases participation from within minority, low-income and disadvantaged communities in achieving California’s economic energy efficiency potential.

The number of units receiving education and weatherization services during 2013-2014 program period is expected to expand greatly. During 2009, WE&T will focus on expanding behavior modification in existing training programs to increase emphasis on energy efficient practices.

Additionally, training in the form of train-the-trainer sessions may be possible with third party groups to design and expand teaching of weatherization and energy efficiency in minority and disadvantage communities specifically.

Summary:

Potential Stakeholders	<p>WE&T Task Force</p> <ul style="list-style-type: none"> • CPUC • Key traditional education sector representatives • Business Community • California Community Colleges Chancellor’s Office • Continuing Education Programs • Laney and Delta College HVAC program (PG&E) • Department of Employment Development • Industry / Labor Associations • Technical and Vocational Training Programs (e.g., State Prison System)
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	<ul style="list-style-type: none"> • Community Youth Centers (e.g., YMCA)
Sub Program Implementation	<ul style="list-style-type: none"> • Leverage Marketing Education and Outreach and WE&T task forces to partner with community based organizations and provide targeted outreach on employment opportunities with energy efficiency. • Develop Low Income WE&T Plan • Train qualified diverse business enterprises from minority, low-income and disadvantaged communities to undertake or expand efficiency services.

b) Program delivery and coordination

WE&T Planning includes involvement from a wide range of stakeholders. Implemented in the appropriate manner, WE&T Taskforce members will represent technology, industry, government, community groups, utilities, education and non-energy segments which should facilitate discussion on ways to share current and emerging opportunities to expand the scope of existing WE&T training curriculum, but introduce new WE&T training activities in the area of emerging technologies, codes and standards, and non-IOU programs.

c) Best Practices

Formulation of statewide WE&T Taskforce and regularly scheduled meetings with statewide WE&T stakeholders represent a best practice that facilitates open discussion among are vested parties. The WE&T planning process will have best practice inputs gathered from evaluation of IOU education and training programs to rely upon in discussing real opportunities and the long-term considerations of programs being shared and presented to the WE&T taskforce and IOUs.

d) Innovation

The whole program can be considered innovative to the degree that statewide coordination and strategic planning is being done, which will help shape California economics in the near term.

e) Integrated/coordinated Demand Side Management

WE&T Planning includes involvement from a wide range of stakeholders. The IOU WE&T representatives in support of the long-term workforce strategy of California to achieve statewide coordination, will work to create coordinated technology demonstration and DSM training to ensure there are no missed opportunities for offering IDSM training and that opportunities to receive such training are made available to the fullest extent possible which will aid efforts in achieving energy neutral buildings by 2020.

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f) Integration across resource types

WE&T Planning includes involvement from a wide range of stakeholders. Implemented in the appropriate manner, WE&T Taskforce members will represent technology, industry, government, community groups, utilities, education and non-energy segments and facilitate discussion on ways to share current and emerging opportunities to expand the scope of existing WE&T training curriculum to include water and GHG mitigation.

g) Pilots

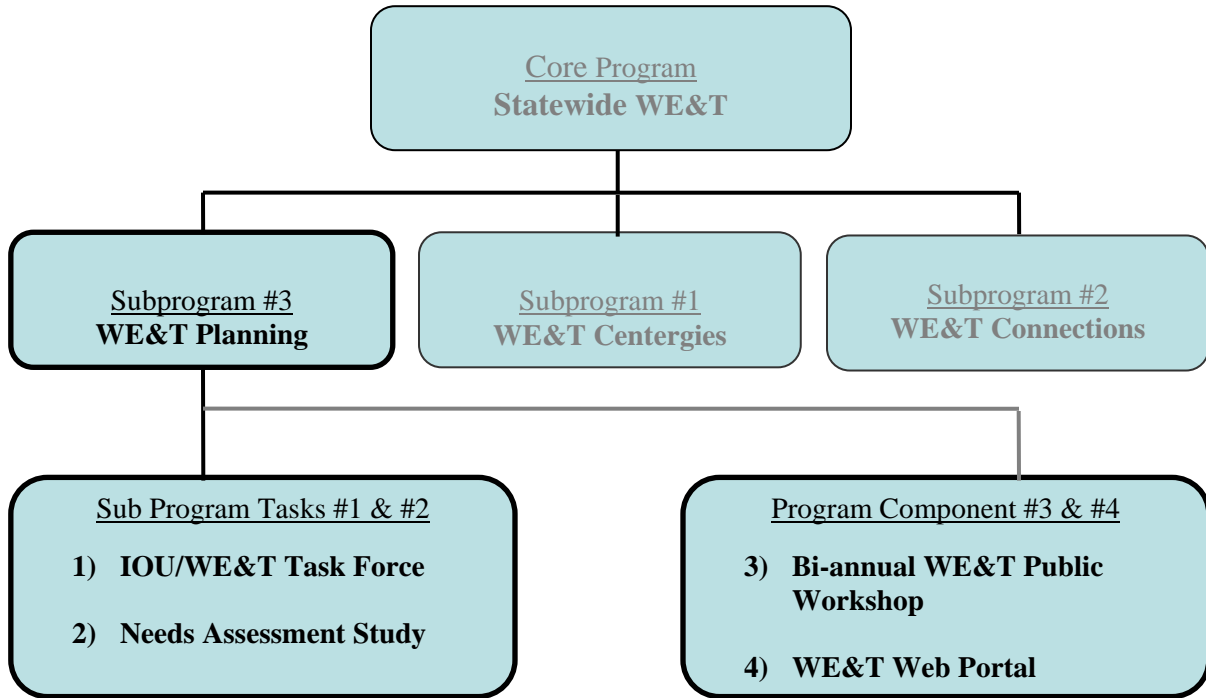
The whole program can be considered innovative to the degree that statewide coordination and strategic planning with regard to workforce training is being done in a manner that require iteration and learning in order to arrive at implementation models and action steps that can be deemed effective.

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

7) Diagram of Program

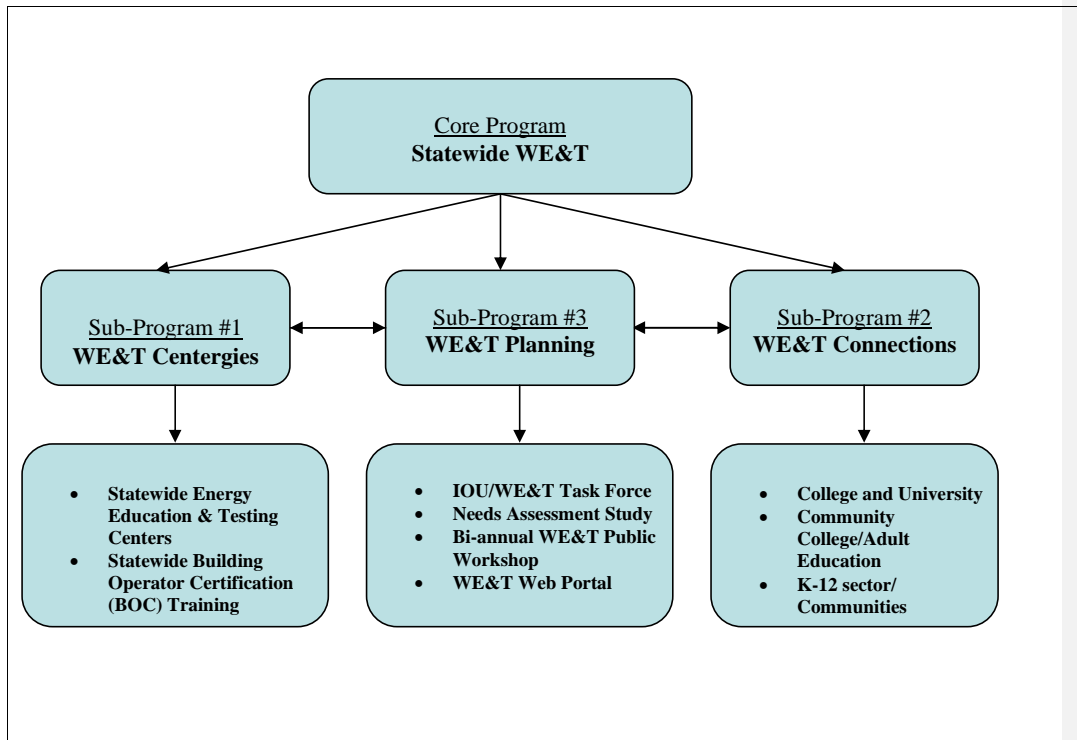
See above Section 6.2.



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- 1. Program Name:** Statewide Workforce, Education & Training Program
Program ID: SCG3729 – SW-WE&T-Centergies
 SCG3730 – SW-WE&T-Connections
 SCG3731 – SW-WE&T-Strategic Planning
Program Type: Statewide Core Program

Diagram I: Statewide WE&T Core Program Implementation Structure¹



¹ Sub-Program write-up contains detail on cross-cutting coordination and strategies with market sectors and market segments, as well as descriptions of specific shared component activities, projects and implementation models.

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2. Projected Program Budget Table

Table 1

PGE2109	Workforce Education and Training	Total Administrative Cost (Actual)	Total Marketing and Outreach (Actual)	Total Direct Implementation (Actual)	Total Budget By Program (Actual)
	Sub-Program: WE&T Centergies				
	Sub-Program: WE&T Connections				
	Sub-Program: WE&T Planning				
Total					

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Workforce Education & Training Program					
3729	SW-WE&T-Centergies	\$436,169	\$258,206	\$4,305,597	\$0	\$4,999,972
3730	SW-WE&T-Connections	\$52,399	\$0	\$802,182	\$0	\$854,580
3731	SW-WE&T-Strategic Planning	\$15,812	\$0	\$284,188	\$0	\$300,001
	TOTAL:	\$504,380	\$258,206	\$5,391,967	\$0	\$6,154,553

3. Projected Program Gross Impacts Table

WE&T is considered a non-resource program and thus is not expected to provide energy savings impacts for the IOU Energy Efficiency portfolio for the ~~2010-2012~~2013-2014 program years. However, as part of the ongoing efforts of the IOUs and recommendations taken from future study results, the IOU WE&T programs are continually seeking methodologies that can support energy savings contributions for WE&T activities. ~~(See Section 6.1.f.i ii for a discussion of proposed pilots to quantify energy savings associated with WE&T Centergies programs.)~~

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Table 2

Program #	Main/Sub Program Name	2013-2014 Gross kW Savings	2013-2014 Gross kWh Savings	2013-2014 Gross Therm Savings
	SW Workforce Education & Training Program			
3729	SW-WE&T-Centergies	0	0	0
3730	SW-WE&T-Connections	0	0	0
3731	SW-WE&T-Strategic Planning	0	0	0
	TOTAL:	0	0	0

4. Program Description

a) Program description

The Statewide IOU Workforce Education and Training (WE&T) Program represents a portfolio of education, training, and workforce development planning and implementation funded by or coordinated with the Investor-Owned Utilities (IOUs): Pacific Gas and Electric (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Southern California Gas ([SCGSOCALGAS](#)). Education and training are vital components of each of the IOU’s energy efficiency portfolio filings for ~~2010-2012~~[2013-2014](#) and are integral in supporting the achievement of IOU energy savings targets and the workforce objectives set forth in the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). Workforce Education and Training has become an important crosscutting activity for the IOUs in an effort to not only educate and train current workers, but to prepare future workers to be better able to successfully perform the jobs needed to help achieve increased energy savings targets for the IOUs and California’s clean energy goals.

WE&T relies on statewide coordination to collaboratively create a comprehensive training platform that leverages the potential of key stakeholders with the resources, knowledge, and commitments to implement an education and training strategy that focuses on integrating existing workforce skills with new workforce needs, as well as expand outreach efforts to increase awareness of and demand for green careers.

California wants to expeditiously increase statewide workforce development and training relying on strategically coordinated planning and administration to deliver energy efficiency and demand side energy management in the public and private sectors. This effort will require concerted planning among secondary and post-secondary educational leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, construction and manufacturing businesses that deliver energy management and efficiency solutions.

The Strategic Plan’s vision for WE&T is that “[b]y 2020, California’s workforce will be trained and engaged to provide the human capital necessary to achieve California’s economic energy efficiency and demand-side management potential.”² To do this, the

² California Long Term Energy Efficiency Strategic Plan, p. 74.

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Statewide IOU WE&T Program must be constructed in an implementable form to: 1) initiate and drive long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs; 2) support community college and adult education efforts to develop education based on visible career paths in energy efficiency and related fields; 3) incorporate energy efficiency and integrated demand side energy management into traditional contractor and technician training; 4) support the creation or expansion of energy management and efficiency focused curriculum by college and university programs and foster this knowledge in clear view of students and faculty; 5) support development of K-12 curriculum to include a basic understanding of energy fundamentals, including environmental and greenhouse gas impacts as well as solutions to mitigate energy use impacts such as EE, DSM, and associated behavioral changes, identify how career education in energy-related fields can be incorporated across the grades, and bolster high school career counseling to improve community college enrollment in green job training programs; and 6) achieve the fullest participation by minority, low income and disadvantaged communities in training and education at all levels of DSM and the energy/resource efficiency industry. Diagram I illustrates the proposed program implementation structure for the Statewide IOU WE&T Program to best deliver the strategies outlined by the Strategic Plan.

Throughout the approved IOU Program Implementation period, the WE&T Program will strive to continuously initiate and facilitate ongoing dialogue with a broad group of market and education sector stakeholders to define, introduce and drive long-term WE&T development and solutions to establish EE and DSM education and training at all levels of California's educational system and accommodate the dramatic increase in EE activities envisioned by the Strategic Plan. [The IOUs will modify curriculum and delivery methods to incorporate feedback and guidance from sources, including the California WE&T Needs Assessment, customer feedback from the 2010-2012 Process Evaluation, and the Guidance Decision for 2013-2014. Such modifications include, but are not limited to, approaching curriculum development with the sector strategy approach.](#)

The Statewide IOU WE&T Program includes three pivotal Sub-Programs that form an integrated and cohesive structure for implementing WE&T curriculum and related activities in support of IOU energy savings targets and the long-term strategic goals for the state of California as prioritized and outlined by the Strategic Plan and Big Bold Energy Efficiency Strategies (BBEES). These three Sub-Programs include:

- i. The **WE&T Centergies Sub-Program** is generally organized around market sectors and cross-cutting segments to facilitate workforce education and training appropriate for achieving the energy savings, demand reductions and related energy initiatives required of the IOUs. The Energy Centers, which have many years of experience in creating and disseminating high-quality programs, represent the largest component of this Sub-Program and provide WE&T curriculum and related deliverables—training courses, seminars, workshops, clean energy technology demonstration, equipment efficiency testing,

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interactive training exhibits and lectures—to promote industry trends and developments for advancing energy efficiency as a professional discipline. For many years, they have served as the IOU’s primary delivery channels for mid- and upstream workforce education and training, information dissemination, and education/outreach coordination. IOU-administered Third Party, Local Government and Emerging Technology, Codes and Standards, Heating, Ventilation and Air Conditioning (HVAC), and ~~Low Income Energy Efficiency (LIEE)~~ [Energy Savings Assistance \(ESA\)](#) programs, as well as other community-based training efforts, are supported by the Energy Centers to sponsor workforce training courses. (Refer to WE&T Centergies Sub-Program Section 6.1 for a more detailed discussion [of 2013-2014 program implementation.](#))

The Statewide Building Operator Certification (BOC) Training Partnership, the second component of this Sub-Program, will continue to play a major role in improving and maintaining California’s green collar building workforce stock of building engineers, stationary engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians, electricians, , and others in the facility operation and maintenance field. The IOUs have been collaborating with BOC to offer California building operators competency-based training and certification, resulting in improved job skills and more comfortable, efficient facilities. Operators earn certification by attending training and completing project assignments in their facilities. Training topics include facility electrical, HVAC, and lighting systems; indoor air quality; environmental health and safety; and energy conservation. The IOUs will work with BOC to shape and realign the BOC certification program to be consistent with the Strategy Plan.

- ii. The **WE&T Connections Sub-Program** is organized around downstream and upstream relationships between the IOUs and the educational sector, entry and intro-level community-based training efforts that support workforce development in energy efficiency, energy management, and new emerging green careers. This Sub-Program emphasizes education curriculum and related activities that inspire interest in energy careers, new and emerging technology, and future skills development to advance the energy initiatives and goals of the state. This Sub-Program involves expanded relationship-building to foster curriculum development and related training that result from existing and expanding industry needs. IOUs will work with education institutions, labor and communities to nurture interest in green careers by K-12, community college, occupational, vocational, and major university students, as well as assist in the growth of low-income and transitional workforce targeted clean energy training programs. (Refer to WE&T Connections Sub-Program Section 6.2 for a more detailed discussion [of 2013-2014 program implementation.](#))
- iii. The **WE&T Planning Sub-Program** involves the management and execution of several strategic statewide planning tasks and resulting project implementation actions initiated by the Strategic Plan. The tasks and projects are seen as

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instrumental in delivering mechanisms and protocols that facilitate ongoing momentum and focus on the achievement of workforce, education and training long-term goals. The WE&T Planning Sub-Program facilitates implementation and completion of the four key strategic tasks identified in the Strategic Plan to drive long-term WE&T development:

- 1) Form an IOU/CPUC WE&T Task Force
- 2) Conduct a Needs Assessment
- 3) Create a WE&T Specific Web Portal
- 4) Facilitate annual WE&T Public Workshops

(Refer to WE&T Planning Sub-Program Section 6.3 for a more detailed discussion [of 2013-2014 program implementation.](#))

b) List of current measures/curriculum

Refer to WE&T Sub-Program Sections 6.1 and 6.2 for specific detail.

i. WE&T Centergies

a. Statewide Energy Education and Testing Centers (Centers)

The Centers will continue to offer and expand their curricula to current and new audiences that make up California's energy efficiency workforce. The primary target audience for each of the Center's activities and that audience's significance to California's energy efficiency future are delineated in [Appendix Attachment 2](#). ~~Attachment 2~~ [Appendix 2](#) also includes a more comprehensive list of existing and new educational seminars that the Centers will offer at the local and statewide level. The list reflects classes that are developed around specific technologies or installation methods as well as classes that present integration among DSM programs, including distributed generation and demand response. NOTE: The course topics listed in Attachment ~~4-2~~ will be modified during the program cycle, as new technologies are introduced into the marketplace and revised codes and standards are implemented.

b. Statewide Building Operator Certification (BOC) Training Partnership

BOC will continue to be a WE&T partner with the IOUs. The IOUs will expand and improve the BOC partnership. The "measures" to be provided in the BOC program include delivery of the Level I (7-class series) and Level II (4-class series) certification courses. BOC will also track certification statistics.

~~*Numbers do not reflect shared BOC sessions (promotion/costs) planned with SCE.~~

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ii. WE&T Connections

- a. College and University sector: The Statewide University program that operates at UC/CSU campuses offers the following as well as advances the Strategic Plan goals:
- IOU and /or program staff will work with the UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields.
 - Student interns will work with many campus groups and organizations to promote energy efficiency and green careers to the student body.
 - Student interns will work with campus EOP Programs to ensure that minority, low income, and disadvantaged students are fully engaged in our energy efficiency and green career path programs. Many students do not apply for admission to college because no one in their family has ever attended college or because college seems too expensive. EOP aims to improve the access, retention, and graduation of students who have been historically disadvantaged, either socially or economically.
 - Student Interns promote energy efficiency throughout the campus by performing energy assessments and providing recommended actions to operate more efficiently.
 - The program provides a pathway to green jobs through professional development, training, mentoring, integrated academic curricula, internships, project based learning, and a broad-based professional networks.
 - Students are offered job shadowing and internships with IOUs, universities, other entities, and government agencies.
- b. Community College sector: The Community College program will better position California's workforce to meet the growing need for energy professionals as well as advance Strategic Plan goals:
- The California Community College training and education program currently provides energy efficiency courses for CCC facilities, operations, and maintenance staff in an effort to create an energy efficient environment, help in the development energy efficient policies, take advantage of DSM programs, and implement distributed generation programs,
 - IOUs are in the early stages of discussion with the Community Colleges to develop a Utility Workforce Education and Training program. The

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first step is to gather labor market information from employers in the energy sector and use this information to develop new certificate and degree programs that focus on energy efficiency and demand side management.

- IOUs will work with campus EOP Programs to ensure that minority, low income, and disadvantaged students are fully engaged in our energy efficiency and green career path programs. Traditionally, minority, low income and disadvantaged students heavily favor community colleges because they are economically more feasible or because students' GPA or standardized test scores were not high enough to get into a university. EOP provides support and helps students transition to universities if that is the goal of the student. EOP aims to improve the access, retention, and graduation of students who have been historically disadvantaged, either socially or economically.
- c. K-12 sector: The various K-12 educational components all offer the following as well as advance Strategic Plan goals:
- Ensure that minority, low income, and disadvantaged communities fully participate in training and education programs: At least 50% of each program is offered in minority, low income, and disadvantaged communities, determined by school lunch program data.
 - Designed to promote green careers to K-12 students through energy and environmental curriculum and highlight green careers/jobs: Students will learn about a range of green jobs and participate in shadowing and training program and classroom instruction to help them consider and prepare for future green employment. A focus will be on experimental learning models, including contacts with both blue and white collar workers now working in the green economy.
 - Designed to educate students on energy, water, renewable energy, demand response, distributed generation, and greenhouse gases and impacts to the environment, with the goal of influencing the day-to-day energy efficiency decisions of students and their households (customer awareness focused).
 - Designed to educate schools on the benefits of implementing energy efficiency policies and demand response programs at their sites to impact energy use in schools.
 - The IOUs and/or our third party vendors will work with the State's Department of Education (Curriculum Commission) as well as Counties' Departments of Education to be included in curriculum development advisory boards so that we can contribute to tailored K-12 curriculum that includes the science of energy, energy efficiency, and some discussion about green careers.

c) List non-incentive customer services

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i. WE&T Centergies

Common Center elements include:

- Educational seminars
- Technical consultations
- Outreach efforts
- Food Service Test Protocols
- Tool Lending Libraries
- Educational Partnerships
- [Support and collaboration with HVAC industry sector strategy](#)
- Energy Design Resources integration and collaboration

These non-incentive customer services will be used to direct the Centers' customers to the IOU's incentive programs through inclusion of program materials in class course books, through information integration on Centers' class websites, and literature displays in Centers' exhibits. (Refer to WE&T Centergies Sub-Program section 6.1 for specific details.)

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as "Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market."³ The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁴.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures⁵. Markets are social institutions⁶, and transformation requires the coordinated effort of many stakeholders at the national level,

³ California Public Utilities Commission Decision, D.98-04-063, Appendix A.

⁴ California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

⁵ Pelozo, J., and York, D. (1999). "Market Transformation: A Guide for Program Developers." Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

⁶ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) "From technology transfer to market transformation". Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/

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directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains⁷ as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress⁸. According to York⁹, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation¹⁰. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory¹¹, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades¹². Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹³. The ability to

⁷ Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at www.calmac.org.

⁸ Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

⁹ York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

¹⁰ Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). “Market Transformation: Substantial Progress from a Decade of Work.” American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

¹¹ Rogers (1995) *Diffusion of Innovations*, 5th Ed.

¹² Example in bottom chart of this graphic from NYTimes:
<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

¹³ Sebold et al (2001) p. 6-5,

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make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"¹⁴ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁵, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions¹⁶. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers¹⁷ suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric

¹⁴Nadel, Thorne, Saches, Prindle & Elliot (2003).

¹⁵ CPUC (2008) Strategic Plan, p. 5.

¹⁶Nadel, Thorne, Saches, Prindle & Elliot (2003).

¹⁷ Pelozo & York, (1999).

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Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Program Performance Metrics (PPMs)

Below are the approved PPMs and metric types for the Workforce Education & Training Statewide [Program](#) (Resolution E-4385, Appendix A, ~~pp 32-34~~). [These PPMs will be extended into the 2013-2014 portfolio, with the proposed modifications clarifying definitions shown below:](#)

WORKFORCE EDUCATION AND TRAINING (WE&T)		
<i>Centergies</i>	Percent increase in educational collaboration with partners from 2011 baseline. (Tracked and reported by educational level, and by number of partners operating in Title-1 communities.) * Educational "collaboration" is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	2. Percent increase in educational collaboration with organizations serving disadvantaged communities * Educational "collaboration" is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	3. Number of IDSM educational classes with substantial IDSM (EE, DR, and DG) content. * "Substantial" is defined as approximately 50% or more of class content must address IDSM subject matter. The WE&T Program staff have been in conversation with Energy Division to refine the definition of these metrics, which may change for the 2013-2014 reporting period.	2b
<i>Connections</i>	1. Percent increase in educational collaboration with partners. (Tracked and reported by educational level, and by number of partners operating in Title-1 communities.) * Educational "collaboration" is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	2. Percent of K-12 WET Connection program participants that are from Title-1 schools	2a
	3a. Complete <u>baseline study to determine the current number of partnerships</u> .(Y/N) 3b: Number of high school continuing education outreach partnerships** in WET Connection	2a* * Startin g 2011.

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b) Market Transformation Information

~~Per Resolution E-4385, identifies a preliminary list of objectives and a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities. These MTIs will be was presented at a public workshop on November 7, 2011 to allow for public comments and further discussion before being finalized. No MTIs were identified for the WE&T Program.~~

~~As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.~~

~~As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.~~

c) Program Design to Overcome Barriers

The Statewide IOU WE&T Program structure illustrated by this document is intended to address several new and recent challenges and existing barriers in order to implement a sustainable long-term education and training strategy, while leveraging the resources of the CA-IOUs to help influence energy efficiency curriculum and training content among education, labor and community sectors in a way that incorporates best practices and coordinates investment throughout the state.

The national, statewide and local economic downturn poses a real barrier to change, creating the risk of distracted focus and resistance to invest in projects. The IOUs currently represent a long and stable commitment to energy efficiency and demand-side management education and training. The IOUs have demonstrated the ability to offer a targeted breadth of education and training program, but market transformation toward a new green workforce will require an urgent commitment to change by educational sector stakeholders.

The challenge of introducing new technology into the marketplace has historically relied on coordination between technology development, research and technology commercialization. IOUs have demonstrated flexibility in identifying new and emerging technology training needs and introducing workforce training courses to both private and

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public sectors. However, market transformation to meet target dates associated with net zero new construction and code adoptions will require a rebound in the economy and interest in new investment.

The IOUs offer a broad statewide contiguous view on workforce, education and training which few other parties have. The proposed implementation plan leverages the statewide IOU assets and resources to the extent possible to address gaps in the workforce landscape, and IOUs can act as conduits to identify new or successful local and regional workforce training models that can be migrated across the state into underserved areas via IOU implementation or IOU administration of third-party sponsored implementation. Such an effort cannot occur solely from IOU funding, so there will need to be additional financial stimulus from alternative resources.

WE&T Connections

Energy education is critical to assuring a stable and reliable supply of [electricity energy](#) in California. Educating students will create a new generation of Californians who understand the significance of energy in their lives, their role in its efficient use and the importance of managing our limited resources for the future. This knowledge and information can also lead to life-long energy savings habits and a concern for the environment and its limited resources for not only the students but, for their family and friends. This knowledge and education can also lead the interest in a future green career path. However, given the budget cuts at schools, cuts to curriculum and longer work hours for teachers, getting this message across may not be possible without the assistance of these IOU sponsored programs.

WE&T Connections program components are designed to be both flexible and effective across diverse learning environments. All program components promote the science of energy, energy efficiency, demand response, distributed generation, and empower K-12 and college students to become advocates of smart energy management in their homes, schools, and communities. The program effectively combines classroom learning with hands-on activities such as:

The program will address lost opportunities in the schools market by implementing a comprehensive, innovative approach that involves incorporating:

- Some of the nation's leading energy education programs. These programs are 1) designed to promote green careers through energy and environmental curriculum, 2) designed to educate students on energy, water, renewable energy, demand response, distributed generation as well as green house gases and impact to the environment, with the goal of influencing day-to-day decisions of students and their households, 3) also designed to educate schools/facilities on the benefits of implementing energy efficiency policies and demand response programs at their sites so as to impact energy use in schools and, universities and to project energy and environmental leadership by example

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- The program is developed in collaboration with natural gas, electricity and water agencies to promote and encourage the adoption of energy efficiency, demand response, distributed generation and water conservation options.
- Collaboration and integration with residential and business incentive programs that result in firm energy savings for homes and schools.

The WE&T Connections program will address the needs of schools through a combination of student, teacher, and school administrator education programs that increase their awareness and knowledge as well as provide support in developing curriculum and/or lesson plans that support these objectives. Additionally, once school-aged children learn something new like energy efficiency, they become advocates by taking that knowledge home and teaching/motivating their parents and siblings to take actions to reduce energy and water consumption. University students can conduct valuable research and effectively educate their peers and campus administrators about energy efficiency:

- Educational campaigns can result in significant energy savings on campus facilities and dorms by changing behaviors and purchasing decisions;
- Students are effective advocates, able to reach their peers, communities and high-level decision makers in promoting green jobs on campus.
- IOUs will coordinate with the Department of Education Curriculum Frameworks and Instructional Resources Division to discuss how curricula on energy efficiency fundamentals, GHG issues and global climate change can be included in the Science Framework (PG&E has submitted an application to be on the Science Curriculum Framework and Evaluation Criteria Committee for the revision of Science Framework, adoption in 2012). Additionally, coordinate with the Dept. of Ed for inclusion of curricula of green career options in energy-related fields in the Career Technical Education Framework for 7-12.
- IOUs will update the “Resource Guide for Teachers” developed by PG&E that provides an annotated listing of sites and curricula for teachers and students covering issues related to energy, energy efficiency and the environment.
- IOUs will coordinate with partners to expand outreach into K-12 schools that have curricula on energy, water, and environmental issues (e.g., California Department of Education of Education, Water Districts, California Department of Energy, California Energy Commission, Air Quality Management Districts).
- As an outcome of the collaboration of partners representing curricula mentioned above suggestions on how to integrate career options in energy-related fields will be explored. In the interim the IOU’s will review the existing curriculum programs that they support and work together to see where career options can be incorporated into their curricula.

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- The IOUs and/or our third party vendors will work with the appropriate (as described in program description) K-12, Community College and University agencies responsible for developing curriculum, courses and programs needed to educate students about energy, energy efficiency and prepare them for a green career path.

d) Quantitative Program Targets

Refer to WE&T Sub-Program sections for specific details.

e) Advancing Strategic Plan goals and objectives

The proposed Statewide IOU WE&T program implementation structure, integrating WE&T Planning as a Sub-Program in parallel with the two other major statewide IOU Sub-Programs, WE&T Centergies and WE&T Connections is intended to better integrate long-term planning with WE&T implementation. As stated in the Strategic Plan, “This cross-cutting sector demands a truly statewide coordination effort that integrates energy efficiency training into a wide range of public and private programs. This effort will include the California Department of Education, the Department of Employment Development, industry and labor associations, educational institutions at all levels, technical and vocational training organizations, community based nonprofit organizations and the business community.”¹⁸

California today is faced with an unprecedented challenge: the generation of students graduating high school in 2009 will need to stabilize carbon emissions in the 30+ years of their work careers. Additionally, this generation will need to develop and train the next generation of energy technologies. Transforming California’s current building industry into one that exemplifies carbon neutrality by 2020 will require major changes in our existing market infrastructure and business models. This will result in many new jobs and industries.

One of the keys to success for future implementation of energy efficiency technologies is the need to train the next generation workforce in energy-related positions. The Statewide IOU WE&T Program, supported by the strategic activities of the WE&T Planning Sub-Program activities, establishes a connection among statewide implementers for increasing the knowledge and skills of the current generation - from local code officials, energy managers, and HVAC technicians to school teachers - to develop the muscle needed to achieve market transformation.

Achieving success in creating a workforce well educated in energy efficiency matters will require large-scale, ongoing, collaborative education, and training efforts to match evolving demands for both the type of jobs and number of workers needed to fully implement the Strategic Plan. Addressing human capital resource requirements will

¹⁸ California Long Term Energy Efficiency Strategic Plan, p. 75.

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require collaborative efforts of federal, state, and local governments; financial institutions; community-based and non-profit organizations; industry and labor organizations and utilities. These entities present potential funding sources and opportunities for partnerships.

Students benefit from energy efficiency education and training opportunities with the ultimate goal of students entering careers in energy efficiency, advancing within their established career paths, and ultimately helping the state to meet very intense energy efficiency goals. A better trained workforce will advance the purpose of DSM implementation, policy, research and development, and education.

The educational components offered by the WE&T Connections program provide energy efficiency education and training at most levels of California's educational systems. The program also ensures that minority, low income and disadvantaged communities fully participate in training and education programs at all levels of the DSM and energy efficiency industry. The expected results are that:

1. Students develop careers, and existing workers develop skills and knowledge that advance DSM business, policy, research and development, and education; and
2. Individuals from the targeted communities take advantage of programs that specialize in energy disciplines at all levels of the educational system and successfully advance themselves into rewarding careers in the energy services fields.

The Statewide IOU WE&T Program is structured to implement workforce training and workforce curriculum development in cooperation with the California Community Colleges Chancellor's Office, the California Board of Education and Adult Education Leadership. WE&T Planning Taskforce and annual workshops will help to nurture technical training and education services that support community college and adult education within the first 12 months of the program cycle. Together, these relationships will be able to outline the foundational learning plan(s) needed to prepare students for career paths in energy efficiency and related fields. Based on experience, learning plan outlined through this collaborative effort could provide students with entry points for entering the field of energy efficiency and/or result in career development tracks within a traditional education system. IOUs would initially suggest learning plans be based on the "working backwards" exercise of asking what knowledge, skills, educational background and abilities are needed for particular sets of jobs and careers. Once these various attributes have been identified, learning plans shall be developed which will drive the development of curricula and training programs and support the knowledge and skills sets needed to prepare students for the "green collar" workforce. The Statewide IOU WE&T Program will build on existing training activities to address "gaps" in the learning plans as appropriate and diagnosed by the needs assessment.

The Statewide IOU WE&T Program is modeled to generate stronger linkages to K-12, advising on energy curriculum and coordination between K-12, Community Colleges

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Chancellor's Office and the adult education sector. The Statewide IOUs will exchange instruction and curricula with community colleges, industry and labor on HVAC, Energy Audits, Home Performance Retrofits and Building Operator Certification. The Statewide IOU WE&T Program will also advance consistency among the IOUs to use training curricula through established partnerships with the community colleges, vocational / technical / trade schools and apprenticeship programs.

The Statewide IOU WE&T Program establishes a framework for cross-sectional expansion of training curricula and related workforce development programs to address HVAC quality installation and maintenance, building construction, home performance audit and retrofit services, building operator certification, facilities maintenance, and other technical fields. The Sub-Programs will build on the established partnerships with key actors to deliver technical information through a wide variety of training and education services for upstream stakeholders such as contractors, installers, inspectors, plan checkers, designers, architects, engineers, vendors, installers, and other technical skilled personnel to increase actions, awareness, and attitudes toward energy efficiency. [\(Refer to the Statewide HVAC PIP for more information.\)](#)

The Statewide IOU WE&T Program as structured supports the Big / Bold Strategies adopted by the CPUC in the Strategic Plan by continuing to offer training programs on quality installation and maintenance of HVAC systems and equipment selection based on whole building design, training and certification, compliance improvement and new technologies. Education and Training will continue its focus on the building envelope and overall home performance by providing HVAC quality installation, maintenance and service courses based on ACCA (Air Conditioning Contractors of America) [and other appropriate](#) standards. Education and Training will also continue to offer programs on new and emerging technologies in HVAC (e.g., ~~ductless mini split heat pump variable refrigerant flow (VRF)~~ systems) and will encourage HVAC participants to become certified under the North American Technician Excellence (NATE) certification program [or other appropriate credentials](#) as a means of demonstrating technicians and installers' ability to perform quality work. [\(Refer to Statewide HVAC PIP for more information.\)](#)

The Statewide IOU WE&T Program will work with Marketing Education and Outreach implementers on effective marketing and outreach strategies that will be designed to maximize participation in green career paths. For example, to increase awareness of the availability of training and career development programs, WE&T will contribute to the Web portal project to ensure that "green education" opportunities are accessible through the Web portal.

During the first 24 months of the program cycle, the Statewide IOU WE&T Program will be a guide for collaboration among the Department of Employment Development, community colleges, technical and vocational schools, industry and labor associations specifically on building job training programs and internships for students and preparing them for energy efficiency careers and related career paths. Collaboration will be aided by recruitment of key resources to help in promoting to students and continuing

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education participants the types of employment prospects available in energy derived from the WE&T Assessment study and other market data.

Within the first 24 months of the program cycle approval, the Statewide IOU WE&T Program structure will demonstrate its effectiveness to drive statewide coordination among key stakeholders to expand continuing education and college extension programs to include a greater focus on energy/resource efficiency, sustainability and green technologies. The Statewide IOU WE&T Program structure clearly shows the inclusion to collaborate with the UC/CSU system and California's community colleges to bring an expanded focus on energy/resource efficiency to students and faculty; utilize the extension programs available through the colleges and universities to incorporate a continuing education curriculum component; and work with these educational institutions to help them with expansion of their green degree programs. The Statewide IOU WE&T Program will seek ways of increasing awareness of the importance of energy efficiency, sustainability and green technologies to California, and the key partners will be able to positively impact participation and enrollment in educational programs and green careers.

The Statewide IOU WE&T Program enhances relationships with K-12 public and private educators to share best practices to attract students and facilitate interest in energy efficiency careers and the study of energy efficiency and GHG emissions. The WE&T Connections Sub-Program implementation, in collaboration with WE&T Planning activities, will engage industry experts and educational specialists including but not be limited to: the State Department of Education, educators working at County Offices of Education, leaders in teacher organizations [e.g., California Science Teachers Association (CSTA), California Regional Environmental Education Community (CREEC), Regional Occupational Centers and Programs (ROCP), California Integrated Waste Management Board (CIWMB), and the California Environmental Protection Agency for the K-12 market to determine the inventory of educational resources, funding mechanisms, and include a breakdown of workforce development and strategic planning needed to establish career training for energy-related fields.

The California EPA and the California Integrated Waste Management Board (CIWMB) are involved in the implementation of AB1548. This is the development of a "unified education strategy to bring education about the environment into California's primary and secondary schools."¹⁹ Identified are fourteen specific environmental topics where curriculum is currently being developed. The WE&T will engage in the State Department of Education Science Framework revision to encourage incorporation of energy efficiency and renewable energy emphasis.

The Statewide IOU WE&T Program will help steer more training outreach and green careers education toward minority, low-income and disadvantaged communities. The IOU administered [LIEE-ESA](#) program is expected to dramatically expand the number of units that will receive education and weatherization services during the ~~2010-2012~~[2013-](#)

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¹⁹ www.calepa.ca.gov/Education/EEI/workgroups/envirotopics

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[2014](#) program cycle. To meet the significantly higher goals, more communication and joint WE&T coordination will be necessary and desirable. The Statewide IOU WE&T Program creates an implementation framework to focus on expanding behavior modification in existing training programs to increase emphasis on energy efficient practices, steps that will enable installers, weatherization crews and energy specialists to build on the information they provide to minority, low-income and disadvantaged communities to achieve California’s economic energy efficiency potential.

6. Program Implementation

a) Statewide IOU Coordination

As part of the overall Program Implementation Strategy, the statewide IOU WE&T program plans to institute protocols and processes to identify and facilitate statewide migration of quality training models into each IOU service area, as well as into underserved communities within the respective IOU service areas, where appropriate.

Summary table of WE&T target sectors, program implementation and implementers:

Workforce Education and Training	Sub-Program	Sub-Program coordinated implementation
Schools	Green Campus; Energenius; PEAK	WE&T; IOU UC/CSU/CCC Partnerships
Commercial Market Segments	Tool Lending; Food Service; Building Design Training; Building Operations and Maintenance	WE&T (Energy Centers); Statewide Commercial Resource Programs; IOU Local Government Partnerships; BOMA; BOC; USGBC; New Construction; Codes and Standards
HVAC Industry	Tool Lending ;ACCA; IHACI - QI/QM/QS (ACCA standards inclusive)	WE&T (Energy Centers) Community Colleges Statewide Residential and Commercial Resource Programs, including their HVAC Sub-Programs

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Residential Market Segments	Building Design and Construction Training; Energy Partners (PG&E); CLEO (SCGSOCALGAS /SDGE)	WE&T (Energy Centers) BIA – Remodelers; Statewide Residential Resource Programs; New Construction; BPI; LIEEESAP
Industrial/Agriculture Market Segments	Tool Lending; Audits/Assessments	WE&T (Energy Centers) Statewide Residential Resource Programs; DOE

b) Program delivery and coordination

Three areas of focus for the IOUs to deliver training curriculum to expanded audiences are:

Joint statewide training and seminars – comprehensive energy efficiency and clean energy educational seminars and conferences jointly hosted, promoted and sponsored among the IOUs, municipalities, government agencies, non-profits and industry experts.

Distance learning – web-based platform for synchronous and asynchronous access to digitally transmitted and pre-recorded (catalogued) on-line education and training modules. Distance learning enables webcasting as a communication tool to reach larger workforce audiences with specific training topics in a low cost manner. IOUs can explore co-production and access to on-line training curriculum with other agencies (i.e., CARB, CAL-EPA) to provide more comprehensive energy solutions training.

Outreach – Assist community-based training programs that offer energy efficiency and hands-on training green job curriculum to trainees in minority and other disadvantaged communities. These types of relationships will be coordinated with Low-Income Energy Efficiency programs and likely piloted regionally by IOUs to develop best practices, determine cost effective designs and fine tune a model for turnkey statewide migration. IOUs can help community training programs implement best practices, measure impacts and revise programs, while helping to shape and form standardize integrated resource curriculum (i.e., water, air emissions) beyond what can be offered by IOUs.

i. Emerging Technologies Program

The Statewide WE&T Program will collaborate with the Emerging Technologies program in an improved manner to allow external participation in the ET process. Working closer with ET to increase knowledge and confidence in emerging technologies, the WE&T programs will help with implementation of these new technologies disseminating information and training to enhance market transformation and acceptance into the marketplace.

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ii. Codes and Standards Program

The Statewide WE&T Program structure segregates Sub-Program curricula to make it easier to identify training opportunities that: 1) enhance interest in C&S career positions, 2) provide training on the codification process of energy efficiency and green laws, 3) provide direct industry training on energy and green implementation strategies in response to current or impending codes and standards, and 4) prepare the workforce for code compliance improvement tasks.

[WE&T Centergies will work closely with the Codes and Standards Program to support development of a sector strategy to support workforce development in an area with low compliance, for example, in HVAC. WE&T will maintain ongoing communications with the C&S staff to ensure coordinated development and inclusion of code-related content.](#)

iii. WE&T Efforts

The Statewide WE&T Program will support the other IOU EE Programs as appropriate. Refer to Section 6.b.iii for each Sub-Program for additional plans, if applicable.

iv. Program-specific marketing and outreach efforts

Refer to Section 6.b.iv. for each Sub-Program, if applicable.

v. Rationale for selection of sub-contractors

Refer to Section 6.b.v. for each Sub-Program, if applicable.

vi. Non-energy activities of program

Refer to Section 6.b.vi. for each Sub-Program, if applicable.

vii. Non-IOU programs

The proposed Statewide IOU WE&T Program structure is very significant in that they represent a feasible and respected leader to help flesh out the common ground for delivering and coordinating statewide workforce training program among IOU and non-IOU sponsored trainers. WE&T as a strategic platform can help facilitate energy neutral training, coordination and funding among not only IOUs, but other stakeholders linked to California's energy plans. Refer to Section 6.b.vii for each Sub-Program for additional plans, if applicable.

viii. CEC work on [PIER Electric Program Investment Charge \(EPIC\)](#)

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Refer to Section 6.b.viii. for each Sub-Program, if Not applicable.

- ix. CEC work on C&S

Please see Section 6.b.ix. for each Sub-Program, if applicable.

- x. Non-utility market incentives

Refer to Section 6.b.x. for each Sub-Program, if applicable.

c) Best Practices

In addition to showing the relationship of the Statewide WE&T Program and Sub-Programs, Diagram I also illustrates the bi-directional interaction anticipated between the Sub-Programs under this structure. This represents IOU commitment to the WE&T strategic plan and its objectives, as well as IOU interests in facilitating stakeholder input in presenting, identifying and supporting IOUs efforts to create well-coordinated processes to connect and migrate local and regional WE&T models across the state based on best practices identified by a variety of stakeholders. The WE&T taskforce, with CPUC, IOU and statewide stakeholder roles can have a long-term impact on WE&T implementation plans of IOUs by maximizing the benefits of the structure presented. Regularly scheduled meetings among WE&T taskforce members will ensure that voices can be heard, IOUs implementation plans can be discussed and long-term WE&T strategic progress is addressed. As has been described in this section in some length, by layering the strategies outlined in the Strategic Plan on the Statewide IOU WE&T PIP, the IOUs see that as a sustainable framework for achieving the various goals sought by the CPUC from the IOUs.

d) Innovation

Refer to Section 6.d. for each Sub-Program, if applicable.

e) Integrated/coordinated Demand Side Management (IDSM)

~~Refer to Section 6.e. for each Sub-Program, if applicable.~~

~~The statewide WE&T team will continue to coordinate IDSM education and training efforts by working with IDSM program staff and as a member of the IDSM Task Force. For PG&E's 2013-2014 program, PG&E will consolidate the its Local IDSM integrated education and training subprogram into the statewide WE&T program. PG&E believes that consolidating the scope and budget for local IDSM activities into PG&E's existing programs is a more streamlined, understandable way of administering local IDSM activities, since integration efforts are currently underway in various areas of PG&E's portfolio. This program provides PG&E employees, vendors, and partners with training to educate customers and foster customer participation in IDSM programs.~~

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f) Integration across resource types

Refer to Section 6.f. for each Sub-Program, if applicable.

g) Pilots

~~There are a few pilot concepts that are being introduced to the WE&T Sub Program portfolios. A pilot to the Statewide IOU WE&T Program committee represents a new concept that is being implemented on a limited scale for a duration of at least one year by one or more of the IOUs, and then evaluated using internal metrics and criteria for presentation to the statewide IOU WE&T representatives. Once the statewide IOU WE&T committee agrees that a particular idea or innovation has merit—and funding among the IOUs on a statewide basis is deemed sufficient—the IOUs will adopt the pilot for statewide migration, establishing a project plan for integration as a statewide program and implementation across all IOU service areas. Each IOU will track the adopted Sub-Program pilot toward the statewide targets and goals to determine whether the pilot is generating the intended results in the new regions. Refer to WE&T Sub Program sections 6.1.g, 6.2.g, and 6.3.g for specific detail of planned pilots. As directed in D.12-05-015, the IOUs will test a sector strategy approach. No pilot programs are planned for WE&T in 2013-2014.~~

In 2012, the IOUs have started work to develop an HVAC sector strategy approach, to be implemented in 2013-2014. Details are provided in the Centergies Subprogram. PG&E's Green Pathways Program was successfully piloted in 2010-2012, and will transition to a local program for 2013-2014. More details are provided in the Connections Subprogram.

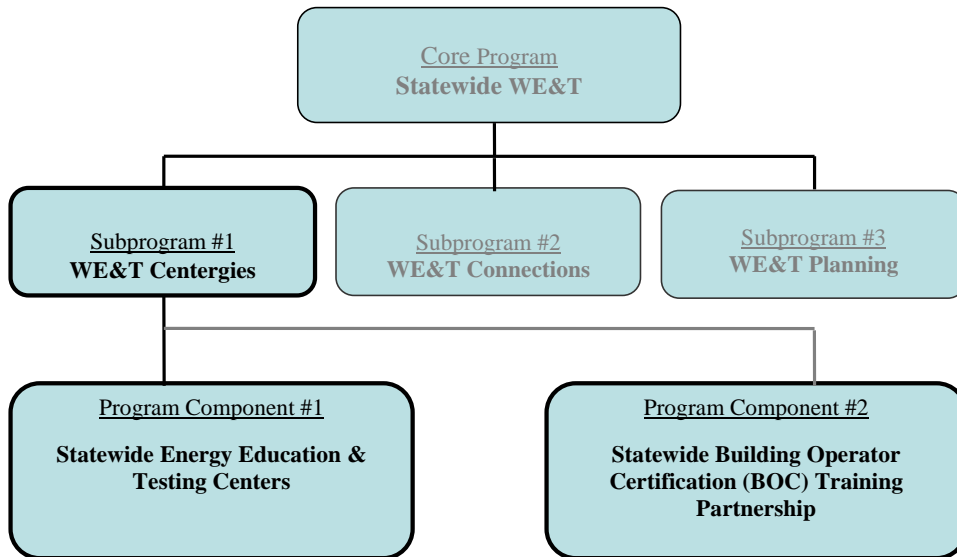
h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

Refer to Section 6.h. for each Sub Program, if applicable.

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6.1) Sub-Program Implementation – WE&T Centergies – [SCGSCG3729](#)



a) Statewide IOU Coordination

i. Program name

The Statewide WE&T “Centergies” is a Sub-Program within the Statewide WE&T Core Program. The “Centergies” Subprogram has two primary components which are diagramed above and described in greater detail below. Parts to the “components” shall be referred to as “elements”.

ii. Program delivery mechanisms

[The IOUs will continue to deliver workforce education and training through two delivery mechanisms: Statewide Energy Education and Testing Centers and through the Building Operator Certification \(BOC\) program.](#)

Statewide Energy Education and Testing Centers

Through their energy education and testing centers (Centers), California’s IOUs have been supporting the energy efficiency workforce and partnering with 3rd Party and Local Government Partnerships, in some cases, for over 30 years. The Energy Training Center (ETC), Food Service Technology Center (FSTC), and

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Pacific Energy Center (PEC) will align with the statewide WE&T goals of the Strategic Plan by addressing the training needs of the midstream and upstream mass market, commercial, industrial, and agricultural actors through state-of-the-art classes designed to enable building professionals to reduce energy consumption in new and existing residential and small commercial buildings. As disseminators of information, the Centers are structured to deliver integrated energy efficiency, demand response, and renewable energy program information through their offerings described below. The Centers serve as a “public face” in interactions with the community and as a conduit to California’s local and statewide energy efficiency programs. Through the ~~2010-2012~~[2013-2014 cycle](#)~~bridge~~[transition period](#), the Energy Centers will partner with appropriate California industry and labor organizations, professional organizations, trade and vocational schools, community colleges, universities, third-party entities, government partners serving low-income or disadvantaged communities, and other IOU and POU education and training centers. By delivering technical information through a wide variety of courses and technical consultations, the Energy Centers will support and enhance programs which address demand side management (DSM), demand response (DR), distributed generation (DG), water and energy use, codes and standards, emerging technologies, renewables, and all incentive programs. The Energy Centers will ensure maximum effectiveness and impacts needed to achieve long-term energy savings goals for California. With some variation at the local level, the Centers have and will continue to evolve their elements to:

- Deliver high-quality integrated educational seminars to train members of the energy efficiency workforce, including entry-level contractors, disadvantaged community members, university and community college students, architects, food service facility designers and operators, HVAC engineers, equipment installers, manufacturers, developers, and commissioning agents. Based on factors, including changes in technology, changes in codes and standards, and feedback from seminar participants, seminars will be modified to more effectively integrate topics such as distributed generation, DR, and EE as described in section 6.2.e and 6.2.f. Seminars will continue to include transferring skills on energy audits to members of the EE workforce at various stages in their careers—novices to seasoned energy auditors.
- Provide technical consultations and equipment demonstrations through building design plan and equipment schedule reviews, technical advice on new equipment and system technologies, technical advice on best-practice methods, and site visits for identifying energy efficiency opportunities. Site visits shall not replicate the efforts of the energy audits program, but rather be conducted when necessary to provide technical advice.
- Where Outreach falls under the local Center, provide on- and off-site outreach programs for disseminating technical EE information, and promoting utility

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energy efficiency incentive programs to green- and white-collar building professionals. Outreach programs will include, but not be limited to: on-site facility tours, off-site short presentations about Centers' offerings, participation in environmental fairs and events. Centers shall work with their IOU's marketing groups so as to collaborate, but not duplicate efforts.

- Design, certify, and maintain food service equipment test protocols that allow for unbiased measurement of energy efficiency and production capacity while engaging manufacturers and chain operators to test equipment and build user accessible performance results databases. This data provides the foundation for future training programs across the Food Service spectrum as well as the technical support for rebate and other programs provided by the IOUs.
- Expand and integrate tool lending library programs that provide building and system performance measuring instrumentation, instrument use information, and measurement protocols. Tool lending libraries will loan tools free of charge to people working on short-term EE projects in California. Patrons will include building operators, facility managers, designers and other professionals who use the tools for building diagnostics, site analysis, power and energy consumption studies, research projects, and educational efforts.
- Expand energy efficiency educational partnerships with institutions that include government, professional, and trade organizations that will help Centers deliver IOU programs and information to a broader audience. Examples of such groups ~~are~~ include, but are not limited to the U.S. Green Building Council, Building Owners and Manufacturers Association, American Institute of Architects, American Society of Heating, Refrigerating, and Air-conditioning Engineers, the Association of Energy Engineers, the Illuminating Engineering Society, Institute of Heating and Air Conditioning Industries, Air Conditioning Contractors of America, Affordable Comfort Inc., Building Performance Institute, Residential Energy Services Network, Apprenticeship Training Programs, North American Technician Excellence, the National Restaurant Association, Foodservice Consultants Society International, North American Foodservice Equipment Manufacturers, National Environmental Balancing Bureau, Stationary Engineer Unions, U.S. Environmental Protection Agency / Department of ENERGY STAR, American Society for Testing and Materials, ~~and~~ the California Energy Commission, [California Division of Apprenticeship Standards](#), [International Brotherhood of Electrical Workers](#), [National Electrical Contractors Association](#), [Sheet Metal and Air Conditioning Contractors' National Association](#), [Counselors of Real Estate](#), [Institute of Real Estate Management](#), and [the International Facility Management Association](#). More detail on educational partnerships is available as part of the Statewide WE&T Connections Sub-Program.

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- Support building energy efficiency by developing training sessions to prepare the marketplace for new HVAC codes (acceptance testing and HERS verification), technologies, and innovative whole building approaches to new and existing buildings. Since the HVAC Big Bold initiative will expand training and education aimed at the HVAC industry, the WE&T program will coordinate carefully to complement HVAC industry training by providing educational support to related market actors such as energy consultants, Home Energy Raters, engineers, architects, and home performance contractors. It is anticipated that the robust HVAC industry training proposed by the HVAC program will create important collaboration opportunities to not only increase training opportunities, but to embellish energy center offerings and impacts.
- Increase statewide Energy Design Resources (EDR) Integration. (EDR) is an existing statewide energy efficiency resource website featuring design materials on how to effectively integrate energy efficient designs into nonresidential facilities. EDR has begun developing the structure to expand the materials and tool offerings to include residential design requirements. While EDR is not funded through WE&T, EDR content is very relevant to the Centers' WE&T direction and goals. Centers will integrate EDR content (online classes, case studies, materials, etc) as statewide resources that are relevant to specific classes, outreach efforts, and consultations.

The table below summarizes common Center elements defined above.

Centers' Elements	SCE AGTAC	SCE CTAC	PG&E ETC	PG&E PEC	PG&E FSTC	SDGE SDERC	SCGS _o CalGas ERC	SCGS _o CalGas FSEC
WE&T Seminars	• es	• es	• es	• es	• es	• es	• es	• es
Technical Consultations	• es	• es	• es	• es	• es	• es	• es	• es
Outreach	• o**	• o**	• es	• es	• es	• es	• es	• es
Food Service Test Protocols	• BE	• es	• /A	• /A	• es	• BE	• /A	• es
Tool Lending Library	• TBE	• TBE	• Yes	• Yes	• TBE	• Yes	• TBE	• TBE
Educational Partnerships	• Yes	• Yes	• Yes	• Yes	• Yes	• Yes	• Yes	• Yes

TBE = To be established (based on information collaboration with other Centers)
** Outreach efforts not part of this Center and occurs in other parts of the utility

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N/A = Not applicable to Center’s primary target audience

SCGSoCalGas - Centergies Program Goals

<u>Program Name</u>	<u>Program Target 20102013</u>	<u>Program Target 20112014</u>	<u>Totals</u>
<u>WE&T Seminars (Training)</u>	<u>450125</u>	<u>450125</u>	<u>450250</u>
<u>Technical Consultations</u>	<u>275220</u>	<u>300220</u>	<u>900440</u>
<u>Outreach</u>	<u>5040</u>	<u>5040</u>	<u>45080</u>
<u>WE&T Food Service Test Protocols</u>	<u>n/a15</u>	<u>n/a15</u>	<u>n/a30</u>
<u>Tool Lending Library</u>	<u>n/atbd*</u>	<u>n/atbd*</u>	<u>n/a</u>

* SCGSoCalGas has not developed a feasible way to manage tool lending. Continuing discussions with other Energy Efficiency program areas to identify potential opportunities.

A. Changes for 2013-2014 Statewide Program Coordination through IOU Energy Centers:

The IOUs will modify Centergies curriculum and delivery methods to incorporate feedback and guidance from sources, including the California WE&T Needs Assessment, customer feedback from the 2010-2012 Process Evaluation, and the Guidance Decision for 2013-2014. Such modifications include, but are not limited to, approaching curriculum development with the sector strategy approach.

1. Heating Ventilation and Air Conditioning (HVAC)

IOUs will incorporate and integrate HVAC education and training programs into its Workforce Education and Training Centergies sub-program to deliver a dedicated, industry-specific education and training opportunities targeted at all levels of the HVAC value chain. As part of this effort, IOUs will convene various stakeholders from, but not limited to, community colleges, trade organizations, professional organizations, employers, and apprenticeship/pre-apprenticeship programs including through the IOU-sponsored Western HVAC Performance Alliance stakeholder collaboration group, which has WE&T-specific committees already built into its structure. This will allow for identifying skill gaps and to identify opportunities for collaboration in a coordinated effort toward implementing recommendations needed to close gaps at all levels of the industry.

HVAC Sector Strategy Plan:

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In response to the Guidance Decision, the IOUs have begun work in 2012 to develop a plan as described below to expand their educational efforts toward more direct effect on trade organizations that have memberships involved with installation and maintenance of commercial HVAC systems. IOUs will test a non-residential HVAC sector strategy. A core component will be the development of a multi-stakeholder partnership to develop a full implementation plan to apply the CALCTP sector strategy approach to the HVAC non-residential industry. The IOUs will begin with Quality Maintenance to provide the foundation, and then included a Quality Installation sub-strategy. Cornerstones of the Quality Maintenance implementation plan include identifying priority emerging technologies for improving EE related non-residential HVAC systems, identifying the knowledge, skills and abilities (KSAs) professionals need to install and maintain systems efficiently and safely as well as the linkage of these KSAs to ANSI or ISO certifications, and, developing a steering committee.

IOUs will collaborate on a statewide memorandum of understanding (MOU) with the California Division of Apprenticeship Standards. The MOU will provide a framework for partnering with labor, trade, and professional organizations that resembles the existing CALCTP program. Such an MOU will help to reinforce cooperation in achieving goals of the sector strategy test of having certified training modules, performance based principles to test and diagnose the HVAC system, site information for the contractor to design and implement real solutions for customer comfort and efficiency, training that takes good HVAC technicians to the next level and gives them the tools to maximize efficiency, comfort and safety of customers in the construction of new systems, and real-time analysis to track and maintain data from completed projects by trained participants.

Because of early activities with sector strategies, IOUs will be applying recent lessons learned from their related efforts within Commercial EE to the HVAC sector strategy, as it develops.

IOUs will work with qualified partners to institute a test that will enable HVAC workforce member to attend various HVAC classes and receive credit towards industry-recognized certifications or other appropriate credentials. The IOUs will also contact and extend partnership opportunities designed to improve installation and maintenance quality of Commercial HVAC units.

The IOUs have initiated discussions to determine the parameters of an HVAC sector strategy, to be deployed in 2013. The IOUs have identified a core group from across lines of business, and externally, the IOUs have begun to discuss pilot concepts with the other IOUs and external stakeholders such as the Western HVAC Performance Alliance and the Division of Apprenticeship Standards.

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Based on best practices from CALCTP and PG&E's own commercial EE sector strategy, the IOUs recommend starting with a Needs Assessment to determine where gaps and opportunities exist, prior to determining the HVAC sector strategy's specific objectives and goals. The initial research and discussions have pointed PG&E towards developing a concrete project within HVAC non-residential Quality Maintenance (QM). This is due to various reasons, including the fact that advancing HVAC Quality Installation is often based on building a larger foundation of contractors and customers adopting QM and establishing associated relationships of trust. Additionally, PG&E believes QM forms a stable and focused basis for testing a sector strategy because it is based on a single consensus industry standard. Lastly, due to the fact that a sustainable QI program is not yet in market, any initial sector strategy test would ostensibly be premature.

With Quality Maintenance as a test, the IOUs intend to glean lessons learned from that approach, to be subsequently extended into the quality installation approach to the HVAC sector strategy.

The IOUs will endeavor to have skills standards for HVAC installations established by the end of 2013. The IOUs will continue to provide necessary training as a component of the quality installation and quality maintenance programs. The current design is geared toward providing the highest possible level of installation and maintenance expertise for contractors and technicians working within the HVAC subprograms. The IOUs will continue to use the basic foundations of Title 24 acceptance testing regulations and the consensus HVAC industry standards as the basis of requirements for this training. The IOUs will continue necessary training as a component of HVAC programs. These programs will continue to evolve as needed to meet program changes as they develop.
In order to estimate costs associated with requiring certification or sector strategy induced skills standards, the IOUs will collaborate starting in 2012 with the Commission's Energy Division through the HVAC EM&V Project Coordination Group (PCG) on the new, baseline research needed to best address questions regarding impacts or potential benefits, according to appropriate EM&V best practices.

2. Support for California Advanced Lighting Controls Training Program (CALCTP)

The IOUs will continue to partner with CALCTP to offer CALCTP trainings as part of their portfolio of classes to various sectors of the advanced lighting controls workforce, including electricians, contractors, business managers, installers, specifiers, marketing reps, and designers. Where appropriate, IOUs will serve as program advisors and instructors, and provide direct financial and

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in-kind support to help sustain the program. IOU contributions will augment funding and support from other stakeholders, including employers, unions, other training partners, and manufacturers. Where appropriate, IOUs will continue to provide letters of support to secure grants to help support CALCTP and will continue to serve on the CALCTP board of directors and advise CALCTP curriculum developers.

To assess mandatory or voluntary incentive-based approaches to promoting high-road skills standards as part of the HVAC sector strategy initiative or CALCTP training, IOUs will work with relevant resource program managers to identify opportunities to create or enhance incentive programs that are linked to the participation of members of the workforce who have specific qualifications and/or credentials. For example, IOUs will explore the opportunity to provide an additional incentive directly to the customer if the customer hires a CALCTP certified electrician, in order to help create demand for participation in IOU-supported training programs such as CALCTP. The same model can be applied to the HVAC industry as well as other sector strategy approaches. In response to the guidance decision (at p. 283), the IOUs provide the following information about the CALCTP program.

Request	CALCTP Information
<u>(1) Data or estimation of the incremental customer cost, if any, of requiring skill standards;</u>	<u>(1)When the program requires CALCTP certified installers, the cost to the customer for the labor component of the project may be 10% - 15% more than prior when no certification was required.</u>
<u>(2) Data or estimation of the average and range of permitting/compliance costs across permitting jurisdictions in the IOUs' service territories;</u>	<u>(2) Compliance and permitting cost are directly associated to the cost of proper training programs for designers, installers, manufacturers, etc. which may be equivalent to an additionally 20% to the project cost. However, proper collaboration with industry associations and manufacturers may offset this cost.</u>
<u>(3) Data or estimation of impacts, if any, mandatory skill standards would have on program participation rates;</u>	<u>(3) With proper incentive levels and education of the segment, it is anticipated that adoption/participation would increase since the misperceptions of advanced lighting control systems, potential for demand response and how DR or ADR works will be corrected causing more demand for the control solution.</u>
<u>(4) Data or estimation of impacts, if any,</u>	<u>(4) It has been proven with advanced</u>

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<p><u>mandatory skill standards would have on program participation rates;</u></p>	<p><u>lighting control system assessment projects at PG&E, SCE and SDG&E that the customer will achieve a minimum of an additional 30% savings over traditional lighting efficiency measures. And dependent upon the level of control allowed to individual employees, savings may increase an additional 5% - 10%. With the opportunity to participation in DR, the customer will achieve even greater cost savings due to the ability to shave or control peak loads. The actual dollar values will be determined as the program adoption occurs and customer site performance is monitored and data collected.</u></p>
<p><u>(5) Any other potential benefits associated with higher standards, such as fewer call-backs, lower frequency of customers over-riding control systems, lower life-cycle costs, and increased consumer uptake of measures based on higher quality and certainty.</u></p>	<p><u>(5) Additional benefits include: a. systems do not get overridden due to better understanding as well as the system being designed and installed. Also, ease of proper training of customer personnel regardless of turnover with the local certified installer; b. IOU assessments have shown that fewer, if any, call backs will be experienced when the system is installed by a certified installer. In contrast, numerous call backs were experienced before the system was able to be commissioned when a non-certified installer was used. c) increased proper maintenance, d) higher visibility of actual energy use in lighting due to the potential of graphic interfaces and other reporting. e) ability to track GHG emission reductions. f) create market disruption as customers begin talking to others about how well their advanced lighting control system is working and saving them money due to proper design and installation.</u></p>

3. Coordination with Energy Upgrade California's Whole Home Upgrade (EUC - WHUP)

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The IOUs will continue to develop and produce a core set of offerings in 2013-2014 that will be geared to providing interested contractors and technicians with the program knowledge necessary to provide entry, as well as support for their continued participation into WHUP.

To increase emphasis on workforce training for WHUP, the utilities will work with various “trade organizations” to share existing and future course offerings for their membership. The sharing of these courses is intended to expand the relevant knowledge base of partnering organizations, with regards to WHUP, and thereby improve the quality of energy efficient products installed throughout California.

PG&ESoCalGas will continue its current efforts to offer “continuing education credits” for organizations such as NATE, BPI, AIA, NARI, and other certification programs to be approved. PG&E is currently working with IHACI, SMACNA, National Association of Realtors, and others.

In consultation with local governments, the utilities will expand their training networks to include specific contractor and technician training. In addition, the utilities will work with local governments to identify geographic listings of contractors and technicians who will address community needs and comply with local codes and standards. In addition, the IOUs will conduct a gap assessment with local governments to identify additional needs not currently addressed.

PG&ESoCalGas will continue to work through our local government partnerships to ensure we have identified and marketed to contractors in areas served by those local jurisdictions, including multifamily programs.

- Coordination with Energy Savings Assistance Program (ESAP) Training and Certification

In 2012 the IOUs will engage with various Community Based Organizations, Local Training Facilities and Community Colleges to identify the most appropriate methods to partner with them to serve disadvantaged members of their communities. In 2013-2014, based on results of discussions with other relevant organizations, the IOUs will develop agreements to offer or share existing curricula with these partners to better serve their communities. These curricula will be designed to provide potential employment tracks within EE through entities such as trade organizations, IOU weatherization programs and weatherization programs offered through State agencies.

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PG&E's partnership with the Energy Savings Assistance Program has provided low income utility customers with a variety of energy efficiency improvements for their homes for over 30 years. Recently a connection between the ESA Program and the PG&E PowerPathway Training Network for Energy Efficiency and Renewables has developed the methodology to articulate a portion of ESA required training to our outside partners in the network. The result has been an opportunity for our PowerPathway partners to offer some of the training to local students (generally members of disadvantaged workers within their communities) and provide a gateway to future employment with contractors participating in the ESA Program.

The community colleges and the community based organizations that have partnered with PowerPathway have demonstrated that they can offer equivalent training for skills based training through their facilities which results in a reduced cost to contractors wishing to hire new assessors and installers for the program. The result of the articulation also reduces the initial cost of training for participating contractors (a key consideration in the hiring decision) making the individual more likely to be successful in their employment search. In addition, the contractors that have taken advantage of this symbiotic relationship have also found it has resulted in essentially these prescreened candidates are more likely to be long term employees of the program. PG&E expects that relationship will add stability of the workforce and provide a long term job opportunity for those students that wish such an opportunity.

- Real Estate Agent Training

In 2012 the IOUs will make an initial introduction of courses designed to stimulate interest within the Real Estate community to expand their knowledge of benefits of EE in resale of residential and commercial properties as well as provide continuing education opportunities through partnership with various local, state and national oversight entities. Consultations in 2012 with relevant stakeholders are planned to continue into 2013-2014, so that ongoing feedback can lead to continuous improvement of these efforts. In 2013-2014 these offerings will be restructured, if necessary, and expanded to meet increased needs of these groups.

The utilities in 2012 will make initial entries into partnerships with various real estate groups within their territories in an attempt to gauge possible obstacles to WHUP trainings to enhance knowledge of EE by their memberships. In addition, the first forays into workshop offerings will be targeted at areas likely to be receptive to the sessions. In 2013-2014 the partnerships and offerings will be increased to provide a better

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understanding of the value of WHUP in real estate transactions. Consultations in 2012 with relevant stakeholders are planned to continue into 2013-2014, so that ongoing feedback can lead to continuous improvement of these efforts.

PG&E has partnered with California's real estate community with the delivery of two classes where students learn the science behind home performance and energy efficiency measures, how to determine their value, and how to finance and promote these measures in homes. PG&E collaborated with local realtor and appraiser professional associations in hosting and promoting these classes. A local EUCWHUPWHHPP representative gives a short presentation on the program. The "Green Homes: Valuation Expertise for Appraisers and Realtors" class has been approved for continuing education units (CEUs) from OREA (state Office of Real Estate Appraisers) and DRE (Department of Real Estate).

4. Additional information Required in Guidance Decision

• Serving Low Income and Disadvantaged Communities

IOUs will build partnerships with community-based organizations to offer on-location joint utility workshops in disadvantaged communities. These workshops will promote IOU low income programs, training, and certification opportunities at IOU Energy Centers and community-based organization locations. IOUs will explore providing presentations and materials in languages other than English, as appropriate to each community and partnership, to overcome any barriers of communication to customers in the disadvantaged communities. Please see additional information regarding efforts to serve low income and disadvantaged communities in Attachment 1 to this addendum.

• Other Program Coordination

WE&T will work with the Continuous Energy Improvement Program to introduce the CEI process, lessons learned, and case study input to community colleges and universities. CEI has a goal of integrating into energy engineering curriculum. IOUs will also work with CEI to assess and determine specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges. IOUs will also continue with WE&T coordination and cost sharing to bridge-transition the linkages and integrate sector strategy approaches.

PG&ESCGSoCalGas has begun implementing a sector strategy to accelerate the development of the Commercial demand-side management

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workforce needed by PG&E, the other IOUs and larger EE industry. This implementation is the result of statewide research and cross-stakeholder collaboration, with a focus on deepening partnerships between education and industry. Core programs have already been developed to link WE&T to energy goals. Moving forward, PG&ESCGSoCalGas will be refining those programs, developing new programs and building an overall project plan for deliverables in 2012 as well as in 2013 and beyond. This strategy has already begun to provide key lessons for application towards similar strategies within other priority sectors.

In 2013-2014, WE&T will work with the Benchmarking and IDSM Programs in similar manner as proposed for the Continuous Energy Improvement Program to introduce the processes, lessons, and case studies curriculum to working energy management professionals, industry professionals, IOUs will consider a sector strategies approach in furthering development of these collaborative effort.

- Safety Related Training

The IOUs currently conduct Natural Gas Appliance Testing (NGAT) training where appropriate, and in particular when working with providers of low income weatherization programs. No lead or asbestos abatement certification is currently required as part of IOUs' low income weatherization training programs, only identification of potential conditions, because licensed contractors are expected to obtain such training as required.

PG&ESCGSoCalGas through many of its contractor training programs currently provides training and consulting services for the appropriate combustion safety protocols (Natural Gas Appliance Testing (NGAT) or LIHEAP Combustion Appliance Safety (CAS) protocols for the Low Income Energy Efficiency-Energy Savings Assistance Program's weatherization programs, and augmented Building Performance Institute (BPI) protocols for Energy Upgrade California-Whole Home Upgrade Program non-low income weatherization programs. Although EPA RRP (Renovation, Repair and Painting Rule) certification is not provided as a part of PG&E's utility low income residential weatherization training curricula, all participating contractors are required to be EPA RRP certified.

- Attachments to Addendum in Response to Guidance Decision

Attached to this addendum in Attachment 2 is SCGSoCalGas's list of courses and programs planned for 2013-2014, using the template provided

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in the Guidance Decision (Appendix C). Course offerings may be modified, based on market training demands and input from industry stakeholders. Per WE&T's Joint Advice Letter²⁰, IOUs will redesign and structure select courses offered in 2013-2014 such that they become part of a series.

Local Energy Center Program Changes for PG&E Only:

Zero Net Energy

— For 2013-2014, PG&E will transition its Zero Net Energy (ZNE) Pilot Program education and training efforts into its Workforce Education and Training Centergies sub-program. The Centergies team will partner with the ZNE team to deliver:

- At least 25 public educational workshops on key ZNE topics, with a focus on two integrated workshops series that have been developed on the design of residential ZNE and non residential ZNE buildings, respectively.
- “Train the trainer” workshops on ZNE design that will enable information about ZNE and relevant design strategies and technologies to reach a wider audience within the building design community more quickly.
- Development of online education module, focusing on the design of ZNE communities and buildings and/or case studies of recently completed ZNE projects.
- Two stakeholder forums, one each year. These forums bring together key ZNE players and stakeholders for presentations and discussion of major ZNE-related subjects. These forums encourage and support interaction between stakeholders such as utility staff, policymakers, developers, builders, architects, engineers, state and local governments, and the business community.

ZNE will continue to maintain and update the ZNE program website with relevant events and information. The website will host completed technology studies, case studies, and links to online education modules on ZNE design.

²⁰ SDG&E 2260-E-B/2041-G-B, SCGSOCALGAS 4249-B, SCE 2588-E-B, and PG&E 3212-G-B/3852-E-B

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Statewide Building Operator Certification (BOC) Training Partnership

In addition to IOU coordination of Energy Center activities, the IOUs will continue to offer Building Operator Certification training to the commercial building workforce in their territories.

Statewide Building Operator Certification (BOC) Training Partnership

Building operators are a sector of California's green collar workforce that will continue to play a major role in improving and maintaining California's energy efficient building stock.

Buildings at all scales—small commercial to high-rise commercial and universities—that are designed to operate at a high level of energy efficiency and comfort often fall short of design expectations for many reasons, including unexpected occupancy or use patterns, malfunctioning controls, incorrect installation, and equipment that falls out of calibration over time. Building operators and facility managers play major roles in ensuring buildings are performing at the level of efficiency and comfort they were designed to perform.

Building Operator Certification (BOC®) is a national program providing education and accreditation in the field of energy efficiency of commercial and institutional buildings. BOC has been recognized by the American Council for an Energy Efficient Economy (ACEEE) as one of the country's "Exemplary Programs." With more than 6,000 facility professionals earning the credential, BOC is widely recognized by key employers as a means to distinguish skill proficiency for energy management in buildings.

As an active national training program, BOC is well positioned to provide training for workers looking to establish or enhance their building energy efficiency skill sets as well as those who may need foundational building and energy efficiency training as an entry point to a growing clean energy career path. BOC's target workforce audience includes building engineers, stationary engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians, electricians, operations supervisors, operations technicians, and others in the facility operation and maintenance field.

The BOC curriculum supports a credential at two levels. The Level I certification provides a strong grounding in commercial building systems, the key energy using equipment within the building, and how improved energy management technology and practices can reduce operating costs, improve comfort and productivity, and reduce the building's carbon footprint. The Level II certification builds on the Level I competencies with additional technical specificity in key building energy use areas such as HVAC, controls, and electrical equipment. In total, the BOC curriculum offers a comprehensive 130 hours of training. A list of class topics for Level I and II are provided in the [Appendix Attachment 2](#).

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BOC Beyond the Classroom

BOC offers a classroom training component supplemented by both an exam process for credentialing and a practicum component. Participants utilize a set of project assignments which help ensure that energy management principles are well understood and can be actively applied in buildings. The program has had numerous third party evaluations over the past 10 years and has been rated very positively by participants and their employers. These evaluations have consistently reported significant energy savings for employers who utilize credentialed BOC employees. Utilities across the country are supporting BOC and many utilize the core training program as a means for professional development of their internal staff.

Employers and BOC

BOC is being used by employers across the country for their energy management training needs. Public agencies, private employers, property managers, schools, universities, and healthcare institutions are all active BOC participants. Many companies and public institutions use BOC as a component of their professional development track for their employees. Examples of employers using BOC include California State University System, Irvine Company, Providence Health System, Raytheon, State Farm Insurance, and Washington State General Administration.

IOUs and BOC

The IOUs have been collaborating with BOC to offer California building operators competency-based training and certification, resulting in improved job skills and more comfortable, efficient facilities. Through a coordinated effort, the four California IOUs offer BOC training to their commercial and institutional customers. The statewide program combines classroom training, exams and in-facility project assignments to train and certify building engineers and O&M technicians in the practice of energy efficient building operation and maintenance. NEEC has implemented the program for the IOUs since 2002.

The IOUs will work with BOC to shape and realign the BOC certification program to be consistent with the California Long Term Energy Efficiency Strategy Plan (Strategic Plan) [as well as other guiding documents, including the California WE&T Needs assessment and the Guidance Decision](#). Changes to the BOC curriculum and program will include:

- Following up with program participants to assess content implementation into existing facilities;
- Expanding the number of and improving the dissemination of case studies of model energy efficiency projects conducted by program participants in combination with other demand side management (ex: onsite generation and demand response) improvements when applicable;

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- Incorporating BOC materials and findings into broader IOU Centers' curriculum and vice-versa;
- Better integration between BOC and other utility and utility-sponsored integrated EE, DR, and distributed generation programs;
- Better integration between BOC and other utility-sponsored energy efficiency education and other demand side management programs, including the BOMA Energy Efficiency Program (BEEP);
- Continuous updating of curriculum materials to include information about monitoring and operating zero-net energy buildings;
- Emphasizing diagnostic and troubleshooting strategies in BOC curriculum and including materials of the use of measurement equipment; and
- Developing an annual awards program for BOC program participants annual awards program to recognize graduates for their energy efficiency building operations implementation efforts, including improved building performance from measured energy savings, documented improvement in occupant satisfaction/comfort, or document tenant complaints.
- Per feedback received from the 2010-2012 Process Evaluation via Opinion Dynamics, offering the BOC four-part webinar series as a cost-effective way to address a growing demand for web-based learning, increasingly limited budgets among building operations staff, and for continuing education credits for maintaining certification.
- As resources allow, working with local workforce investment boards (WIBs) to develop specific programs to offer BOC trainings to experienced, but displaced building operators at a significant discount. Such programs will also include opportunities to implement course material into actual buildings as well as development of "soft skills," including resume writing and interview techniques.

Local BOC Program Variations among IOUs:

IOUs will implement the BOC program statewide as described above throughout their territories.

2013-2014 BOC Course and 4-Part Technical Webinar Series Targets

	2013			2014		
	<u>Level 1</u>	<u>Level 2</u>	<u>Webinar</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Webinar</u>
<u>SCE</u>	<u>4</u>	<u>2</u>	<u>0</u>	<u>4</u>	<u>2</u>	<u>0</u>
<u>PG&E</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>4</u>	<u>2</u>	<u>2</u>
<u>SoCalGasSoCalGas</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>
<u>SDG&E</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

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iii. Incentive levels

Not applicable.

iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms

~~Each of the Energy Centers will develop and distribute two (2) course calendars per year to potential attendees, including mid- and upstream target groups and past participants. The ETC's course calendars will be mailed using a database of more than 60,000 names. For the PEC, distribution will be made to 45,000 potential attendees.~~ Over the years, the Energy Centers have identified and cataloged these individuals as having the greatest capability of exerting significant influence on the energy efficiency decisions of customers based on the multiplier effect. Energy Centers will continue to expand their marketing efforts by incorporating innovative and creative approaches to reach new target audiences including industry and labor partners, colleges and universities, local governments, and third party partnerships, and will continue to cross-market their courses through its established relationships with various professional organizations. Energy Centers have and will continue to rely on email promotions to people in their combined database of potential students. The Centers will continually update their database to ensure accuracy and targeted marketing for seminars.

Training sessions and workshops will be marketed through ~~PG&E's Energy Centers' combined education and~~ [SCGSoCalGas's Internet Event Business Management System \(IEBMS\)](#) training website ([www.socalgasSoCalGas.com/erc](#)), the ~~Energy Upgrade California-Whole Home Upgrade Program web site~~ [Flex Your Power e-newsire publication](#), professional organizations' websites, HVAC distributors and vendors, California Community Colleges, energy fairs, trade shows, and energy efficiency / environmental events designed to increase awareness of the [ETC Energy Centers](#) and ~~its their~~ education programs to prospective participants. ~~In addition, other programs in PG&E's portfolio will support the activities of the ETC by recommending classes and services and collaborating to develop new courses targeted to their individual needs.~~

Over the past several years, the Energy Centers have worked with labor and industry to qualify many of their courses for accreditation. Through these outreach efforts, the ~~ETC has~~ [Energy Centers have](#) been able to certify many of its ~~residential classes~~ for continuing education credits from the following organizations: Build It Green (BIG), North American Technical Excellence (NATE), American Institute of Architects (AIA), National council for the Qualification of Lighting Professionals (NCQLP), and the National Association of the Remodeling Industry (NARI). The U.S. Green Building Council (USGBC)

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will soon begin a continuing education program for its LEED™ Accredited Professionals to maintain their accreditation, thus providing another target audience for the Energy Centers' courses. ~~Both the ETC and PEC~~[The Energy Centers](#) will continue to reach out to these and other industry groups and labor organizations, and will expand their marketing to vocational training institutions and programs which serve low-income, disadvantaged communities.

The Energy Centers will leverage their long-standing partnerships with the California Community Colleges, UC/CSU system, State of California Community Services Department, USDOE Industrial Technology Program, the Building Operator Certification (BOC), and the California Energy Commission Industrial and Agricultural Programs during ~~2010-2012~~[2013-2014](#) as part of its overall marketing and outreach efforts to attract and train the next generation of the green collar workforce. In addition, the ~~ETC~~[Energy Centers](#) will partner with the ~~Energy Savings Assistance Program~~[Low Income Energy Efficiency \(LIEEESA\)](#) to improve, expand, and extend training offerings to disadvantaged communities. The ~~ETC~~[Energy Centers](#) will also coordinate with the ~~LIEE~~[ESA](#) Program to enhance recruitment of low-income workers.

FSTC works directly with ~~SCE and the CTAC and FSEC (SCG)SCGS~~[SoCalGas](#) on coordinating the seminars and events relating to food service. ~~FSTC~~[The statewide food service energy center team](#) provides the technical support for the statewide ~~Kitchen~~[Energy Wise Food Service](#) Equipment rebate programs and for target market incentives for food service. The target audience for FSTC ~~and the~~[statewide energy center](#) activities is to a significant extent; corporate or franchise customers whose decision makers are located outside of PG&E's service territory or, more likely, outside of California. FSTC maintains close communication with the other IOUs ~~and the food service energy center teams~~ in order to provide coordination of programs or information aimed at these customers.

- v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

Carbon neutrality – ~~ETC~~[Energy Centers](#) will support AB32 compliance by incorporating waste and greenhouse gas (GHG) emissions reduction information into all appropriate training courses. ~~ETC~~[Energy Centers](#) will prioritize its training and DSM efforts based on the carbon content of sources used to meet building energy loads and by challenging people to eliminate carbon consumption. Technical expertise, educational programs and support for the Big Bold Zero Energy New Home goal and California's vision of achieving zero net energy residential buildings by 2020 and commercial buildings by 2030, will also be made, as well as training on methods needed to achieve deep energy savings retrofits for existing homes.

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Codes and Standards – The Energy Centers will continue their long-standing partnership with the Codes and Standards team and the California Energy Commission (CEC) to offer training on the latest updates to the Title 24 Energy Standard through improved code compliance and design / installation methods for exceeding code requirements in residential new construction and HVAC retrofits.

FSTC [and the statewide food service energy center team](#) provides technical support to staff of the CEC as Title 20 appliance regulations are developed for commercial food service equipment. Efficiency regulations for commercial kitchen equipment tend to go hand-in-hand with the voluntary ENERGY STAR program. The ENERGY STAR database and criteria are used to qualify (through testing and labeling) the top quartile of equipment efficiency while CEC seeks to through regulation the bottom quartile of equipment on the same list.

FSTC works with the Bay Area Air Quality Management District (based in San Francisco) directly or through ASHRAE on projects and technologies aimed at efficiently reducing food service effluents. For the major equipment categories and candidates for national energy and water savings, the FSTC [and the statewide food service energy center team](#) will provide technical support to establish efficiency criteria for EPA’s ENERGY STAR program. On an appliance-by-appliance basis, FSTC [and the statewide food service energy center team](#) will work with EPA and leading manufacturers to implement ENERGY STAR for commercial food service equipment and to support the Federal Energy Management Program (FEMP) interagency program on energy-efficient federal purchasing.

FSTC [and the statewide food service energy center team](#) will continue to work with the LEED “Working Group” to finalize the list of recommended prescriptive measures and baselines for energy modeling of commercial food service facilities. This group provides insight and submits formal CIRs on EA Credit 1 to the Retail Core Committee to help mature the language to yield a clear guideline for all types of retailers, including restaurants.

vi. Similar IOU and POU programs

The food service (FS) programs offered by the three IOUs are coordinated through two levels, first at the FS program level through interactions between FSTC (PG&E), FSEC (~~SempraSoCal Gas~~[SCGSoCalGas](#)), and the [Energy Innovations Center \(SDG&E\)](#) and ~~CTAC (SCE) Food Service~~ to develop program offerings, schedule combined outreach programs, and develop support programs such as Rebate Workpapers. Second, the FS programs are coordinated at the Energy Center level through the statewide Energy Center coordinating committee. The Food Service Coordination deals with the scheduling and logistics of cooperative events such as seminars and supporting outreach materials, workshops, Executive Planning Committee meetings, outreach events such as

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trade shows, joint energy efficiency program advertisements, and trade articles and general promotion of both the seminar and rebate programs.

b) Program delivery and coordination

~~PG&E's Energy Centers have been national leaders in the field of energy efficiency workforce education, training and technical advice for a combined total of almost 50-80 years. Over this time, both Energy Centers have received numerous local, Bay Area, state and national awards and recognition for their training programs. Between 2013-2014~~2010-2012, the Energy Centers will work closely with all programs to coordinate and conduct seminars and workshops that address the knowledge and skill gaps of builders, developers, contractors, designers, installers, plant engineers and operators, agricultural owners and managers, and city and county building department staffs. Additional services will include technical assistance and support, consultations and tool loans.

i. Emerging Technologies program

The Energy Centers will continue to coordinate and collaborate with the Emerging Technologies program to introduce new equipment, installation practices, and whole building concepts to key market actors. Such support helps expand implementation of new energy efficiency products and services. For example, Energy Centers partner with Emerging Technology projects by: developing demonstration and testing facilities, jointly developing curricula, organizing product showcases, and incorporating new products into training sessions.

~~The ETC and PEC will do more to support California's vision of achieving zero net energy residential buildings by 2020 and commercial buildings by 2030 through the Big Bold Zero Energy Home Program and California Solar Initiative (CSI) by creating a focused training curriculum and resource support center. In addition, the ETC and PEC~~ERC will collaborate with the Emerging Technologies (ET) program to coordinate training programs for training the trainer and training programs with information about technologies on the horizon for introduction to the marketplace. ET will also play a significant role in advising the PEC on fixed and portable displays and exhibits for its interactive lighting classroom. ~~The FSTC works directly with ET programs on issues and technologies of mutual interest. Specifically, FSTC has worked to bring ventilation controls and water heaters to market, using ET funding where appropriate. FSTC's work in Standard Test Methods development and lab and field testing provides the technical basis for much new technology. FSTC also uses its PIER research opportunities to further support the ET efforts.~~

In 2013-2014, Business Incubation Support or Technology Resource Incubator Outreach (TRIO) will focused on providing training and networking for developers of energy saving technologies

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[The IOUs will coordinate efforts with the eCodes and sStandards program and with the California Energy Commission to identify critical early planning workforce training needs for advanced technologies.](#)

[IOUs will collaborate with their respective Emerging Technologies groups, the statewide Emerging Technologies Coordinating Council, State agencies, and IOU codes and standards groups to identify and deliver on opportunities for teaching targeted parts of the workforce about emerging technology products as they relate to energy savings opportunities through energy efficiency and demand response. WE&T programs will also include content on proper installation and commissioning of ET products/systems.](#)

ii. Codes and Standards Program

The Centers will collaborate through their educational seminars with compliance improvement efforts planned by the Codes and Standards (C&S) Program. Typically, these efforts will focus on training of building department staff. Centers will focus on building standards training for architect, engineers, energy consultants, home performance contractors, home energy raters, and green building programs.

The Energy Centers will directly impact improved compliance with Title 24 energy standards through rigorous updates that go beyond new construction to include revolutionary impacts on the existing housing market. The ETC and PEC will work with HVAC contractors and building department officials to overcome information and training barriers to code compliance and enforcement. Since 1998, the Energy Centers have proactively offered training on Title 24 code updates and changes to residential / small commercial building standards. The ETC and PEC will continue to go “beyond code” by providing state-of-the-art, building science-based information about the best available systems, technologies and techniques for minimizing building and operational energy consumption while optimizing whole building or system performance and occupant satisfaction or enhanced productivity. Additionally, the FSTC [and the statewide food service energy center team](#) provides technical support to C&S staff for Title 20 appliance and Title 24 building regulations as relating to commercial food service equipment, operations and facilities.

[In collaboration with WE&T, C&S will enhance support for the appropriate market actor roles responsible for new and emerging codes and standards implementation according to priorities established by needs assessments. C&S will collaborate with the WE&T Centergies sub-program to not only prepare contractors and technicians to implement current codes, but to also prepare them with technical training on advanced technologies that are projected to become part of reach codes and then the statewide code.](#)

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In support of the Zero Net Energy goals, C&S will continue to build on existing training offerings and will expand activities to coordinate more closely with WE&T. In collaboration with WE&T, C&S will develop a sector strategy to support workforce development in an area with low compliance, for example, the Commercial Air Conditioning Quality Maintenance and Installation Program. C&S will maintain ongoing communications with WE&T staff to ensure coordinated development and inclusion of code-related content

WE&T programs will offer market actor-specific training on Codes and Standards to address ongoing code changes and code compliance.

iii. WE&T efforts

Energy Centers

The Centers will collaborate and coordinate where possible to be in alignment with California's Strategic Plan. Statewide collaboration among Centers will increase sub-program consistency and information/cost sharing for what the Centers offer to their customers (seminars, tool lending library development assistance, portable exhibits).

BOC Program

In alignment with the goals of the Strategic Plan, BOC's curricula incorporate relevant information about the Emerging Technologies, Codes and Standards, and HVAC Quality Installers/Quality Maintenance programs. As appropriate, BOC instructors will enhance the depth of the learning experience by discussing new technologies and ways to meet and exceed the state's code and standards.

Through its two levels of training and certification, BOC offers supplemental training in existing technical positions by providing knowledge and skill building for technician-level facilities personnel including building engineers, stationary engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians, electricians, general repairers, and head custodians.

BOC has been recognized by several industry and labor organizations as one of value to its members. This recognition reflects the program's efforts to meet the needs of these organizations through solid, industry relevant curricula development. Among the organizations recognizing BOC's training program are the International Facility Management Association (IFMA), the Building Owners and Managers Institute (BOMI), the National School Plant Management Association (NSPMA), local chapters of the society of healthcare engineering, and the California State Employees Trades Council (SETC). NEEC also partners with California statewide partnerships including the UC/CSU/IOU Partnership and other Local Government Partnerships (e.g. Association of Monterey Bay Area Governments).

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- iv. Program-specific marketing and outreach efforts (Budget provided in Table 1)

Energy Centers

Each of the Centers will distribute their own print calendars to a more focused target audience to ensure notifications of Centers' offerings reach key actors. Innovative and creative approaches will be applied to attract and retain new customers and market actors to the Centers. This will include aligning the Centers' activities with corporate and statewide direction. Centers will contribute content to the Statewide Web portal described above and below. Classes and other Center activities will be promoted through the following venues: the Centers' print calendars, collaboration with professional and trade organizations, Center's Web sites, Centers' email communications with students who have opted in to receiving email notifications, and other partnerships, including non-profit organizations and existing academic channels (community colleges, UC/CSU).

Centers will continue to promote and collaborate on marketing efforts with established and new partnerships involving other utility segments, across utilities, and with government, academic, research, professional/trade, and non-profit organizations focused on efforts supporting the Strategic Plan.

BOC Program

Northwest Energy Efficiency Council (NEEC) works closely with the IOUs to promote Building Operator Certification (BOC) seminars. IOU-sponsored BOC classes shall be mentioned in Energy Centers' calendars and email-marketing campaigns targeting commercial and institutional customers. NEEC will also target potential participants with direct marketing materials including informational brochures, case studies and bi-annual bulletins. The program's website also serves as a promotional channel. In ~~2013-2014~~2010-2012, BOC will undertake promotional activities that build on customer interest in national initiatives such as the ENERGY STAR® Challenge and LEED for Existing Buildings. It will also work with large employers to organize closed-enrollment sessions for facilities engineering departments at a single site. Where the IOUs offer the Building Owners and Managers Association (BOMA) Energy Efficiency Program seminars, BOC shall be cross-marketed.

BOC will continue to promote training and certification through its highly successful educational partnerships with professional associations representing the facilities engineers. These include the International Facility Management Association (IFMA), Building Owners and Managers Association (BOMA), Association of Physical Plant Administrators (APPA - higher education), National School Plant Management Association, and the American Society Healthcare Engineering (ASHE). BOC will participate in the annual events and program meetings of these associations to share information about opportunities to reduce

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operating costs through energy efficient building operations.

v. Non-energy activities of program

The Centers and BOC shall remain focused on delivering content centered around integrated DSM programs, including EE, DR and distributed generation. The Centers have and will continue to explore other program topics that do not have direct energy connections, but that do contribute to improving California's building stock. Such topics include indoor air quality, occupant comfort, recycling, and environmental stewardship and preservation. The LEED™ Green Building Rating System provides an outline for other topics that can help inform Centers' program managers and instructors about other resource types.

The Energy Centers provide low-cost centralized meeting space for the benefit of program implementers. Volume of activity for non-energy program participants ~~at the ETC and PEC~~ lowers the average cost of energy efficiency training due to volume discounts. Non-energy participants are not subsidized by this program. FSTC supports water conservation through its work on hot water heating and use in FS, hot water systems research, testing and rating of water using cooking and refrigeration equipment. Air Quality work is being coordinated with Air Quality Districts on reduction of kitchen effluents.

vi. Non-IOU Programs

IOU program will interact with CEC, ARB, Air Quality Management Districts, local government programs and other government programs as applicable. The Centers will interact with the CEC to develop and deliver training to support improved compliance with building and appliance standards. Compliance with retrofit HVAC requirements is a key strategy in the Big Bold Initiative that will rely on collaborative training efforts.

The Sacramento Municipal Utilities District (SMUD) operates its Energy Technology Center (ETC) that provides similar functions as the IOU's Centers. The IOUs will reach out to SMUD to collaborate on WE&T elements. The IOUs are active partners with Community Colleges to support and embellish green career technical education. ~~For example, PG&E is working with Laney College to develop and deliver an "Energy Efficiency and HVAC Symposium" targeting career and technical education programs in the Community Colleges.~~ This collaboration will provide professional development for instructors to aid in adjustments to curricula to support green job training. Such an endeavor may set the stage for expanded collaboration to support instructors and develop additional programs. ~~A second example includes active participation in the California Advanced Lighting Controls Training Program (CALCTP) currently underway with several institutions, including Pacific Gas and Electric Company, Southern California Edison, and California Lighting Technology Center. CALCTP aims to~~

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deliver a “train the trainer” series of classes to industry groups such as electrical unions and trade organizations.

The ETC has conducted weatherization related training for the State Department of Community Services Development in partnership for the last 30 years. In fact, the ETC was originally designed as a hands on weatherization training center for State programs. In conjunction with other EPC efforts, BOC has and will continue to support CEC adoption of minimum energy efficiency standards.

Additionally, the FSTC works with or provides support to the following programs:

National Restaurant Association (NRA): The FSTC has maintained a working relationship with the NRA since its inception in 1987. In fact, the NRA co funded the build out of the FSTC and provided cofounding on several occasions over the past two decades. The FSTC is currently recognized as a [technical] partner in NRA’s new Conserve Initiative that is featuring energy efficient and green restaurant design and operation. (<http://conserve.restaurant.org/>)

Multi Unit Architects, Engineers and Construction Officers (MAECO): MAECO is a study group of the NRA that the FSTC has supported for two decades, attending meetings and presenting the results of our research into restaurant efficiency.

California Restaurant Association (CRA): In parallel with the NRA, the FSTC has worked with the California Restaurant Association, providing energy efficiency education in publications and equipment shows. The FSTC authored a series for the CRA bulletin titled the Green Sheets since 2003. (<http://www.fishnick.com/saveenergy/greensheets/>)

Thimmakka—Ethnic “Green” Business Program: FSTC served as a technical resource, helping develop low cost / no cost energy savings solutions for small and ethnic restaurant operators in the greater bay area. (<http://www.thimmakka.org/>)

Bay Area Green Business Program: FSTC served as technical resource, helping to develop energy assessment checklist for green business certification program. (<http://www.greenbiz.ca.gov/>)

Green Café Network (Small restaurant “Green” business program): FSTC served as technical resource, helping develop low cost / no cost energy savings solutions for small restaurant operators in SF. (<http://www.greencafenetwork.org/>)

California Urban Water Conservation Council (CUWCC): The FSTC has been a primary resource to the CUWCC and members such as EBMUD and Metropolitan Water as they developed educational and incentive programs for commercial foodservice in California. (<http://www.euwcc.org/>)

Foodservice Consultants Society International (FCSI): The FSTC has maintained a working relationship with this professional association for many years. More recently, we have been very active in its outreach initiatives, specifically the Super Regional education program. (<http://www.fcsi.org/>)

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~~North American Food Equipment Manufacturers (NAFEM): NAFEM has been a long supporter of the FSTC, tapping our technical resources for its educational initiatives. We have also been involved in developing the On-Line Kitchen Protocol and the new Life Cycle Cost Models. The FSTC is a member of NAFEM's Technical Liaison Committee. (<http://www.nafem.org/>)~~

~~ASHRAE: The FSTC has been an active participant in ASHRAE program, research and standards activities. Technical committee work is currently focused on commercial kitchen ventilation, refrigeration and water heating. ASHRAE is one of the FSTC's key channels to the engineering and large facility design communities.~~

~~ASTM: ASTM is the standards organization that ratifies and publishes all of the standard test methods developed by the FSTC. To date, the foodservice test method portfolio includes more than 35 test methods.~~

~~International Mechanical Code (IMC): FSTC submits code change proposals with respect to commercial kitchen ventilation. Over the past few years, we have been successful in over 20 code proposals.~~

- vii. CEC work on [PIER Electric Program Investment California \(EPIC\)](#)

~~Refer to IOU's Centers' PIPs for details at the local Center level. Not Applicable~~
~~The PEC will collaborate with Lawrence Berkeley National Laboratory, the National Institute of Standards and Testing, and consulting firms on a CEC PIER project to support the development of the Universal Translator (UT). The UT is a software tool that supports building operators and engineers to document building energy performance and energy efficiency project planning. The UT is an extension of the PEC's tool-lending library described in Section 4.i.~~

~~FSTC works closely with the CEC PIER program on such issues as Commercial Kitchen Ventilation, hot water heating and distribution, and advanced kitchen appliances. FSTC works as a research contractor for PIER in conjunction with PG&E's CEE and ATS departments on Kitchen Gas and Electric use and hot water research.~~

- viii. CEC work on codes and standards

~~The Centers will work with the CEC and the IOU C&S programs to improve code compliance through coordinated education and training delivery. For more details on these integration efforts, refer to the HVAC WE&T PIP. The ETC provides expert consultation and advice for building standards development as well as advocacy support in collaboration with the Codes and Standards Program.~~

- ix. Non-utility market initiatives

~~The Energy Centers collaborate with certification and training initiatives by the following organizations: North American Technician Excellence (NATE), Affordable Comfort, Inc. (ACI), Building Performance Institute (BPI), National~~

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Association of the Remodeling Industry (NARI), American Institute of Architects (AIA), BuildItGreen (BIG), and Home Energy Rating System (HERS) Providers [California Building Performance Contractors Association (CBPCA), U.S. Green Building Council (USGBC), American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE), California Home Energy Efficiency Rating System(CHEERS) and CALCerts].

FSTC [and the statewide food service energy center team](#) utilizes ~~its~~[their](#) relationships with ENERGY STAR and various restaurant and food service industry organizations to promote their programs and leverage these relationships to pursue ~~PG&E's~~ efficiency objectives. (Refer to Section 6.2.b.v. above.)

c) Best Practices

Centers will develop classes, displays, and materials with current information that highlights and demonstrates best practices for efficient installation and equipment through field-experience and case studies from existing programs, including Savings by Design and Energy Design Resources. Centers' offerings will emphasize whole building and system performance in conjunction with design intent. Implementation of hands-on learning methods that are applied in the field creates an opportunity for partnering with EM&V and/or 3rd party evaluators to follow up with course participants to assess impact upon practice and/or energy savings. A description of this pilot program appears in Section 6.1-g below. The Centers will continue to implement best practice methods as prescribed in prior statewide evaluation reports, including "Evaluation of the 2003 Statewide Education and Training Services Program" by Wirtshafter Associates, Inc., 2005 and "2004-2005 Statewide Education, Training and Services Program Evaluation" by KEMA, 2007.

Many of the training programs conducted through the Energy Centers incorporate adult learning theory by utilizing a "hands-on" approach that enables students to visualize and experience the impact proper system design, installation and maintenance can have on operation and energy efficiency. ~~For example, the ETC's functional HVAC training unit, a "best practice" implemented by the ETC in 2005, provides participants an opportunity to see first hand how proper charging, duct sealing and other actions made to HVAC systems impact their energy use and the ETC's training house provides students with the ability to see and touch quality insulation installation, high efficiency lighting exhibits, weatherization techniques and more.~~

~~The PEC's lighting classroom allows students to experience both poor and good quality lighting. Participants in the Energy Audits class use tools from the Tool Lending Library and the PEC to learn ways of measuring building performance; the overcast sky simulator and Heliodon allow class participants to test physical models of buildings for daylighting and shading performance; and interactive energy modeling software classes provide students the opportunity to learn effective use of the software in a group setting with an instructor.~~

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Throughout the ~~2013-2014~~~~2010-2012~~ ~~cycle~~~~bridge~~~~transition~~ ~~period~~, the ~~ETC and PEC~~ ~~Energy Centers~~ will develop additional training props and equipment for use in many of the courses offered to enhance learning and provide real-world experience in the classroom. In addition, both Energy Centers will expand their courses to include more “Train the Trainer” classes to expand the reach of their training efforts and materials. ~~See Section 6.1.g.iii for more information on “Train the Trainer” activities.~~

FSTC, through its research, testing, and constant customer contact continually updates its technology and operational practices knowledge base. The Best Practice partner Program is a manifestation of this constant improvement.

The ETC also interacts with Affordable Comfort, Inc., in a leadership, planning and strategic mode to audition and recruit the best talent and state-of-the-art topics for delivery in California, capitalizing on long-term relationships that gain access to best practice providers.

BOC teaches commercial and institutional facility staff how to operate and maintain building systems for energy efficiency, optimal performance, and occupant comfort. BOC combines classroom training, exams, and in-facility project assignments to train and certify building engineers and operations and maintenance technicians in the practice of energy-efficient building operation and maintenance. The curriculum was developed to provide knowledge and skill building for technician-level facility personnel including HVAC technicians, electricians, general repairers, and head custodians. BOC curriculum is taught by practicing professionals who implement best practice building operations strategies toward improving building energy efficiency. The curriculum is updated on a regular basis. Trained instructors share best practices with one another as BOC curriculum is updated on an annual basis.

d) Innovation

In ~~2013-2014~~~~2010-2012~~, the IOU Energy Education and Testing Centers will undertake three pilot projects that will serve to shape programs for future filings. These pilot projects are discussed in Section 6.1-g below. The Centers will also continue to keep their Centers and offerings up-to-date with current and upcoming technologies.

- *Increased use of the Internet to deliver education and training programs as real-time simulcasts, real-time Webinars, and archived on-demand classes:* While these applications have been implemented by some Centers in the past, all Centers will implement and progress this delivery method further to reach a wider audience and to increase program cost-effectiveness.
- *Expanded curriculum to support California Energy Efficiency Action Plan for 2020:* The IOU Centers will develop teaching material on topics such as climate change, energy neutral growth, effective mass transit and Plug-In Hybrid Vehicles, and effective implementation of green technologies. Centers will need to pilot,

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experiment and partner with local Universities, science museums and other parties with expertise to provide a balanced view on these complex topics.

- *Emphasis on Adult Learning Principles:* Centers will complete the revision of seminar content and curriculum based on adult learning principles to which they were exposed as part of the KEMA program evaluation effort “2004-2005 Statewide Education, Training and Services Program Evaluation”, submitted in 2007. Such learning principles emphasized hands-on “learn by doing” training. Some members of the Centers’ training staff at the centers have been trained on these principles and will integrate them with the goals of promoting energy efficient behavior participating in available EE programs. The expected benefit of utilizing Adult Learning Principles is an increase in participant retention of knowledge, awareness and comprehension leading to greater EE behavior and program impact.
- Centers will work together and collaboratively with other utility groups (i.e. Emerging Technologies) to develop new exhibits with up-to-date technology that can be either replicated and/or shared across utilities to maximize cost-effectiveness of new exhibit development.
- Centers will work together and collaboratively with other utility groups and stakeholders to create an educational series describing paths to zero net energy residential buildings by 2020 and commercial buildings by 2030. This is in support of CPUC and CEC commitments and directives.

BOC Innovation

As a credential program, BOC is uniquely positioned to maintain a long term relationship with graduates through its certification renewal program. Graduates must earn continuing education hours annually to maintain the BOC credential. This provides an opportunity to direct graduates to the utility education and training centers to earn continuing education hours towards renewal.

Energy efficiency project work also qualifies for continuing education. Graduates may earn continuing education hours through engagement of EE and DR projects at their facilities. In 2006, almost 20% of BOC graduates earned hours through completion of efficiency projects. Finally, BOC graduates and their supervisors are informed about energy efficiency and demand response program opportunities through the BOC Bulletin, a bi-annual newsletter mailed to 1,500 California IOU customers.

Continue, and even increase, utility presence at BOC trainings: Students expressed satisfaction with utility account representative presentations in BOC classes. This should be continued and even expanded on by involving account reps in promoting BOC to key accounts in advance of the course series start date.

e) Integrated/coordinated Demand Side Management

Centers will develop their programs to incorporate other DSM opportunities, including demand response (DR), and distributed generation. The Centers have taken the first steps

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toward integrating DG and energy efficiency into their exhibits and educational seminars. They have also developed seminars and exhibits focused on DG, EE, and DR. The next step is to work with the DG and DR groups to develop programs that integrate the three in a way that is consistent with other utility programs and with the long-term energy efficiency strategic plan towards zero net energy residential buildings by 2020 and commercial buildings by 2030. Centers will integrate training offerings with codes and standards programs as described in section 6-b above.

NEEC recognizes California's demand side management needs are not fully addressed through energy efficiency alone, but rather through a blend of multiple DSM options including rigorous building ~~and appliance~~ codes and standards, demand response, and on-site generation. The BOC curricula are structured to offer flexibility for the incorporation and promotion of relevant demand side management options (rebate and non-rebate) available through the IOUs. NEEC has and will continue to work with the IOU's to customize BOC curriculum to the California market to address technologies and practices associated with demand reduction and to stimulate uptake of utility programs in energy efficiency, demand response, and on-site generation. In 2005 and 2006, BOC curriculum modules were supplemented with material on the topics of enhanced automation strategies for demand reduction and operational best practices to ensure persistence of savings from building retro-commissioning. In 2008, BOC curriculum modules were supplemented with material on the topic of O&M practices for sustainable buildings covering a full range of resource conservation topics. The curricula are also flexible to include information pertaining changes and/or implications to support implementation of and compliance with the CEC's Title 24 to Title 24 2008 Building Energy Efficiency Standards, AB32 (Greenhouse Gas Reduction bill), and other initiatives.

[In 2013-2014, WE&T will work with the Benchmarking and IDSM Programs in similar manner as proposed for the Continuous Energy Improvement Program to introduce the processes, lessons, and case studies curriculum to working energy management professionals, industry professionals.- IOUs will consider a sector strategies approach in furthering development of these collaborative efforts.](#)

f) Integration across resource types

IOU Centers recognize that energy efficiency can be achieved through programs that go beyond traditional energy efficiency education and training. The Centers have and will continue to offer seminars and build partnerships that remain focused on energy efficiency and go a step further to show the benefits of energy efficiency upon other areas (e.g., air quality). The Centers will also work together and collaboratively with other utility groups and stakeholders to incorporate the benefits of achieving efficiencies with other types of resources (e.g. water efficiency) upon whole building energy use. This integration can be achieved by developing courses on specific topics like water efficiency since any use of water requires energy consumption. The highest impact for water efficiency integration occurs when water is also heated on site. The LEED™ Green

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Building Rating System provides an outline for other topics that can help to inform Center program managers and instructors about other resource types.

BOC's Level II course structure offers unique flexibility to integrate the curricula from other resource management areas relevant to building operation and maintenance such as water, waste, and indoor air quality. Level II supplemental classes are offered in tandem with core classes to customize the course series to regional and topical interests in the California building operator market. Three one-day supplemental classes in the topics of water efficiency, O&M for sustainable buildings, indoor air quality, and demand response have been developed and successfully delivered to 500 building operators since the program's inception.

g) Pilots

No pilots are proposed for Centergies Subprogram. Several sector strategy initiatives will be pursued in coordination with IOU programs, as discussed in previous sections.

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

IOUs will continue to work with EM&V to assess market penetration of Centers' elements, including educational seminars' and tool lending libraries' potential impacts upon energy savings directly related to education and training. IOUs will also work collaboratively in the development of pilot projects described in Section 6.1.g above.

The ETC and PEC will work with EM&V to develop new methods for arriving at energy savings as a result of specific approaches to workforce education and training, as well as their tool lending library programs. Successful methodology will be incorporated into their elements in future filings. The FSTC completed utility EM&V evaluations in 2003 (run by Equipoise) and in 2007 (run by PA Consulting Group). These survey efforts looking at the efficacy of technical information transfer channels used by FSTC are being repeated by the CPUC in 2008-10. The CPUC evaluation is being implemented by ODC and involves the contacting of seminar and outreach participants to determine the efficacy of the services provided.

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~~The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues. BOC has been the beneficiary of a significant body of evaluation research exploring the program's impacts on the energy efficiency behaviors of participants. Two third-party process evaluations conducted in 2003 and 2005 of the California Statewide BOC program found high satisfaction with BOC among students and employers. Most students and their supervisors credit the training with increasing students' energy efficiency behaviors and having a positive influence on energy efficiency decisions at their facilities. Additionally, IOU involvement in BOC reflected well on the utilities and was found to contribute to the program's overall success.~~

~~NEEC will continue to work with third-party evaluators to support evaluation efforts and to incorporate recommendations in program development and implementation⁷.~~

Program Diagram

See above Section 6.2.

8. Program Logic Model

Below is the logic model for the WE&T Centergies Subprogram. ÷

The activities specified in the logic model focus on several types of actions. One is to promote and market center services to target audiences. These activities involve gathering labor market information from employers in the energy sector and designing programs to meet their needs. They also include leveraging existing relationships with colleges, and professional and trade organizations to market courses and other energy center offerings.

A second activity focus is marketing and reaching out to disadvantaged communities to facilitate energy-related job skills in those communities. This will be accomplished by partnering with industry and labor organizations, professional organizations, trade and vocational schools, community colleges, third-party entities, government organizations and other partners that service low-income or disadvantaged communities in order to reach members of these communities and bring them into energy center training programs.

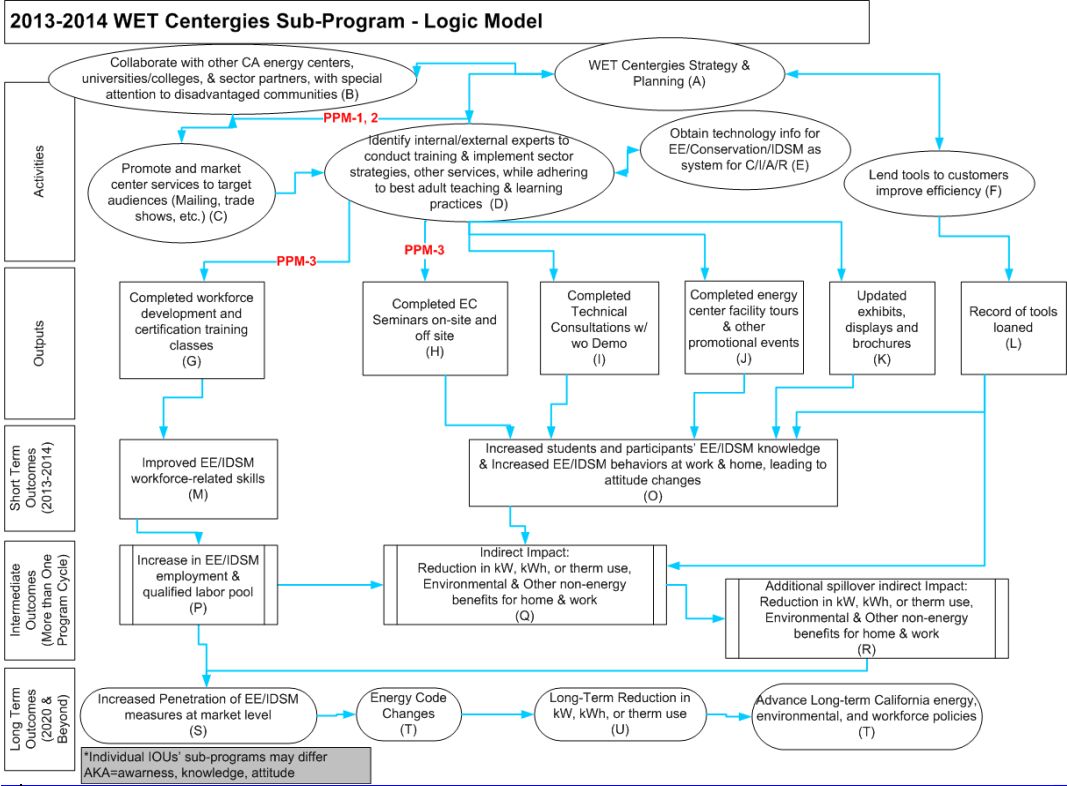
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A third activity focus is to identify internal and external experts to conduct training and other services, while adhering to best practices in adult learning. The centers are developing and using many new training props to give students first-hand experience with how energy-saving technologies and practices work and how they produce savings. They are also including energy modeling tools to teach students to estimate savings resulting from the technologies and practices they learn in the classes. In addition, the centers are reviewing seminar content to be sure the adult learning principles are being incorporated.

A fourth activity in the logic model is the lending of tools to customers that will allow them to judge the energy efficiency of their equipment and make changes and adjustments to increase efficiency.

All of these activities are all expected to result in classes, consultations, promotional events, exhibits, and tool lending that increase participants' energy efficiency and IDSM knowledge and behaviors. Ultimately, these activities and outputs are expected to result in indirect energy savings.

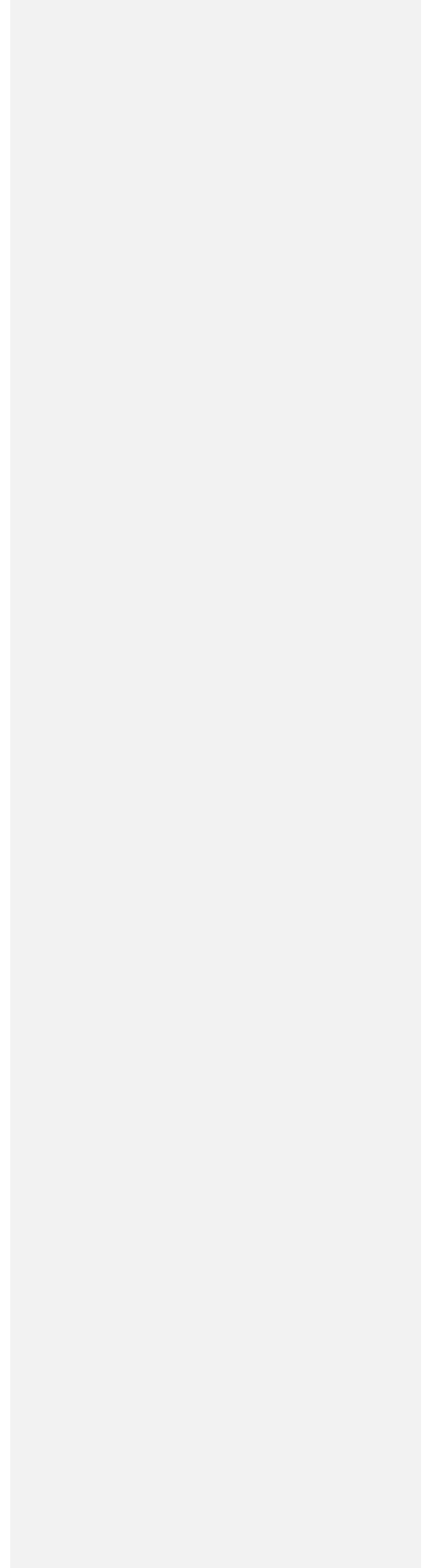
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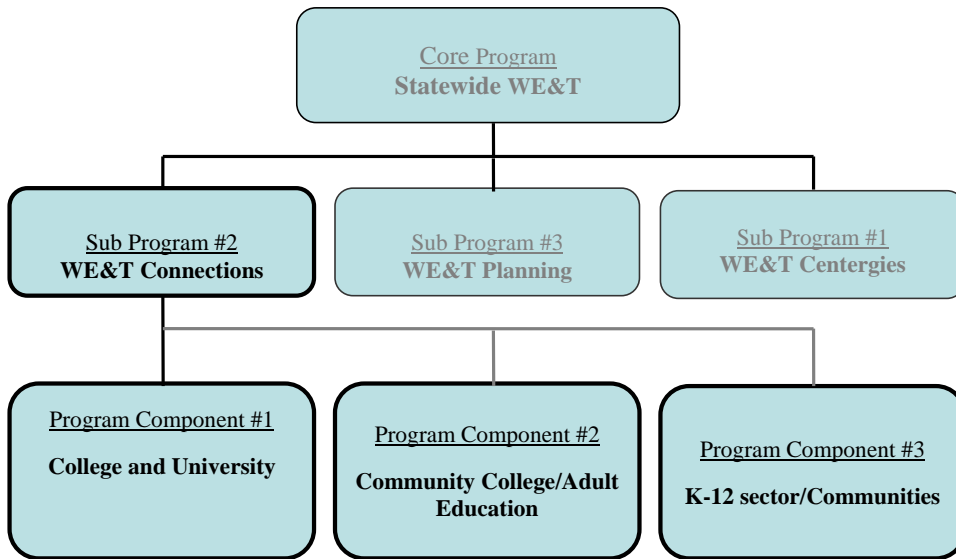
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6.2) Sub-Program Implementation – WE&T Connections SCG3730



1. Program Description

a) Describe program Statewide IOU Coordination
 1. Program name

The Statewide WE&T Connections is a Sub Program within the Statewide WE&T Core Program.

WE&T Connections is a three-fold marketing, outreach and workforce education and training program. This Sub-Program offers K-12, Adult Education (post-high school), Technical Training, Community College and University level education programs that support the Strategic Plan’s vision for educating and training California’s workforce for “green” jobs.

- First, the programs promote green careers to K-12, Adult Education (post-high school), Technical Training, Community College and University students through energy and environmental curriculum, college credit courses at high schools, college degree programs, job shadowing and internships.

The IOUs and/or our third party vendors will continue to work with California State Department of Education (Curriculum Commission) as well as curriculum coordinators from the County Offices of Education to be included in curriculum

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development advisory boards so that we can contribute to tailored K-12 curriculum that includes the science of energy, energy efficiency, [Demand Response](#), [Renewable Resources](#) and some discussion about green careers. We will also work with the [California Community College Chancellor's office](#), UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields. Throughout the process, we will also work to incorporate and promote a green career path.

- Second, the programs are intended to educate students on energy, water, renewable energy, demand response, distributed generation as well as green-house gases and the environmental impact, with the goal of influencing day-to-day decisions of students and their households.
- Third, the programs educate K-12/Community Colleges/Universities on the benefits of adopting energy efficiency and demand response policies at their facilities to help them save energy and money. Having these programs at schools and campuses serves to reinforce that schools practice what they preach. Some students truly pay close attention to see if the schools are just providing lip service or if they are leading by example.

b) List measures

WE&T Connections program offers five energy education program components— Green Campus, [DEEP](#), PEAK, Energenius, LivingWise, [Green Pathways](#) and Green Schools— and effectively integrates [specific content for](#) the science of energy, energy efficiency, water conservation, -renewable energy, demand response, distributed generation, green house gases to address awareness in the communities, barriers faced by schools as well as growth and demand for green careers. These programs are designed to be both flexible and affective across diverse learning environments as well as to empower K-12/college students to become advocates of smart energy management in their homes, schools, and communities. Each program component will also leverage all other available energy efficiency, demand response, and distributed generation programs for consumers as well as existing business incentives for schools, all to achieve immediate and long-term energy savings and demand reduction in homes, communities, schools and universities.

c) List non-incentive customer services

WE&T Connections is a non-incentive based, education and training sub-program.

2. Program Rationale and Expected Outcome

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a) Quantitative Baseline and Market Transformation Information

See core program Section 5.a. for program performance metrics (PPMs) and Section 5.b. market transformation information.

b) Market Transformation Indicators (MTIs)

There were no market transformation indicators (MTIs) identified for the WE&T program.

c) Program Design to Overcome Barriers

Energy education is critical to assuring a stable and reliable supply of electricity in California. Educating students will create a new generation of Californians who understand the significance of energy in their lives, their role in its efficient use and the importance of managing our limited resources for the future. This knowledge and information can also lead to life-long energy savings habits and a concern for the environment and its limited resources for not only the students but, for their family and friends. This knowledge and education can also lead the interest in a future green career path. However, given the budget cuts at schools, cuts to curriculum and longer work hours for teachers, getting this message across may not be possible without the assistance of these IOU-sponsored programs.

WE&T Connections program components are designed to be both flexible and effective across diverse learning environments. All program components promote the science of energy, energy efficiency, demand response, distributed generation, and empower K-12 and college students to become advocates of smart energy management in their homes, schools, and communities. The program effectively combines classroom learning with hands-on activities.

The program will address lost opportunities in the school market by implementing a comprehensive, innovative approach that involves incorporating:

- Some of the nation's leading energy education programs. These programs are 1) designed to promote green careers through energy and environmental curriculum, 2) designed to educate students on energy, water, renewable energy, demand response, distributed generation as well as greenhouse gases and their impact to the environment, with the goal of influencing day-to-day decisions of students and their households, and 3) also designed to educate schools/facilities on the benefits of implementing energy efficiency policies and demand response programs at their sites to impact energy use in schools and, universities and to project energy and environmental leadership by example.
- The program components are developed in collaboration with natural gas, electricity and water agencies to promote and encourage the adoption of energy efficiency, demand response, distributed generation and water conservation options.

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- Collaboration and integration with residential and business incentive programs that result in firm energy savings for homes and schools.

Energy costs for schools can be an enormous expense and are often the second largest expense for schools after employee salaries. Declines in school funding over the last 20 years have left little to no room in budgets for incorporating high performance measures during major repairs or renovation in existing buildings. This is where our business incentives programs come into play when promoting these educational programs to schools. Not only are these educational components funded by the IOUs, but the schools can also see a measurable utility savings. Also, when the schools teach something that children can take home that helps parents save on their utility bills, the parents are more likely to be active in their students' education. Failure to take advantage of these educational and facility programs represents a significant missed opportunity.

The U.S. Department of Energy estimates that schools could save approximately 20% of their energy costs by incorporating energy efficiency measures²¹. To start, schools can begin with no cost behavioral and operational changes. Additional funds and/or incentives are needed before schools would seriously consider the more serious energy efficient options.

IOUs will continue to promote low-to-no-cost energy efficiency measures, as well as retrofits programs for their school facilities. In most cases, the benefit of the IOUs assisting school in ways to save on energy cost is the selling point to getting school district cooperation in implementing the educational components. Schools practicing what they teach with respect to energy efficiency, demand response, distributed generation and other helps reinforce the importance of practicing smart energy management with students, thus creating a new generation of energy smart citizens and potential future members of a green workforce.

The WE&T Connections program will address the needs of schools through a combination of student, teacher and school administrator education programs and increase their awareness and knowledge as well as provide curriculum and/or lesson plans that support these objectives. Also, once school-aged children learn something new like energy efficiency, they are great advocates for taking that knowledge home and teaching/motivating their parents and siblings to take actions to reduce energy and water consumption. University students can conduct valuable research and effectively educate their peers as well as campus administrators about energy efficiency:

- Students are effective advocates, able to reach their peers, communities and high-level decision makers in promoting green jobs on campus.
- Educational campaigns can result in significant energy savings on campus facilities and dorms by changing behaviors and purchasing decisions.

²¹ Per DOE website. [<http://www.eere.energy.gov/buildings/info/schools/>]
[http://eere.energy.gov/buildings/energysmartschools/howto_operating.html]

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- The IOUs and/or our third-party vendors will develop curriculum and lesson plans for K-12 as well as work with the appropriate community college and university agencies responsible for, college courses and programs needed to educate students about energy, energy efficiency and prepare them for a green career path.

Addressing the interaction between energy and water use is essential, as well as the link between energy conservation and the reduction in greenhouse gases. Water conservation lowers energy use and energy bills; particularly, when energy used to heat water can be reduced and energy conservation reduces emission and global warming. The utilities and water agencies will extend the reach of their programs and services and promote integrated solutions.

The primary goal of the program is to educate and create awareness among K-12 and college students about the importance of energy and water efficiency and how to apply at home and in their communities what is learned at school and to promote green careers to K-12 and college students to meet California’s need for green jobs, A secondary goal of the program is to improve public education facilities and inform facility operators and administrators about the benefits of energy efficient equipment and operation practices.

The basis of the program theory is that increased awareness will result in increased levels of energy and water efficiency in communities and at home where energy conservation starts, and increase conservation efforts at schools and universities. The combination of education and environmental awareness at schools and campuses are expected to motivate students not only to change their energy use behavior, but also to provide them with another very real and worthy option for a career path.

d) Quantitative Program Targets
The proposed targets may be modified due to funding restrictions.

*

Program Name	Program Target 2013	Program Target 2014
University Sector		
Green Campus (Statewide)	7016 green-careers/campuses	12616 green-careers/campuses
Community College Sector		
CA Community College DEEP (SCE only)	50 green-careers/3 campuses	100 green-careers/3 campuses
K-12 Sector		
PEAK (Statewide)	201320,000 students	231320,000 students
Energenius (PG&E)	55 60,000 students*	6560,000 students
Green Pathways* (PG&E)	1,000 Online Course/Community	3,300 Online Course/Community

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	<u>Participants</u>	<u>Participants</u>
LivingWise (SCGSoCalGas , SCE)	3330,000 students	3330,000 students
Green Schools (SCE)	25,000 students	5425,000 students
<p>Note: There are approximately 6,000,000 K-12 students currently enrolled in California, and our K-12 programs are expected to touch only 97% of the student population over the next 32 years. However, the programs at these schools will serve as a test/pilot environment for energy efficiency and green career curriculum.</p> <p>* Green Pathways serves grades 9-12; goals will be determined upon approval of final budget.</p> <p>*Because of PG&E's limited bridge transition funding and the delayed approval of the 2009-2011 Portfolio, the targets for 2009 have been adjusted accordingly.</p>		

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e) Advancing Strategic Plan goals and objectives

See core program PIP.

3. Program Implementation

a) Statewide IOU Coordination

i. Program delivery mechanisms

WE&T Connections programs will be taking a sector strategy approach around education collaborations with K-12 and College stakeholders and organizations. The strategy's multi-faceted goals include increasing engagement of all students, particularly minority, low-income or disadvantaged, in energy-related coursework and programs, poising them for careers in Energy Efficiency (EE) and a life-long appreciation of energy conservation and efficiency.

The California Public Utilities Commission has provided a framework to make EE a way of life in California by refocusing rate-payer funded EE programs on achieving long-term savings. Goals of this framework include (1) establishing EE education and training at all levels of California's educational systems; and, (2) ensuring that minority low-income and disadvantaged communities fully participate in training and education programs at all levels of the Demand Side Management and EE industry.

Education collaborations are integral to achieving the goals laid out above. The K-12 and College Sector Strategy, led by the IOUs and implemented by a cross-stakeholder driven partnership, will include the below key elements to ensure these goals are achieved.

While traditional sector strategies often include specific employer hiring commitment or funding, the K-12 Sector Strategy will not directly include this component due to

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the target population being years away from career entry points. However, other sector strategy hallmarks will be included in this approach. These include:

- Developing a regional partnership which includes a cross-section of stakeholders from the EE sector.
- Ensuring employer commitment to help align training to market demand.
- Working towards career pathway development, including “stackable” credentials that enable students’ education to build upon previous trainings.

Ultimately, via the Sector Strategy work, the IOUs will have a thorough understanding of K-12 and College resources and programs that currently exist, and, *through collaborations*, (1) propose enhancements to current programs, (2) identify new program needs that fill gaps understood from our mapping work, and (3) create opportunities to “link” programs and build education pathways. The ultimate goal is to increase the engagement of students in energy-related K-12 programs, and ultimately, energy efficiency careers.

Key Elements

- Supporting K-12 and college efforts to assist students to develop education based on visible career paths in EE and related fields.
- Creating and/or expanding college and university programs with EE focus.
- Fostering green campus efforts to apply EE knowledge in clear view of students and faculty.
- Continued refinement of existing curriculum to ensure EE fundamentals are included.
- Identifying career options in energy-related fields.
- Continue incorporating career exploration into programs and developing a systematic effort to institutionalize energy awareness and career awareness programs that is aligned with state content standards.
- Expanding collaborations with career academies, regional occupational programs and community colleges.

Proposed Objectives

- Students develop an awareness and appreciation for energy, energy conservation and the impact to the environment;
- Students develop careers that advance DSM business, policy, research and development and education; and
- Individuals from the targeted communities take advantage of programs that specialize in energy disciplines at all levels of the educational system and successfully advance themselves into rewarding careers in the energy services fields.

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- [Linking existing training programs, across modalities, so that students' options are increased and pathways begin to be developed, e.g., pathways to post-secondary programs.](#)
- [Increase engagement of at-risk or disadvantaged students in energy-related coursework.](#)
- [A plan for more fully leveraging utility training centers for K-12 stakeholders.](#)

College and University sector

Green Campus (statewide)

The Green Campus Program is implemented on [UC/CSU college and university](#) campuses by student interns engaged and/or enrolled in environmental studies and/or other related areas. This team of 2 – 6 student interns per campus engages other students through forums, and other means on the importance of energy conservation and the link to the environment. They also lead the way in addressing energy efficiency in the higher education sector by meeting with faculty, staff and administrators and work with them to incorporate energy, energy efficiency and discussions about a green career path into their [curriculum, and courses/programs as well as](#) work with [them campus officials](#) to implement energy efficiency projects [on campus](#) and add value with educational outreach campaigns. Green Campus addresses behavioral and operational changes and product retrofits for campus facilities as well as serves as a direct pipeline of emerging environmental/energy professionals.

Green Campus WE&T aspects are exemplified by the advanced technical and professional development skills that the students develop as part of their internship, [and that non-intern students develop from interaction with Green Campus interns.](#) Green Campus projects include dorm energy competitions, energy efficiency curricula development, building energy assessments and recommendations, technology pilots, and outreach events. Interns actively market their projects and the program by completing monthly newsletters, working with campus and local media and presenting at conferences – including biannual program convergences.

[Green Campus Program is being reviewed to determine if it qualifies as a resource program.](#)

Program Delivery

Student Intern assistance to Facility Management stakeholders; Housing and Dining; and energy service companies (ESCOs), as appropriate, to help them increase measurable energy savings: Green Campus Interns play a key role in helping campus staff, administrators and energy efficiency professionals with their energy savings targets. As a means to this end, students will organize such activities as dorm energy competitions, laboratory fume hood educational

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campaigns and competitions, technology pilots, office energy assessments and recommendations.

- *Recruit, train and support Green Campus Interns at each campus in implementing program activities.* Interns are hired and trained to implement many aspects of the program throughout the school year. Green Campus program staff works closely with interns, campus stakeholders, utility ~~partnersies~~ and ESCOs as they identify their objectives and draft a detailed implementation plan.
- ~~Hold a ff~~ *Hold a ff* All planning meetings ~~with include~~ student organizers and IOU program managers, campus administrators, facilities staff, faculty, IOU program managers and, energy service company representatives at each campus. After conducting implementation planning exercises prior to or early in the fall term, Green Campus Interns will bring new participants up to speed on the program goals, expectations, report on activities conducted to date, unveil future plans, and solicit feed-back.
- *Building in Efficiency to the Fabric of the Academic Framework:* Program staff will work with the UC Office of the President, Office of Academic Affairs, ~~and~~ CSU Office of Degree Programs and Educational Opportunities, ~~or Office of the Chancellor~~ to:
 - develop a database of EE-related courses on UC and CSU campuses,
 - consult with system-level as well as campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields, and
- ~~Utilize the Green Campus program as a tools to promote energy, sustainability, environmental and other related courses on campus diffuse EE courses throughout the UC and CSU systems by offering all campuses the opportunity to be selected for inclusion in piloting a new Statewide Green Campus Energy Career Pathway Program.~~
- ~~Building the Workforce in Collaboration with Industry:~~ Program staff will organize a California Energy Efficiency Student Mentoring Program. ~~This program will bring together the energy efficiency industry, IOUs, government energy regulatory agencies, community colleges, and UC/CSU campuses to pilot an intern program in which students will take a semester off their academic studies to work for a private or public entity doing energy efficiency related work. The result will be better trained graduates who know the efficiency field and the businesses in it, and energy businesses that have semi-skilled, low-cost help who are primed to join their workforce when they graduate.~~
- *Ramping Up Green Campus Reach:* Every aspect of the Green Campus Program offers a pathway to green jobs –academic course offerings, training in technical and “soft” professional skills, experiential hands-on energy

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efficiency projects, and providing a statewide network composed of utilities professionals, other professionals and academics, students, and program alumni. We plan to increase the number of students who participate in Green Campus activities through growing the “concentric circles” of GC activities:

- Students who are employed as GC interns (approximately 60 students)
- Increase the number of volunteers who participate in GC activities without being paid
- Interns conducting awareness campaigns on campus will invite students to sign up as honorary Green Campus students and pledge to advance the WE&T message across campus. They will carry the message forward and ask others to do the same. Interns will gather pledge information so that they can be contact via email to gather information on courses they are taking or jobs they might be in.
- Increase the number of students who take classes taught or facilitated by GC interns (currently over 600 per year total)
- Students who are exposed to Green Campus messages on campus (This is already 400,000 student contacts per year statewide)

- ~~Ensure that minority, low income and disadvantaged communities fully participate in training and education programs. Green Campus [program will be made available at campuses serving low-income, minority and disadvantaged communities.](#) will work with campus EOP Programs to ensure this group of students is also fully engaged in our energy efficiency and green career path programs. Many students do not apply for admission to college because no one in their family has ever attended college or because college seems too expensive. EOP aims to improve the access, retention and graduation of students who have been historically disadvantaged, either socially or economically. EOP assists students by providing admissions and academic support services. EOP serves students from all ethnic backgrounds, and Green Campus will ensure that they are fully engaged in this program. Working with the EOP program as well as other similar programs will ensure that low income, minority, and disadvantaged groups are engaged in the WE&T goals.~~
- ~~EOP Provides access opportunities for historically underserved students (Low Income, first generation college) by making higher education a possibility for prospective students with potential~~
- ~~EOP is empowered to admit those who demonstrate potential, and recognizes that potential is not measured by GPA or standardized testing alone.~~
- *Mid-year and year-end meetings of all Green Campuses.* The mid-year meetings bring interns together with IOU program managers, campus

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administrators, faculty, and facilities staff from various campuses to share successes, discuss challenges, and plan Green Campus activities for the next half of the academic year. The year-end meetings are used to review the year's progress, recognize group and individual accomplishments or best practices, and plan for the summer and following year.

- *Coordinate with other IOU departments to promote [consumer and facilitate business incentive programs](#). Green Campus through IOU Account Executives will provide information to campus administrators and facilities managers about Business Incentive Programs and encourage them to take advantage of these opportunities for making energy efficiency changes more cost effective. These facilities energy savings [programs-projects](#) are needed for [two things numerous reasons, 1\) the campuses need to get some benefit for these educational programs being on their campuses, and 2\) for students to see that campuses are practicing what they are teaching, and 2\) to serve as a lab for students to practice energy efficiency through identification and implementation of projects on campuses, and 3\) building a career pathway.](#)*

Community College Sector

California Community College (possible statewide) CCC IOU Partnership

The ~~2010-2012~~2013-2014 California Community College program will build upon, enhance, and streamline the implementation strategies employed in the ~~2006-2008-2010-2012~~ partnership and adopt new strategies over the life of the program as they emerge or are proven as ready for the market. The implementation plan will be refined to adopt best practices and lessons learned program elements for the ~~2010-2012~~2013-2014 programs will include:

- An improved program management and structure that adopts lessons learned from the past cycle resulting in a more streamlined, effective approach;
- In the process of expanding the existing CCC training and education program from simply training facilities, operations and maintenance staff to include working with community stakeholders on curriculum development for students and industry with the objective of developing future energy professionals and a green workforce. Please refer to Advancing Strategic Plan goals and objectives for details on IOUs role in developing a Utility Workforce Education and Training program as well as our plan to ensure low income, minority and disadvantaged students are included.

DEEP (SCE only)

[DEEP is an employment development program that trains and educates California Community College students in the areas of energy efficiency and demand side reduction integrated demand side reduction through classroom learning, projects, and](#)

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outreach within the campus community. Along with preparing students for green careers, the program will produce reductions in operational costs for California Community Colleges by promoting the understanding of demand response, resource conservation, and carbon emission reduction.

Three Program Goals

Promote Sustainability and Efficiency Awareness

DEEP students will learn about sustainable lifestyles and promote what they have learned.

DEEP students will be guided by program coordinators, faculty and administrative staff on campus. They will familiarize themselves with current on-campus practices in building construction, recycling, green procurement, and renewable energy. They will work to integrate new concepts of sustainability into existing classes. DEEP students will provide the link between campus sustainability, academic infusion of sustainability concepts, and the green workforce.

Engage Students with Hands on Learning & Promote Peer to Peer Learning Opportunities

DEEP students will work closely with stakeholders and organizations on campus to create and implement energy efficiency projects, and conduct outreach campaigns. These guided efforts will work toward providing students with a hands-on experience, bring the campus realized energy saving opportunities, enhance building performance, and provide multiple other benefits.

Provide Green Workforce Exposure and Real World Experience

DEEP students will have opportunities to be exposed to domestic and international companies. They will develop relationships to future careers via interactions with companies such as Chevron Energy Solutions, ACCO Engineered Systems, Powersmiths, Lime Energy, Siemens's Industry Inc, Sunflower, Growing Energy Labs, Honeywell Building Solutions, and Growing Energy Labs.

Students will be exposed to the benefits of transferring to four-year colleges and learn how their educational interests relate to professional careers in energy.

Program Approach

The DEEP Program is primarily student driven and allows valuable innovators to take an active role in driving Community College campuses to meet the needs of the developing green economy.

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An effective Peer to Peer teaching model is encouraged. This allows students to teach others about energy and exponentially increases campus-wide energy awareness.

The recruitment, screening, and participant selection will be facilitated in close collaboration with participating campuses and the Foundation for California Community Colleges. All employee relation issues will be managed by the Foundation's Human Resources Department utilizing the SAGE system. Each selected school will receive funding for forty hours per week to be distributed among four to six part time DEEP students. Positions will be allocated \$10 per hour for an average of approximately 10 hours per week for the duration of program participation.

Student participants will work collaboratively with key stakeholders to create campus-wide goals and create a customized list of strategies to achieve those goals. Each team will assign roles and responsibilities to respective members.

Adult School/Post High School (SCE)

The delivery mechanisms include in-language seminars, outreach to schools, community events, faith-based organizations and Workforce, Education & Training.

- In-language seminars: The objective of in-language seminars will be to provide a classroom style forum to empower residential customers to conserve resources by teaching them simple ways of saving electricity, gas and water. This strategy will also align itself with a goal of the WE&T Strategic Plan so that minority, low-income and disadvantaged communities fully participate in education programs by providing elements that will seek to encourage interest toward careers in the energy efficiency industry. Seminars will also be used to promote other IOU program offerings such as Comprehensive Home Performance and of course demand response and other integrated DSM offerings like Summer Discount.
- Community booths: CLEO will continue participating in prominent ethnic cultural booths such as the 'Chinese New Year' and 'Harvest Moon Festivals'. This will also include coordinating with SCE's and SCGSoCalGas's Energy Centers and faith-based organizations and other cultural opportunities.
- Schools outreach: In 2013-2014, the CLEO program will expand its schools outreach efforts by providing a comprehensive schools initiative. In addition to continuing the 'Energy-Artist' contest, this initiative will also introduce a 'Carbon Footprint' contest where schools could potentially compete against each other for the highest decrease in energy use. The PEAK Program will be utilized to encourage energy efficiency behavior for fourth graders. Outreach efforts will also include coordination with SCE's Mobile Energy Unit and will also target Adult Education centers. Primary focus will involve K-12 elementary schools.
- Faith-Based Organizations (FBO's) and Community Center outreach: Local community FBO's and religious forums form the backbone of the ethnic community. FBO's also provide a forum for community events and an excellent platform to market and encourage energy efficiency. CLEO will cultivate and add to the existing

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- [relationships with churches and local community centers to effectively cultivate program participation and promote energy conservation](#)
- [Community / city partnership and outreach: This outreach strategy will build upon existing relationships with the cities of Monterey Park, San Gabriel, Alhambra, Walnut, Diamond Bar and others to promote energy efficiency in the community. CLEO will place information kiosks at city community centers and will participate in community events to further promote energy efficiency in the community. CLEO will also integrate components of the program with other existing partnership programs with higher ethnic populations.](#)
 - [Workforce, Education and Training: CLEO will expand its reach in the Workforce, Education and Training \(WE&T\) area by providing in-language energy efficiency education and training at various Adult Learning Centers and Community Colleges. The focus will be on educating those whose primary language is not English. Program participants will learn about the green jobs industry, energy efficiency measures / technologies, programs and services offered, as well as be placed on a 'green' career-path for participants to build upon.](#)

K-12 Sector

Some of these programs target the same grade levels but, none of the current or proposed programs target the same districts/schools. We have and will continue to ensure that students participating in one program will not also participate in another similar IOU provided program.

PEAK (statewide) (PG&E, SCE and SCGSoCalGas)

For ~~the 2010 to 2012-2013-2014 transition period~~ program cycle, PEAK is proposed as a continuation of a successful program by PG&E, SDG&E, [SCGSoCalGas](#) and SCE. ~~In the 2006-2008 program cycle PEAK was stand alone in PG&E and SDG&E service areas but, was a joint program in SCE and SCG service areas. For the 2010-2012-2013-2014 program cycles, †The participating IOUs will continue plan to work together to ensure that the program design and delivery is consistent across the IOUs, operate as a statewide program.~~ Other changes planned for ~~2010-2012-2013-2014~~ are revisions to include lessons on [green house gases, DSM and green careers Water/Energy Nexus](#) to reflect WE&T goals.

~~PEAK staff meets with school district representatives, such as principals, to explain the year long program commitment; plans a customized program for their schools; and targets 3rd-7th grade levels. PEAK then trains teachers through its curriculum, hands on lab activities, and toolkits. In turn, teachers educate their students about the science of energy, energy efficiency and environmental consequences. Using service-learning as a framework, students are prompted to apply their knowledge to real life situations in their homes, schools, and communities. Throughout the school year, students and teachers are supported in a variety of ways, such as: product distributions, educational assemblies, interactive website and software, e newsletters, contests, community recognition, and field trips to power plants and renewable energy generation plants. Via the website, PEAK participants are offered structured~~

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course curricula recommendations on in a variety of EE savings topics including: electric, gas, water and renewable energy use. PEAK's diverse offerings foster strong relationships with schools and school districts, as well as a positive connection between the end user, the community, and the utility. **Brief description of the program.**

PEAK Student Energy Actions (PEAK) is a standards-based energy education program for grades 3rd through 7th grade (with possible expansion into other grades), that empowers youth to save energy in their homes, schools, and communities and promotes workforce development in energy-related industries.

Program Key Elements

The core of this program is built on four PEAK Student Energy Actions which are used thematically to educate students on how their personal behavior and the behavior of others has a direct impact on the demand for energy and on the environment. The four PEAK Student Energy Actions are: 1) Shifting Use Off Peak Demand Times 2) Cutting Waste Through Conservation 3) Plugging Into New and Efficient Technologies 4) Exploring Renewable Energy

Overall Program Goals:

- Deliver high-quality energy education to the next generation of energy consumers.
- Actively engage students, their families, and schools to save energy through energy efficiency, smart resource management, sustainability and demand response awareness.
- Provide career awareness, career exploration, and/or career preparation to appropriate grades on industries related to energy and environmental sectors.
- Create sustainable behavioral changes that result in the achievement of immediate and long-term energy savings and demand reduction in schools and homes.
- Promote positive relationships between the end user, the community, and their serving utility.

Program Rationale

PEAK complements each level of the Integrated Demand Side Management model by using education as a means of shifting behavior. The Energy Coalition's PEAK program will support IOUs in meeting recommendations outlined in the California Long Term Energy Efficiency Strategic Plan (CLEESP) and Workforce Education and Training (WE&T) Needs Assessment by providing integrated education on demand response, energy efficiency, energy and water conservation and sustainability through its curriculum. Participating students will receive workforce education related to career awareness, career exploration, and career preparation in order to ensure that they are equipped with the necessary pathway to enter the workforce. PEAK also promotes various rebate and incentive programs such as the Home Energy Efficiency

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Survey offered in Southern California Edison and Southern California Gas Company service territory.

Alignment with CLTEESP

PEAK is aligned with the following CLTEESP Workforce Education and Training goals: 1) Establish energy efficiency education and training at all levels of California's educational system 2) Ensure the minority, low-income and disadvantaged communities fully participate. The PEAK program supports the state in meeting its 2020 goal to have a workforce that is trained and fully prepared to achieve California's economic energy efficiency and demand-side management workforce potential.

Core Program Coordination

The PEAK program fits with the current IOU WE&T programs in that PEAK both provides and continuously develops 3 – 7 grade curriculum to include energy efficiency fundamentals (e.g. math, science, behavior) and identify career pathway options in energy-related fields. In addition, PEAK supports existing IOU programs by funneling participating student families into energy efficiency programs including distribution of IDSM education through student take-home materials. The Energy Coalition will work with the utility to further connect additional utility rebate and incentive opportunities that support energy efficiency management at the school facility level.

Target Audience

PEAK is designed to engage students, educators, school district officials, school site administrators, parents, and community members. The PEAK program is tailored to educate 3rd~~th~~ through 12th grade students as change agents within the utility territory and develop educator expertise that supports the program core energy concepts as well as environmental education. In alignment with the CPUC's goals, PEAK will place emphasis on enrolling schools into the program that have been designated as low-income.

Implementation Strategy

How will the program be implemented? Key steps?

Implementation strategy consists of the following components:

Professional Development

- Provide a Teacher Orientation & Training session for all new PEAK teachers. Offer advanced Teacher Training and Orientation to returning teachers.
- Support innovative project development in the areas of energy and the environment.

PEAK On-site Support

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- Complete up to 2 PEAK educational campaigns or contests per school year.
- Conduct PEAK Events and Site Visits upon request or as deemed appropriate by PEAK and school staff.
- Provide on-site career explorer/career preparation opportunities upon request or as deemed appropriate by PEAK and school staff.

PEAK Curriculum Development

- Enhancements to improve relevance and comprehensiveness include: STEM and service learning-components, expansion to out of school time (OST), extension to 3rd -12th grade education-, and expansion of components to include . Water-Energy Nexus, Smart Meters, renewable energy and other sustainability concepts.
- As part of the WE&T filing, it is essential for PEAK to focus its efforts on career development especially in the areas of unemployed and underemployed workers. Two components will be developed: career exploration (grades 3-8) and career preparation (grades 9-12) if applicable. The Energy Coalition will realign the current curriculum so that students will explore the careers in the energy field as they engage in energy action activities, thus providing practice and engineering for success. For the career preparation component, The Energy Coalition will develop curriculum alongside the energy education to incorporate hands-on job preparation opportunities as the students prepare for the jobs of the future.

Program Activities

Home Energy Efficiency Survey (HEES): The program will provide a HEES survey for students to take home and have completed by their parents. The teachers will treat this as a homework assignment and have the kids bring the completed survey back within a specified time. The surveys will then be mailed in to the IOU SCE (coordinating IOU) and the families will receive their kit (CFL, showerhead and aerators) in a few weeks. The kit contents are worked into the lesson plans.

PEAK Curriculum: The PEAK Teacher Guide Book enables teachers to meet academic content standards in science, math, and language arts for grades three through seven. The curriculum lessons are designed to be covered over one school year. Lessons are designed to be fully comprehensive and contain the following: student learning objectives, lab instructions, post activity reflection questions and suggested community activities. In addition, each lesson (electricity, gas and renewable energy) emphasizes one or more of the PEAK Student Energy Actions, compelling students to apply their classroom learning to real life situations and behaviors.

Greenhouse Gas and Energy Career/Water/Energy Nexus module: PEAK will create a new module/s to include Water/Energy Nexus and how the use of one impacts the use of the other. Green House Gases and their environmental impact as well and Career development discussion promoting a green career path into their lesson plan curricula.

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~~*Teacher Training:* PEAK teachers participate in a day-long professional development seminar on PEAK's academic content and how to deliver the curriculum in the classroom. Teachers are encouraged to utilize lesson plans from each segment (electricity, natural gas, renewable resources, GHG, careers in the green workforce) of the program curriculum.~~

Classroom Lab Toolkit: PEAK teachers receive a toolkit that contains the supplies needed to complete each hands-on lesson for a class of 36 students. Toolkit supplies are replenished on an as-needed basis.

Energy Challenge Software: PEAK's website at www.peakstudents.net houses interactive games that allow students to simulate the effects of energy efficient behaviors at home and in the community. The web page will be expanded to include new program features; renewable energy; demand response; green-house gases and, their environmental impact.

Energy Education in the Community: PEAK staff facilitates educational assemblies featuring Bullman, PEAK's energy-saving mascot. Participants learn such concepts as how electricity is generated, how much energy is saved by a CFL, demand response, green-house gases and the 4 Student Energy Actions.

Saving Energy at Schools Facility Audits: Facility audits and retrofits will be offered to PEAK schools to improve facility energy use and enhance PEAK energy education. This initiative serves as an additional hands-on student learning opportunity, where students are encouraged to participate in the process and learn about the impacts of proposed changes. Students are also more engaged in energy conservation when they see that the schools are also practicing what they teach. In fact, most districts have energy managers that manage the green effort at schools and, students are able to see a green career in action.

Coordinate with other IOU departments to promote and facilitate Consumer and Business Incentive Programs.

Coordinate events with Mobile Energy Unit (MEU) where available: PEAK program activities are tailored to suit the needs of PEAK participants. This customized approach is implemented in all PEAK activities including planning special events and product distributions, developing teacher trainings, promoting green jobs through career discussions, and organizing student field trips. PEAK's proactive support generates a feedback loop which lends itself to quality internal program monitoring and ensures a constantly evolving, living program. PEAK education ultimately produces behavior modifications and attitudinal shifts that result in immediate measurable kW, kWh and therm reductions in both the student's school and home.

PEAK complements each level of the Integrated Demand Side Management model by using education as a means of shifting behavior. PEAK's comprehensive, hands-on program is correlated to the State of California's science, math and language arts

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standards for grades three through seven. The program teaches students the science of energy and instills an ethic of smart energy management as well as engages students on discussions about green jobs. Throughout their participation in the PEAK program, students are presented with the necessary tools to formulate thoughtful conclusions about energy usage at the individual and community levels.

Energenius Pre-K to 8 Program (statewide to be established(PG&E only)

The Energenius Program, in its 21 years of existence, has reached close to one million students in both public and private schools within the PG&E service area. These highly rated educational materials are designed for students from pre-kindergarten through middle school. They are correlated to California Department of Education Content Standards and are reviewed and/or piloted during the development process by classroom teachers. Each of the eight existing Energenius programs include curriculum guides with detailed lesson plans, student activity books, calendars (for primary grades), and take-home materials on energy efficiency for parents and guardians.

The WE&T goals of the California Long Term Energy Efficiency Strategic Plan (CLTEESP) are reflected in the content and in the marketing strategies of the Energenius program. Section 9.5 of the Strategic Plan stresses that curriculum should include energy efficiency fundamentals and identify career options in energy-related fields. All programs are in the process or have incorporated these concepts. The Energenius program, in meeting goal 2 has implemented a comprehensive marketing plan to ensure that minority, low income and disadvantaged communities fully participate in its program.

The eight programs that are presently being marketed include: We Saved Energy Today—pre-kindergarten; Energenius Big Book Program for kindergarten—grade 1; Energy and Me! for grades 2-3; Energenius E Program for grades 4-5; Trees, Energy, and the Environment for grades 4-6; Energy Check Up for the Environment for grades 4-6; Water, Energy and the Environment for grades 4-6; and Transportation, Energy, and the Environment for grades 6 and above. Grade level designations relate to how each program is correlated to California Content Standards. However, teachers are the ones to decide which materials best meet the needs and skill levels of their own students.

The main focus of all the Energenius programs is on energy efficiency. As age appropriate content is included on the science of energy, environmental impacts of energy use and energy production, the water-energy nexus, greenhouse gas emissions, global climate change, demand response, and distributed generation. Content is also included on careers and jobs (awareness and exploration) with an emphasis on those in the green and clean tech areas.

Learning about energy, energy efficiency, and the environment should begin at an early age and continue through elementary, middle and high school, and beyond. The knowledge, information and skills can lead to lifelong habits and concern for the environment and the protection of the Earth's limited natural resources. Students

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are also discovering in the Energenius program materials information (as age appropriate) on green jobs and careers.

Launching of Energenius Programs and Resource Guides

Two new Energenius Programs for middle school students will be available by end of 2012 and marketed beginning in 2013. A unit on non-renewable and renewable energy sources offers students an introduction to various sources of energy. Research and in-class activities provide the background for students to analyze the costs and benefits of various energy sources.— Students will also analyze the environmental impacts of the energy sources and learn how their own daily energy choices impact the environment. A section of the program relates to jobs and careers in renewable energy fields. The other new Energenius program is Smart Technology, Energy, and the Environment. This unit focuses on the smart grid, smart meters, and how technology allows consumers to better manage their energy consumption. Content related to demand response and distributed generation is introduced along with a look to a future where many consumers of energy will also be producers of energy. Careers related to the development /installation of the smart grid are among those covered in this unit.

Green Career Resource Guide

The new Energenius Green Career Resource Guide provides high school counselors and other educators a listing of resources they can use with students who are interested in learning about careers and jobs in the green economy. A range of annotated websites along with a section on search techniques will help introduce students to training and educational opportunities to secure green careers and jobs in the future.

Online Energy Resources for Educators

The Online Energy Resources for Educators guide has been updated and is available both online and in a print version. This annotated guide provides educators a hundred plus web resources for teaching about energy and the environment.

Revising of Energenius Educational Program

Two of the Energenius programs will be updated and revised in 2013 to be in compliance with expanded content defined in the CLTEESP and the Needs Assessment. Both programs will also provide activities related to career awareness with an emphasis on green careers in energy related fields. The Light Right Program for grades 4-6 uses lighting as a way to explore energy, technological changes and

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personal energy habits. As students take actions at school and home to be energy efficient they learn how they are also reducing greenhouse emissions that contribute to global climate change. The Energenius E Program (grades 4-5) developed in 2005 will be updated to include information on how the use of electricity and natural gas is measured. Students will learn in this unit about the greenhouse effect, greenhouse gas emissions and global climate change. Included in this E Program will be content on how energy production and energy use impacts the environment.

Green Action Teams

A new green Energenius program will bring resources to high schools wanting to implement green action teams. Resources include consultation services by a green team implementation specialist. A consultant will provide site visits, phone consultations, and green team planning sessions. The consultant will work closely with staff and students to define activities and facilitate the actual establishment of a green team. One of the early team activities will be an energy survey of the school to help establish potential links to retrofit incentive programs. Upon a review of the survey results an energy expert will analyze potential energy savings at the site and make recommendations to the school and school district. Once a plan is developed other resources can be brought in by the utility. Green action team members might also choose to implement a water saving program, a green career day, or introduce a new composting/recycling program. An additional activity for high school green team members would be to partner with local middle schools to help them establish their own teams.

Since 1991, Energenius has expanded and flourished providing educational materials to over 700,000 students in public and private schools throughout the PG&E service area. Expansion statewide with eventual use of the WE&T "Web Portal" as the teacher access point is now possible. These materials are designed for students from kindergarten through grade eight and are correlated to California Content Standards. Each of the seven existing programs include a complete curriculum package featuring detailed lesson plans, student activity booklets, calendars, energy calculators and take-home materials for family members.

Program units focus on energy efficiency and safety around electricity and natural gas and include Energenius Kindergarten Habits (grades 1-3), Energenius e-Kit (grades 4-5), Energenius Bill Buster, the Light Right program (grades 6-8), Trees and the Environment (grades 4-6), and Transportation, Clean Air, and the Environment (grades 6-8).

Learning about energy, energy efficiency, energy safety and the environment should begin in the early years of school and continue through high school and college. This knowledge and information can lead to life-long energy savings habits and a concern for the environment and its limited resources.

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Curriculum Development

For 2010-20122013-2014, *Energenius* will develop new program materials, “Energenius Branching Out”, targeted to upper elementary and middle school students. These materials will focus on energy related environmental connections, such as global climate change and the linkage between greenhouse gas emissions, energy production and energy use. The new materials will help students explore and analyze the trade offs of the various alternative energy sources. In addition alternative energy resources, and integrated demand side management. In addition, the materials will go beyond the energy efficiency fundamentals and introduce information on career and job opportunities in energy related and in the green economy. This as well as all educational programs will help interest youth in future green career paths.

High School Program

The Energenius Program is a K-8th grade curriculum program on energy, energy efficiency, and the environment. The program does not currently extend into high school, so a new program, Green Pathways, will be developed and piloted (see 6.2.g) for high school students. This career development program will explore the landscape of environmental and energy careers. Green Pathways enables students to expand and apply what they learned in the Energenius program in the context of developing personal interests and planning career goals and strategies in the green economy. Extending beyond high school, Green Pathways will link and leverage program resources with the Community Colleges providing additional educational opportunities for students to pursue green jobs and careers. Together, Energenius and Green Pathways provide a comprehensive “green” education and career development experience.

School Presentations

The program will develop resources and presentation materials to help schools that are interested in going green. Resources will include models for assemblies, classroom presentations or helping them coordinate implementation of green projects at their site. Coordination would include helping them develop an action plan and timeline for implementing the various green projects. Once the plan is developed they will go to the community for support for implementation. The local Waste Management company can help set up a recycling program, the water district and PG&E can do a walk through of the campus to identify water and energy efficiency tips. The class or club would decide based on their time availability what is reasonable to accomplish.

Energy Patrol

School workshops will be conducted using the Energenius Energy Patrol Handbook and videos. Workshops will include an actual monitoring activity and all schools will receive follow up assistance with implementation... Energy Patrol programs help schools to monitor energy waste and energy efficient actions at the school site.

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Green Careers Curriculum for Secondary Students

New program materials that focus on both living and working in a green global economy will be developed for high school students. This curriculum will provide students background knowledge on renewable energy and energy efficiency, trends in green job growth, green careers today and those projected for the future. The high school program will include references to the California Career Technical Education (CCTE) model curriculum standards. The curriculum will be made available to career centers, environmental groups on campus and could serve as a guide to holding green job fairs and career days on campus. This high school material will support the Green Pathways program.

The new program designed for middle school students will provide career awareness activities that relate to green jobs and careers. The materials will provide students the background needed to understand the relationship between energy efficiency, renewable energy and the green jobs and careers that are available. This middle school program will be marketed through the existing channels that the Energenius K-8 program series is at this time.

Curriculum on Analyzing Energy Use: Introduce a mini curriculum that supports the use of the Home Energy Efficiency Survey (HEES). Piloting of these materials is in progress in the second quarter of 2009. The goal of this unit is to interest students and their families in ways that they can save energy at home.

Conference, Exhibits and Presentations: Our goal is to attend at least 10 educational conferences annually to promote Energenius materials and workshops and to provide general information on energy efficiency. When possible, presentations during the conference will be made.

Resource Guide for Teachers: Maintain a yearly update on "Energy Education Resource Booklet" which provides an annotated listing of sites for teachers and students covering issues on energy, energy efficiency, and the environment.

Energenius will coordinate with PEAK Student Energy Actions educational program or other K-12 programs where possible. PEAK compliments Energenius by covering demand side management concepts (shifting use to off-peak hours) and the science of energy.

Expansion statewide teachers would be able to access information on these program materials and order them through the statewide WE&T "Web Portal". **Green Pathways High School (9-12 grade) program (PG&E only)**

For 2013-2014, Green Pathways will be a local PG&E program. Green Pathways is a green workforce development high school program. The program was approved and developed during 2010-2012. (Filed Advice letter #3080-G/3596-E.) The pilot included research, development, and testing in collaboration with student and adult

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stakeholder groups. The goal of the pilot—to determine proof of concept for a program that addresses unmet market needs and regulatory requirements—was accomplished. Green Pathways is now positioned to serve students and communities in the PG&E service area in 2013-2014 with the potential to reach students and communities statewide thereafter.

Green Pathways is the only targeted high school Connections program that leverages the online environment and social networking trends in education, utilizing online learning and communication. The Green Pathways online course completes the K-college level program continuity in energy efficiency education and career preparation. The online community engages professionals in the green workforce to inform and inspire students to pursue green careers. By leveraging the reach, economy, and scale inherent in online resources, Green Pathways provides a strategy that introduces California's emerging high school-college workforce to opportunities to contribute creatively and productively to California's environmental sustainability solutions.

The WE&T goals of the California Long Term Energy Efficiency Strategic Plan (CLTEESP) and the 2012 Needs Assessment Recommendations are reflected in the goals, content, and marketing strategies of Green Pathways. Section 9.5 of the Strategic Plan stresses that curriculum should include energy efficiency fundamentals and identify career options in energy related fields. These concepts are integrated into the Green Pathways online course and community. Green Pathways also provides pivotal gateway information and experiences to prepare high school students to identify and secure future internships and work opportunities. The online community will represent our cross sector partners from industry, trade and professional organizations, educational institutions, and local and state agencies. It will engage multiple stakeholder groups representing diverse market sectors such as business, industry, government, and CBOs. Green Pathways will be made available to geographically and socio-economically diverse communities within the PG&E service area. In meeting Goal 2 of the Strategic Plan, Green Pathways has already implemented a marketing plan to ensure that minority, low income, and disadvantaged communities have full access to the program. Green Pathways includes four key elements: an online course, a web-based learning community, volunteer green professionals (Green Gurus), and teacher professional development. These components provide students with a unique workforce development resource that integrates career preparation with environmental sustainability and green employment. It also provides teachers with a relevant, real world, green curricular context that enhances their curriculum. It seeks to increase students' awareness and involvement in their community about local environmental challenges, strategies and solutions, and related career opportunities.

Online Course

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The Green Pathways course provides a flexible vehicle for use by educational institutions, CBOs, and independent and home school students. Delivery options could involve one consolidated period of time or span a few weeks or semester. The multi-week course complements teacher's curriculum and can be used in conjunction with a variety of high school courses. It can also be integrated into after school programs, clubs, or CBOs' youth programs. Green Pathways equips students with the knowledge, skills, and resources to begin a path toward green careers. Course content is divided into modules that include Environmental Sustainability Challenges, green careers addressing those challenges, and career exploration/preparation strategies. Online tools and resources include career assessments, the Department of Labor's jobs database, video/media, and discussions with Green Gurus and Career Coaches. Course completion includes certificates of completion and possible course credit options.

Online Community

The online learning community is a communication and collaboration hub to achieve dual goals of (1) providing environmental sustainability content and (2) catalyzing resource sharing across regions, market sectors, and organizations. Students and teachers build relationships with peers from other school districts and communities that otherwise would not be possible. It hosts Green Gurus and Career Coaches in a variety of interactive formats including blogs, Q&A, discussions, and webinars. These experts offer information and guidance and serve as a source of networking contacts, potential internships, and possible work opportunities. Students create a personal profile that showcases their green career interests, work and volunteer experience, and desired pathway. As members of the Green Pathways community, students may participate in community activities as they build their path toward a green career.

Professional Development

Professional development ensures the successful delivery of Green Pathways by educators and program directors. For many, an online course and communication platform may be new. Leader preparation introduces the knowledge and skills needed for orchestrating a successful online learning experience. Instructional materials and web-based training sessions will be provided. Ongoing interaction among participating leaders will encourage learning from each other and support a successful implementation.

Collaboration and Community Building

In the service of developing tomorrow's green workforce today, Green Pathways creates motivation and a vehicle for cross-sector collaboration, community building, and communication. Green Pathways is positioned to link and leverage its resources and those of our partners and related initiatives such as the IOU Connections, Centergies programs, and the Green Pathways Sector Strategy. The program will reach out to Workforce Investment Boards, representatives of local and state agencies, professional and trade organizations, unions, and providers of

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apprenticeships and training programs. These partner resources —along with community college, four year, and graduate programs— will provide relevant job, preparation, training, and internship information to Green Pathways students and teachers locally and regionally.

LivingWise (SCGSoCalGas and SCE)

For the 2010 to 2012 program cycle;2013-2014 transition period.

LivingWiseLivingWise® is proposed as a continuation of a successful program partnership between SCE and SCGSoCalGas. LivingWiseLivingWise® program target 5th and 6th grade students, and is usually incorporated into the science and math classes over a 4 week period. Local water providers are also contacted regarding their interest to co-sponsor the LivingWiseLivingWise® Program in their service territories. LivingWiseLivingWise® provides classroom learning activities and take-home kits to elementary and middle school classes. The kit contains energy and water-saving products such as a compact fluorescent lamp and high efficiency showerhead as well as other items to introduce energy efficiency and water conservation to children and their parents. The program features a blend of classroom learning activities, hands-on energy survey and installation projects which students complete in their homes with parental assistance. In addition, LivingWiseLivingWise® participants will be provided lesson plans as well as classroom discussion in the area of energy efficiency, demand response, distributed generation, water conservation and careers and job opportunities in the new green economy. These lesson plans come in the form of an activity booklet that addresses electric, gas and water conservation as well as green-house gases, renewable energy and careers in green jobs.

Program Activities

Interactive: Interactive school-to-home program for students

LivingWise® Activity book: The LivingWise Teacher Activity Guide enables teachers to meet academic content standards in science, math, and environmental. Lessons are designed to be fully comprehensive and contain the following: student learning objectives, post-activity reflection and environmental impacts.

The activity books contain the following lessons:

- Electricity;
- Natural gas;
- Water conservation;
- Renewable energy;
- Distributed generation;
- Greenhouse gases;
- Demand response; and
- Careers in the new green economy.

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Classroom activity: Teacher-designed classroom activities that reinforce student work on critical State Standards for core subject areas (math, Science, environmental).

Hands-on: Hands-on projects that utilize kits containing energy and water efficiency technologies that students directly install in their homes, thus reinforcing education results.

Family involvement: Involvement of parents to shape family habits and awareness of the benefits of energy and water efficiency

Fully integrated energy efficiency program: Collaboration with Southern California Gas Co and local Water agencies ensures that program covers electric, gas, and water as well as greenhouse gases, renewable energy and careers in green jobs.

Coordinate with other SCE internal departments to promote and facilitate Consumer and Business Incentive Programs.

Teachers are required to incorporate lessons from each of the following areas: electricity, natural gas, renewable resources, GHG and green jobs into their math, science or environmental classroom activities as possible. This program is very adaptable to different teaching styles and compliments California's science and math curriculum.

Initial implementation includes program customization to promote utility energy efficiency programs, demand response, distributed generation, water conservation as well as a green career path. The program also features a) pre-survey – that kids complete at the start of the program to determine their knowledge of energy efficiency, b) Household report card – that provide valuable information about household environment and conservation behaviors, c) post-survey – the kids complete after going through the program and allows us to see program effects on their knowledge.

Green Schools (SCE)

College and University sector

Green Campus

Marketing and outreach efforts to increase the transparency of campus energy efficiency goals and results, as well as Green Campus projects: Green Campus Interns will launch termed and ongoing educational campaigns for students, faculty, staff and administrators. In order to achieve and sustain cross-campus buy-in for energy efficiency goals and projects set by individual campuses and/or utilities, the program will:

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- Promote campus awareness of energy efficiency opportunities and work being done on campus. Green Campus Interns will publish a monthly newsletter describing their ongoing campus outreach efforts, in order to increase awareness about their projects and those of the campus stakeholders and university system. ~~The students will also coordinate to bring a Mobile Energy Unit (MEU) to campus awareness events where available.~~
- Distribute IOU Energy Savings brochures containing details about our commercial and residential EE, DR, DG and Renewable energy programs are provided on campus to administrators and students, and
- Place an emphasis on working with minority and disadvantaged groups throughout the campus.

Community College Ssector
DEEP (SCE only)

~~This program is targeting community colleges on a limited basis. Working with the Community College Chancellor's Office to target campuses with strong sustainability programs.~~

California Community College IOU Partnership

The partnership will implement a training and education (T&E) program focusing on energy efficiency courses for CCC facilities, operations and maintenance staff. The partnership is also actively working with other CCC and community stakeholders on curriculum and Workforce Education and Training Strategies (WE&T) for students and industry to develop a green career path and workforce in support of the Strategic Plan goals. The basis of the T&E program will be to coordinate with the IOU training centers to customize existing course offerings in the HVAC, controls, lighting, commissioning, and green building areas and deliver them to the CCCs via direct training at the campuses or via telecasts or webinars to many campuses on a distributed basis.

~~The CCC approach was established in the 2006-2008 program cycle on a pilot basis, and will expand it to a comprehensive program offering for 2012-2012.~~

Adult School / Post High School

CLEO

~~The CLEO program will promote all energy efficiency and demand reduction programs that would benefit that community using brochures and written materials, interactive displays, newspaper advertising, radio advertising, online website presence, and static displays.~~

~~The CLEO program message will encourage customers to participate in SCE's programs and services, and will coordinate with SCGSoCalGas and the local water agencies and will promote increased awareness for customers to understand~~

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the structure and opportunities for energy conservation and efficiency, both at home and in their businesses.

K-12 Sector

PEAK (statewide)

This program will be targeted to associations, school districts and ~~will be included in up to 8~~ teacher conferences ~~a year~~. Part of this marketing will include targeting low income and disadvantaged communities. The method used to identify low income and disadvantaged communities is by the percentage of students on school lunch programs. In fact, our goal is that 50% of program participants come from the low income and disadvantaged groups.

~~Information about our residential EE, DR, DG, and renewable energy programs are provided with our Peak program. This information is intended to be included as part of class discussion as well as taken home to be discussed with parents.~~

~~Schools that have used this program and see the impact it has on the students, request the program year after year as well as inform other teachers about the benefits. Even though every new year brings new students, we try to broaden the programs reach to a few new schools every year.~~

- -Design & production of PEAK tradeshow marketing materials including a new marketing brochure and other targeted marketing pieces that are consistent with statewide marketing.
- Participate in community events that support marketing of program.
- Enhance the peakstudents.org website.

Energenius (statewide to be established PG&E only)

~~Each year, more than 10,000 teachers receive a targeted mailing that promotes the Energenius program materials. Annually, the Energenius program exhibits at 11 educational conferences to market the program to teachers. Educational conferences provide a way each year to contact more than 15,000 teachers and other educators.~~

~~The Energenius Program in 2013-14 will increase its marketing effort by implementing new internal collaborations within PG&E and expanding upon present efforts. Over the last decade the Energenius take home materials for families have included information that support the low income programs, rebate offers, and home energy efficiency surveys. Each year up to 80,000 families have received this information brought home by their children who have used the Energenius student materials. In addition, PG&E materials on energy efficiency and those on low income programs are always available at the teacher conferences where the Energenius program is exhibited. Samples of these materials in languages other than English are also displayed.~~

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Going forward, the Energenius program will help facilitate the promotion of the educational materials by staff working with the low income programs. While in the communities they could distribute Energenius promotional posters and flyers. In addition within PG&E there are staff and volunteers (e.g. Ambassadors, Junior Achievement) who are in contact with schools and/or teachers that could help promote the programs.

In 2013-14 PG&E will be researching ways to link the Energenius information on its website with external partners that interact with schools in its service area.

The Energenius program will be marketed in three major ways. A targeted mailing is done twice a year, September and February to about 10,000 teachers statewide. The teacher names are acquired through Market Data Retrieval and the mailing is done by the fulfillment house. Another method of marketing includes attending up to 10 teacher conferences a year. Energenius materials are displayed and teachers can order them at the conference or instructed to go online. Program staff attend professional association meetings, distributing information on educational programs, including but not limited to: The Coalition of Adequate School Housing (CASH), California Association of School Business Officials (CASBO); Small School Districts Association and American Association of School Administrators. Additionally, Energenius staff will make presentations to school district facility managers and school administrator meetings.

- *—A great majority of teachers that order these materials year after year and have made it part of their regular curriculum.
- *—Our marketing will target low income and disadvantaged communities and, our goal is that 50% of program participants come from the low income and disadvantaged groups.

Green Pathways (PG&E only)

Green Pathways will be marketed within the PG&E service area. As a green career curricular resource, Green Pathways complements a range of curriculum and program offerings in schools, CBOs, and for independent and home school students. Environmental and green curricular offerings such as other IOU Connections and Centergies programs, Green and New Energy Academies, Career Technical Education, and ROP and AP classes will be targeted. Other marketing targets include courses that prepare students for their senior year internships, as well as after school programs, green clubs, and career preparation programs through community organizations.

Each target program has corresponding local or state conferences and meetings at which Green Pathways will present informational material. Webinars or short online dialogues will be hosted to share information about Green Pathways. Collaboration and co-marketing with other programs will expand our reach.

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Social media including Facebook, Twitter, and Green Pathways offer avenues to reach educators, organizations, and Green Gurus.

LivingWiseLivingWise® (SCGSoCalGas and SCE)

Marketing consists of targeted mailing to schools and districts within the affected service area. Information about the program is mailed, emailed, faxed and made available via a web site. Interested schools or teachers would contact the third party vendor to participate in the program. The third party vendor first validates the schools are in IOU service area by contacting the IOU. Once schools have been involved with the program, they request it again in following years as well as refer other teacher to the program.

- Our mMarketing will also target low income and disadvantaged communities and, our goal is that 50% of program participants come from the low income and disadvantaged groups. Low income and disadvantaged communities are identified by the percentage of students on a school lunch program.
- Information about our residential EE, DR, DG, and renewable energy programs are provided through the LivingWiseLivingWise® program. This information will be included as part of class discussion as well as taken home to be discussed with parents.
- Teachers truly see the benefit of this program and the impact it has on the students and their families and, it is evidenced by requests year after year to have this program at their schools.

Green Schools (SCE)

~~Since this program is implemented at the district level, this program is target marketed to school districts in the IOU service area. The program will also continue to expand the reach to low income students (currently 68% of schools have greater than 50% qualifying for reduced school lunches). This is a K-12 school program but at the request of the PUC, we in support of the California Needs Assessment, will make every effort to enroll a greater number of high schools in the program so as to prepare students for careers in the green workforce and/or higher education with an emphasis in a green career.~~

- ~~• Information about our residential EE, DR, DG, and renewable energy programs are provided through the Green Schools program. This information will be included as part of class discussion as well as taken home to be discussed with parents.~~
- ~~• This program was a two year program for program cycle 2006-2008 but will be changing to a one year program starting in 2010-20122013-2014. The reason for making this program change was to make this program available to more districts/schools/teachers. We receive many district requests asking us to continue the program; however, we cannot forsake all other customers in our service area. We explain that our hope was for~~

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~~the program to provide a foundation for energy conservation to continue at your school district and, offer our support in other ways.~~

K-College Outreach

Mobile Education Unit (SCE only)

~~SCE will also use specially trained individuals teach students about energy and promote integrated tools and services to customers, and to help SCE build awareness, while creating a real-time, interactive connection with the customer.~~

- Will continue to work with State Department of Education (Curriculum Commission) on the development of Energy and Utilities Sector Curriculum Standards to be included in curriculum development advisory boards so that we can contribute to tailored K-12 curriculum that includes the science of energy, energy efficiency and some discussion about green careers.
- Will also work with the UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields.
- Will work with CBOs, FBOs, NGOs, and others as part of the through a WE&T taskforce in an effort to advance WE&T goals.
- Will work with water management agencies, air management agencies or other government entities to establish a network of internship opportunities for students in pursuit of a green career.

b) Program delivery and coordination

i. Emerging Technologies Program

This program will have regular communication with the ETP, as emerging technologies will be very important in what is taught all levels of the education system.

ii. Codes and Standards Program

We have discussed this WE&T effort with Codes and Standards and have agreed to keep the lines of communication open and schedule ongoing discussions.

iii. WE&T Efforts

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The WE&T Connections ~~Sub Program~~Subprogram will support the other IOU EE Programs as appropriate.

- iv. Program-specific marketing and outreach efforts (Budget provide in Table 1)

Refer to Section 6.2.a.iv. for all discussion of marketing and outreach plans.

- v. Non-IOU Programs

We currently collaborate with local water agencies with a few of our programs and will continue doing so for the ~~2010-2012~~2013-2014 cycle. Additionally, we will work to involve and coordinate some of our educational efforts with environmental agencies/groups to show the linkages between energy conservation and the environment.

- vi. CEC work on PIER

No anticipated direct work with PIER from this ~~Sub Program~~Subprogram's activities.

- vii. CEC work on codes and standards

The IOUs will work with the CEC and the IOU Codes and Standards programs to improve code compliance through coordinated education and training delivery.

- viii. Non-utility market initiatives

Refer to WE&T Planning ~~Sub Program~~Subprogram Section 6.3 for more discussion on efforts in the education and community sectors.

c) Best Practices

~~2006-2008 Process Evaluations are not yet complete but, we are prepared to make modifications to programs once a list of improvements are provided. These programs have incorporated already California Needs Assessment Study recommendations and will work to incorporate Opinion Dynamics study recommendations as the study is released in 2012.~~

Green Campus – Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, ~~initial feedback from 2006-2008 process and impact evaluations- the California Needs Assessment recommendation have incorporated~~ has been included in the redesign for ~~the 2010-2012~~2013-2014, transition period program cycle. ~~Final evaluation reports and recommendations are not yet available.~~

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~~DEEP~~—DEEP was created as a result of the CA Needs Assessment study from 2011. The study identified a gap in service for this community college sector and SCE moved quickly to close that gap by developing an innovative community college program.

CLEO - Media marketing has proven to be the primary mechanism to generate community awareness about the CLEO Program and its offerings. Internal metrics further outline the importance of the marketing mix, as well.

The program relies on a dynamic EM&V to gauge the program’s success and to listen to the customer for feedback. These are transformed to ‘lessons learned’ and incorporated in to the program strategy and offerings. For example, in 2006-2008, costly television spots were swapped for effective newspaper and radio spots, as illustrated above.

PEAK – The first PEAK program was launched in Laguna Beach in 1979 and since then has evolved into the comprehensive, standards based program that exists today, reaching thousands of students across California. Past experiences have lead to best practices in the following years. Additionally, PEAK is the recipient of the 2010 Governor’s Environmental and Economic Leadership Award.

~~Energenius—This educational series continually evolves to address the changing needs of classroom teachers and their students. The Energenius program strives to create quality materials that reflect California State Department of Education (CDE) frameworks and connect with content standards.~~

Another important practice that has increased in importance over the years is the early involvement of classroom teachers beginning with pre-development focus groups. Teachers are recruited to review draft materials and submit written evaluations. The piloting of selected lessons and activities with students is encouraged. Input from teachers, both formal and informal, has been valuable in the development of the teacher guides, student activity books and other materials found in the eight Energenius programs.

Exhibiting and meeting teachers at educational conferences has been another important practice. Besides providing a “pulse” to what is going on in schools teachers at these conferences offer numerous comments and ideas related to existing and future materials. Teachers for example, at an early childhood conferences were asking when PG&E will have its pre-kindergarten program as we know that “good energy-saving habits” begin early. With this encouragement, a new Energenius pre-K program is being launched in 2012. The Energenius educational program series has flourished since 1991. Over the years the program materials have been updated and enhanced and at present new units are under development. Teachers are always used to review and field test materials during the development phase and on-going evaluation of existing materials allow educators to have input into updates and revisions.

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~~Energenius materials now under development will all have content related to green careers and jobs, greenhouse gas emissions, global climate change, environmental impacts of energy production and use. As age appropriate this content will also be added to the existing program K-8 materials. The appeal of all the Energenius program materials includes that lessons and activities make clear connections to California Content Standards in science and other disciplines. These correlations to the Energenius materials are important to teachers and school administrators and help ensure that the content is taught.~~

~~**LivingWiseLivingWise®** - Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, the California Needs Assessment recommendations have been incorporated initial feedback from 2006-2008 process and impact evaluations has been included in the redesign for the 2010-20122013-2014 transition period program cycle. Final evaluation reports and recommendations are not yet available.~~

~~**Green Schools** - Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, the California Needs Assessment recommendations have been incorporated in the redesign for the 2013-2014 transition period.
Additionally, initial feedback from 2006-2008 process and impact evaluations has been included in the redesign for the 2010-20122013-2014 program cycle. Final evaluation reports and recommendations are not yet available.~~

d) Innovation

~~This area will be addressed once process evaluations are complete.
DEEP—This program was developed and implemented as a result of to address a gap in services was identified in the CA Needs Assessment study of 2011. We will address this area once process evaluations are complete.~~

~~**Energenius**—The program materials have been developed by PG&E so the cost for implementing statewide (printing and developing new programs with statewide reach) keeps the cost low. It is relatively easy to make changes to the curriculum and incorporate information about energy efficiency programs and services, issues related to global climate change, and green careers.~~

~~**Green Schools**—Its unique approach integrates school facility energy savings with energy savings instruction and action for students to use in school, their homes and their community.~~

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e) Integrated/coordinated Demand Side Management

Refer back to Section 6.2.a.ii for more information.

IDSM concepts are incorporated in Connections programs on an age appropriate basis, as described in previous sections.

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f) Integration across resource types

All of the University, Community College, and K-12 components will ensure that include curriculum to help students understand the science of energy, energy efficiency and conservation, demand response, and renewable and distributed generation, as well as the environmental and economic impacts of energy consumption. Also, the goal is for students to understand the energy-related environmental connections, such as global climate change and the linkage between greenhouse gas emissions and energy use. In addition, materials will go beyond the energy efficiency fundamentals and introduce information on careers and job opportunities in energy-related fields and in the green economy.

g) Pilots

No pilots are being proposed for SoCalGas.

~~**Green Pathways (PG&E):** This program will be piloted in the PG&E service area in 2010-2012/2013-2014. This is a career development program for high school students throughout California that will cultivate the next generation of “green” professional and vocational careers. Green Pathways creates an interactive learning environment utilizing web-based dialogues and other network-based communications that engage students and teachers with practicing and retired professionals in business and industry, professors and researchers in higher education, and local and state government. It incorporates the fundamentals of career development planning and strategy in the context of energy and environmental education. A repository of information resources will be created and made available through multiple electronic formats for wider distribution. The program will be conducted in conjunction with high school classes and will provide teachers with curricular resources for guiding students. It can develop linkages to California community college programs and provide resources to career counselors, professors and students. This pilot will initially target Bay Area schools and will scale to involve high schools/community colleges in multiple geographical areas in 2011. **Green Training Collaborative (SCG):** This program will be piloted by SCG will continue in 2013/2014. This is a pilot program to involve local community education institutions and training programs in energy-related career development strategy sessions. SCG will coordinate with regional implementers of such career programs to discuss projects that allow students and other potential green workforce candidates to explore energy efficiency, integrated demand side management technologies and resources management techniques. The program would be to add experience to participants pursuing green careers and employment~~

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unique to the region. The program will be evaluated to determine best practices that evolve in tailoring career develop coordination for specific regional needs. The program will rely upon fund and resource sharing from among the collaborative.

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

IOUs will continue to work with EM&V to assess market effectiveness and impacts of educational education training programs. IOUs will also work collaboratively in the development of their pilot projects described in Section 6.1.g. The IOUs currently working with Opinion Dynamics with regard to final process and impact program evaluations conducted in 2008. Once the evaluations are complete, the IOUs will review and determine if and how to incorporate into our program plans.

4. Program Diagram

See above Section 6.2.

5. Program Logic Model

Below is the logic model for the WE&T Connections Subprogram. ±

The activities shown in the Connections logic model fall into two primary categories. The first is focused on marketing programs, especially to hard-to-reach and disadvantaged communities. In addition to marketing efforts directed at Title I schools, this activity will include partnering with organizations that operate in the communities of Title I schools.

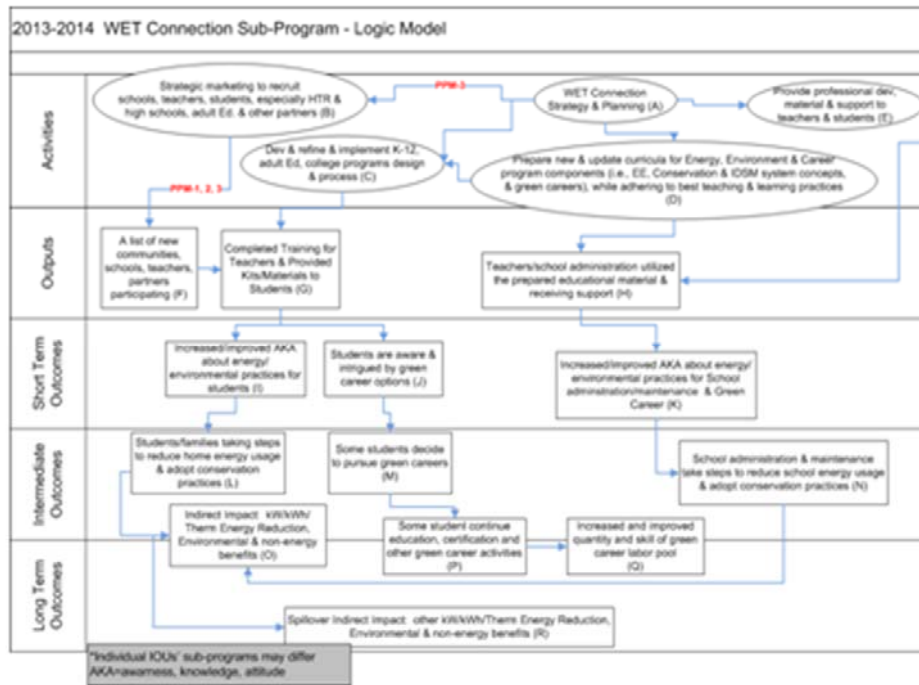
The second focus of the Connections activities is on preparing new curricula and refining program design and processes. It is expected that these activities will produce programs and curricula that lead students to understand energy and conservation and their importance, as well as how to use energy efficiently in their households. They are also expected, as a result, to influence their families to do the same. Likewise, some curricula support the incorporation of energy efficient practices and technologies in classrooms and schools.

The curricula and program design will include information and resources on career options in energy-related fields, with an intended outcome being that some of the students

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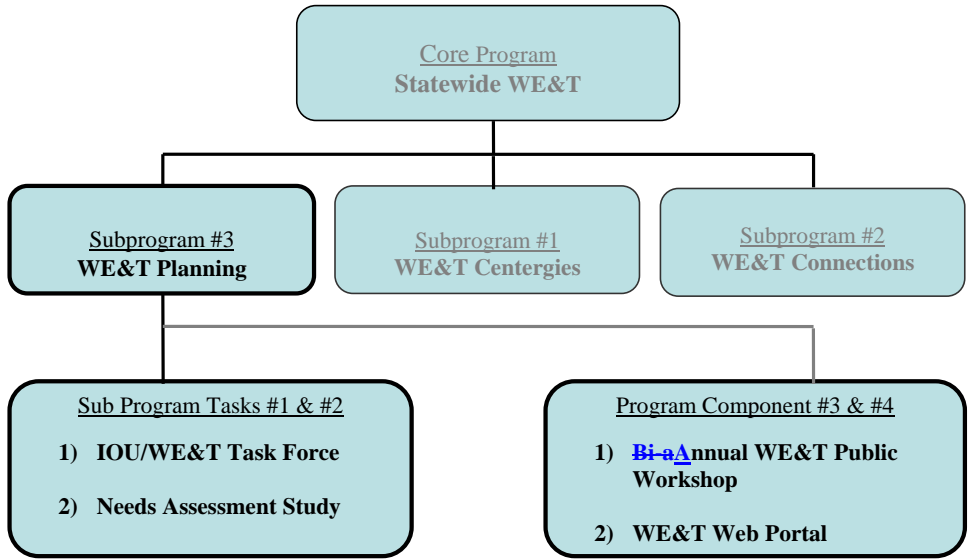
exposed to green career resources will ultimately decide to pursue green careers as a result.

All of these activities are expected to lead to classes that improve AKA of students, their families and teachers and encourage students to pursue green career options. Activities focusing on saving energy on school campuses will also lead to improved AKA about energy and environmental practices within the school and at home for the students. Ultimately, these activities and outputs are expected to result in indirect energy savings.



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6.3) Sub-Program Implementation – WE&T Planning – SCG3731



a) Statewide IOU Coordination

i. Program name

Statewide WE&T Planning is a Sub-Program within the Statewide WE&T Core Program, formed by the IOUs as a direct response to the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). The WE&T Planning Sub-Program involves management and execution of several strategic statewide planning tasks intended to help sustain momentum in long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs.

The WE&T Planning Sub-Program was created to facilitate implementation and completion of the four key strategic tasks identified in the Strategic Plan to drive long-term WE&T development:

- 1) Form an IOU/CPUC WE&T Task Force
- 2) Conduct a Needs Assessment
- 3) Create a WE&T Specific Web Portal
- 4) Annual WE&T Public Workshops

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In order to meet the state's growing workforce demand, a concerted planning effort that includes a variety of initiatives and funding sources beyond ratepayer funds is required. Such an effort will demand the collaboration and involvement of secondary and post-secondary education leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, and construction and manufacturing businesses that deliver energy efficiency solutions. The IOUs will support the larger statewide effort, and will help ongoing development of WE&T programs through their WE&T Planning coordination.

ii. Program delivery mechanisms

Implementation activities will be informed by the statewide scoping study and needs assessment. The IOUs are expected to direct much of the work needed to complete the assessment, which will identify existing WE&T infrastructure and capacity, anticipate future needs, and specify urgent gaps that need to be addressed.

Based on the statewide needs assessment, a strategic plan, outlining at least existing and anticipated green collar jobs and the skill sets that are likely to be demanded by industry, will be presented. Organizing these skill sets into practical career paths should influence communication, development, and implementation of future WE&T programs.

Funding for actions based on the above mentioned scoping study, needs assessment, dialogue with stakeholders and task force conclusions will be required to impact the WE&T needs in time to support the urgent needs of the Integrated Demand Side Management (IDSM) Portfolio. Such implementation actions may include collaboration with appropriate educational sectors as prioritized by the needs assessment to act as catalysts to enhance conventional educational efforts to accelerate the mainstream adoption of green career support.

The statewide IOU Planning tasks will be shared among any other statewide planning and training implementers and be coordinated, where plausible, with the IOU WE&T Centergies and IOU WE&T Connections Sub Programs. A statewide WE&T web portal could ultimately serve as a central repository for exchanging training and job opportunities, as well as statewide and national developments linked to California workforce initiatives.

Four specific key actions to be completed in the near term to drive long-term WE&T development and strategic planning. The Taskforce formed from the California strategic plan is intended to identify funding streams other than ratepayer funding, identify market sector specific needs, and inform short-term actions to initiate longer-term strategies for each market and educational sector.

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- 1) *Energy Efficiency WE&T Task Force.* The Task Force is expected to be comprised of energy efficiency and demand side management IOU program representatives, CPUC staff, labor, industry representatives, and educational experts to fulfill administrative functions including: developing a needs assessment RFP; selecting the third party to conduct the needs assessment; and managing the needs assessment evaluation. The Task Force members will continue to help implement the goals and strategies set forth in this Strategic Plan. Beyond the representation listed above, the WE&T Task Force will rely on commitments for involvement from educators and educational administrators, labor representatives, community-based job training leaders and other non-IOU energy efficiency program implementers

The WE&T Task Force is in the early stages of formulation. Reports on existing WE&T related programs and efforts as well as discussion of new WE&T programs and efforts will be core topics of these meeting sessions. The Taskforce will provide a formal framework for all members to get updates, provide feedback and be actively involved in discussing studies, programs, projects, and WE&T efforts being implemented under the strategic plan and other related state initiatives. Task force meetings represent work sessions to review and refine WE&T coordination efforts among stakeholders.

[During 2013-2014, the Task Fforce is no longer in its early stages of formulation and will continue to engage with stakeholders and provide updated reports on WE&T programs and efforts.](#)

[An update on Needs Assessment recommendations was provided in the Joint IOU WE&T Annual Report, submitted on May 1, 2012. Per the Guidance Decision, the IOUs will work with Commission Staff on the WE&T Task Force to develop a data request template to be submitted by Staff as needed for periodic updates on the status of the utility's Sector Strategy activities. This provides a more specific and extended role for the Task Force.](#)

- 2) *WE&T Needs Assessment:* ~~An in depth formal statewide training and education resource inventory and needs assessment is necessary for long-range strategic planning and delivery. The needs assessment and resource inventory will be structured to produce short-, near- and long-term workforce strategies to support each sector defined in the Plan. The assessment will be completed by a third-party with its process managed by the CPUC and IOUs, in collaboration with the California Department of Education and other involved stakeholders.~~ The Workforce Needs Assessment study identifies preliminary findings, and in some instances, recommendations, for statewide WET program and/or subprogram considerations. The Joint Utilities ~~will~~ work collaboratively with Energy Division staff to select a subset of these

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findings and/or recommendations to evaluate implementation feasibility as part of the 2010-2012 program activities, which were approved by the Commission through a joint WE&T Advice Letter. The findings of the Needs Assessment (ordered in Decision 08-09-040) and recommendations will be presented within one month of dissemination at a public workshop to allow for public comments and further discussion. The findings will be also be made publicly available through posting to the energy efficiency web portal (engage360.com) to the service list in this proceeding and the Distributed Generation and Demand Response proceedings. Within 60 days from the date of the workshop the utilities will jointly file an Advice Letter to modify the existing Workforce Education and Training statewide program consistent with the Needs Assessment.

Update from May 2012 PIP Addendum:

In compliance with Commission Decision 09-09-047, a joint IOU advice letter was approved by Energy Division by letter dated October 28, 2011. PG&E Advice 3212-G-B/3852-E-B can be found at this link:
http://www.pge.com/nots/rates/tariffs/tm2/pdf/ELEC_3852-E-B.pdf.

In addition to the information provided in PG&E's Advice 3212-G-B/3852-E-B, in 2012, PG&E launched a Commercial EE Sector Strategy at a Strategic Convening (Convening) in order to get alignment and coordination around the creation of the Commercial EE jobs necessary to reach PG&E's portfolio goals, as well as initiate new partnerships. PG&E SCGSOCALGASoCalGas has initiated steps to develop sector strategies in other sectors, including the commercial building HVAC sector, the architectural design sector, and small/medium business building audits. PG&E has IOUs have restructured educational programs toward structured course series to serve particular sectors. PG&E SCGSOCALGASoCalGas has also often allocated resources and partnered with community colleges and workforce investment boards to assist unemployed building operators toward completing a certificate program series.

Details on these efforts will be provided in the 2012 WE&T Annual Report.

IOUs will implement WE&T sector strategy programs started in 2012. In compliance with Decision (D.) 09-09-047, the Investor Owned Utilities submitted for approval their joint IOU Advice Letter (AL) and supplemental filing proposing modifications to the existing Statewide Workforce Education and Training (WE&T) program based on the recommendations of the WE&T Needs Assessment. The Needs Assessment recommendations focused on a Sector Strategies approach, working closer with trades associations, collaborating with more parties on credentials and certifications, restructuring Energy Center course presentment, support for curricula development, targeting of disadvantaged workers, and evaluation of workforce outcomes. Other relevant Needs

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Assessment recommendations focused on collaboration with the all educational sectors, career education, and evaluation plans on K-12 programs.

The ~~Advice-Letter~~ provided a general outline of the plan the IOUs would be following to achieve progress for enhancing and more clearly demonstrating necessary changes to the IOU WE&T program to align with shifts in IOU resource program requirements and industry workforce demands. Comments submitted prior ~~previous to this final CPUC~~the Guidance ~~d~~Decision illustrate the varying uncertainty on long-term career pathways into green jobs. The IOUs indicated quarterly actions to be achieved during 2012 based primarily in response to the Needs Assessment recommendations, recognizing there were impending change forthcoming in such areas as IOU Residential, Commercial and HVAC SW programs. The current 2013-2014 Guidance Decision-09-11-014 provides significant guidance that will allow the IOUs to move more decisively on its Sector Strategies action plan. The general plan of action proposed for 2012 will take greater shape and the 2013-2014 period ~~transition-cycle~~will provide a critical space to apply and align Sector Strategies approaches with the Residential sector ~~Energy Upgrade California-Whole Home Upgrade Program~~program, Emerging Technologies, Commercial Buildings programs and Codes & Standards.

Per the ~~Joint IOU A~~Advice-Letter, activities to develop sector strategies that are currently in progress and will be put into place as other workforce sectors become part of the Energy Centers' focus include:

- Develop partner criteria desired to help achieve goals and objectives for each targeted Sector Strategy area
- Identify potential Sector Strategy Partners based on desired criteria and existing collaborations as well as necessary "new" ones for each targeted Sector Strategy area
- Outreach to identified partners for each targeted Sector Strategy area
- Initiate IOU / Partner working group for each targeted Sector Strategy area.
- Identify shared goals & objective for each targeted Sector Strategy area.
- Develop a shared vision & mission statement with corresponding goals & objectives for each targeted Sector Strategy IOU / Partner working group
- Identify and develop timelines & roadmaps / action items / roles & responsibilities for each targeted Sector Strategy IOU / Partner working group
- Identify reporting vehicles and reporting schedule for each targeted Sector Strategy IOU / Partner working group
- Within each Sector Strategy working group, initiate identification of lessons learned / best practices and executable partnership activities that help achieve goals and objectives previously identified. These lessons learned, best practices and activities will be included in program planning for the next program cycle.

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The IOUs propose continuation of the approved joint IOU Advice-Letter plan of action through 2013-2014 in coordination with changes occurring among resource programs directed in this Decision, as well as workforce skills and qualifications demanded in the market place.

— *WE&T Web Portal:* The web portal will include links to various demand-side management (DSM) related training programs and will allow for a single point of communication. The portal will also serve as a repository for demand-side management and energy efficiency training, educational conferences, and career opportunities. This portal will be created and funded in collaboration with other appropriate entities, and linked to the statewide energy efficiency web portal.

- 3) The initial planning was to develop the WE&T web portal within the existing EE Web Portal (www.engage360.com). However, the October 13, 2011 Assigned Commissioner's Ruling from Commissioner Ferron required that IOUs suspend all spending on the EE web portal. Further direction was provided in D. 12-05-015 (OP 127) that the web portal content from Engage 360, shall be fully migrated to the Energy Upgrade California Whole Home Upgrade Program web portal, with the Engage 360 web portal decommissioned, by no later than the end of 2013. Once the web portal content has been migrated, the WE&T Program seeks to also minimize web portal maintenance costs while maintaining its commitment to delivering a workforce portal. IOUs will work with the ME&O program to explore creating web content linked to the statewide the practicalities of Energy Upgrade California-Whole Home Upgrade Programweb portal.

IOUs propose continuing portal development of relevant Phase 1 & 2 WE&T functionality under EUC portal as part of 2013-2014 transition:

- Including links to training programs, adult educational facilities, labor and trade organizations, as well as IOU training.
- Include an events and activities component that highlights upcoming green energy conferences and workshops.
- Feature a Career Center that will be organized around the Energy Upgrade California-Whole Home Upgrade ProgramProgram.
- Include information on industry authorities, associations and advisory bodies, including the WE&T statewide Task Force.
- Leverage features of the EUC web portal that support profile pages, online repository and connectivity with IOU programs and market opportunities. Integrate/utilize available social web technologies/applications to build online interaction.

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- [Leverage connectivity tools/functionality of the EUC web portal to connect users with specific interests, job listings, training program announcements, webinars, and conferences.](#)
- [Explore the ability for users to communicate with other users, hosted on the site.](#)

4) *Identify And Implement Specific Programs For Each Educational Sector:*
WE&T needs are best studied and approached by supporting educational sectors. Thus, five educational sectors have been identified as key in fulfilling WE&T needs and opportunities: Kindergarten through high school, adult education and community colleges, technical training, colleges and universities, and minority, low income and disadvantaged communities.

iii. Incentive levels

Not applicable

iv. Marketing and outreach plans

Market Transformation Information

Completion of the Needs Assessment, along with the aggregation of other developing study workforce training could be used to establish baselines from which to establish measureable goals. A few reasonable metrics to measure market transformation in the interim might be identifying funding streams for statewide parties to implement WE&T programs; WE&T Taskforce initiated actions, status and results; measuring utilization of WE&T web portal statistics.

Market Barriers and Solutions

The WE&T Planning Sub Program is intended to focus performs tasks that keep statewide stakeholders connected and focuses on delivering a sustainable long-term education and training network that creates a green jobs workforce. The tasks to be completed involve leveraging the resources of the CA-IOUs to help disseminate available statewide energy efficiency curricula and training from among education, labor, industry and grassroots community sectors. This will require a considerable commitment and trust among disparate agencies and entities that make up these sectors where there are inherent barriers which make it difficult to form an effective energy career training network.

The WE&T Planning is a complimentary program to make the best use of IOU resources to achieve multiple objectives. The IOU education and training activities primarily center around utilization of Energy Center and Training Center assets, but training efforts now reach beyond the internal walls of IOU facilities shown in the form of relationships with non-IOU training contractors, education institutions, community groups and governmental agencies. This is important in order for IOUs to help share a role in the growth of coordinated

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statewide workforce education and training. But just as the IOUs have pursued statewide consistency in offering education and training over several years, expectations to see the same occur among California’s various education and training stakeholders cannot be over simplified.

The IOUs have represented a reliable and experienced delivery channel of education and training program curricula when few other options have been available. Like other service providers, all parties must expect a process that will involve progressive steps toward solutions that make achievement the State’s energy objectives reasonably possible.

Advancing Strategic Plan goals and objectives.

In support of the Strategic Plan vision that “by 2020 California’s workforce is trained and engaged to provide the human capital necessary to achieve California’s economic energy efficiency and demand-side management potential,” IOUs plan to implement a variety of workforce development strategies that encourage and nurture the development of “green collar” jobs through their strategic planning initiatives, and education and training programs.

Training that advances the business of DSM, EE, and green energy technology benefits students, who then enter green careers and advance the State’s very intense energy efficiency goals. Statewide IOU representatives, key traditional education sector representatives, the business community and professional / industry associations at all levels will work together to share protocols and best practices for energy efficiency education through the WE&T Taskforce.

WE&T Planning tasks are intended to outreach to minority, low income and disadvantaged communities for greater participation. This more focused and targeted step will be coordinated with IOU Low-income, Community outreach and Community affairs departments, as well as coordination, where possible, with Marketing, Education and Outreach.

California must quickly increase and integrate statewide efforts to train people at all levels to plan, administer, and deliver energy efficiency in the public and private sectors. The effort will require planning among secondary and post-secondary educational leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, and construction and manufacturing businesses that deliver energy efficiency solutions. The Statewide IOU WE&T Program is directed to initiate ongoing dialogue with market participants and education stakeholders by means of annual stakeholder public workshops to help advance a long-term workforce training designs and plans at all levels of California’s educational systems and accommodate the dramatic increase in energy efficiency potential envisioned by the Strategic Plan.

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The proposed Statewide IOU WET Program relies on collaboration among CPUC Staff, representatives from the education sector, state bodies, each of the IOUs, professional/trade organizations, and the business community to be successful in initiating energy efficiency training needs, along with recommended existing and potential educational delivery strategies and resources that will serve each market an educational sector in the Strategic Plan through 2020 and beyond.

The WE&T Program is constructed to work in cooperation with the IOUs and the WE&T Taskforce to identify sponsors and funding sources to design and expand effective workforce training activities and projects throughout the state.

Strategy 1-1: Define, initiate and drive long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs.

Implementation Actions:

Potential Stakeholders	<ul style="list-style-type: none"> • Statewide IOU Team, including other utilities as well as internal partners • CPUC Staff • Key traditional education sector representatives, including UC/CSU, community colleges, and accreditation programs • Business Community • Professional organizations, including the AIA and United States Green Building Council
Sub Program Implementation	<ul style="list-style-type: none"> • Conduct an in-depth formal statewide energy efficiency training and education resource inventory and needs assessment. • Assess current and alternative funding and partnership mechanisms for WE&T activities. • Create a WE&T specific Web portal and identify entities to co-fund and co-sponsor the Web portal with utilities. Partners shall contribute content toward Web portal • Initiate regular on-going dialogue with broad group of market participant and education stakeholders by way of annual workshops. • Establish task force to oversee and help to evaluate utility specific WE&T activities.
Delivery Channel	<p><i>WE&T Taskforce</i> – Conduct resource inventory and needs assessment.</p> <p><i>WE&T Taskforce</i> – Assess and summarize various funding mechanisms for WE&T activities as a needs assessment element.</p> <p><i>WE&T Taskforce</i> – Work with statewide team to develop Web portal for workforce needs.</p> <p><i>WE&T Taskforce</i> – Facilitate the convening of stakeholders for initial and ongoing dialogue with stakeholders.</p> <p><i>Ed Train</i> - Collaborate with WE&T program to inform the process.</p> <p><i>WE&T</i> – Be specific about the scope of work to define what can/will be done and what lies outside the scope of the task force.</p>

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Other long-term strategies and implementation efforts included as goals for the Statewide IOU WE&T Program are addressed in detail within the WE&T Centergies and WE&T Connections Sub-Program sections of the PIP. In summary however, they include:

Strategy 1-2: Support the community college and adult education efforts to allow students to develop their education based on visible career paths in energy efficiency and related fields

Potential Stakeholders	<ul style="list-style-type: none"> • California Community Colleges Chancellor’s Office • California Board of Education • Adult Education Leadership • Department of Employment Development • Industry and Labor Associations • Business Community • Professional organizations with members who need to maintain accreditation • Building Operators Certification Program (BOC)
Sub Program Implementation	<ul style="list-style-type: none"> • Utilize community colleges to provide technical training, such as HVAC maintenance and building operator certification. • Develop appropriate linkages with K-12 programs, focusing on high-school “green academy.” • Coordinate with the community colleges and adult education sector to incorporate energy and resource efficiency. Component into their career laddering concept. • Explore ways of disseminating materials electronically through effective use of the Internet.

Strategy 1-3: Incorporate energy / resource efficiency and demand side energy management into traditional contractor and technician training, such as for plumbers and electricians, and expand training resources to produce target numbers of trained workers.

Summary:

Potential Stakeholders	<ul style="list-style-type: none"> • California Community Colleges Chancellor’s Office • Community College HVAC program • California Board of Education • Adult Education Leadership • Department of Employment Development • Industry / Labor Associations • Technical and Vocational Training Programs
Sub Program Implementation	<ul style="list-style-type: none"> • Expand or establish training curricula and training and professional career development programs in building construction, services, building operator and other energy efficiency technical fields. • Establish or expand key financial and placement partnerships that demonstrate employment prospects for trained personnel. • Expand upon existing certification programs to try to include student certificate in “green workforce.”

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Strategy 1-4: Create or expand college and university programs with energy efficiency focus and foster green campus efforts to apply this knowledge in clear view of students and faculty.

Summary:

Potential Stakeholders	<ul style="list-style-type: none"> • California Community Colleges Chancellor’s Office • WE&T Task Force • UC/CSU education system • ACEEE education committee
Sub Program Implementation	<ul style="list-style-type: none"> • Utilize existing UC/CSU extension programs to incorporate a continuing education curriculum component. • Work with Universities and colleges to expand professional energy related degree offerings and contribute to tailored curriculum. • Work with colleges and universities to formalize internship opportunities with energy and resource efficiency institutions, including engineering firms, architecture firms, and utility programs.

Strategy 1-5: Develop K-12 curriculum to include energy efficiency fundamentals (e.g., math, science, behavior) across various content areas and identify how career education in energy-related fields can be incorporated across the grades.

Summary:

Potential Stakeholders	<ul style="list-style-type: none"> • CPUC Staff • Key traditional education sector representatives • California Board of Education • WE&T Task Force • Business community • After-school community education programs
Sub Program Implementation	<ul style="list-style-type: none"> • Identify opportunities to leverage governor’s career technical initiative. • Identify opportunities to work with the California Department of Education to develop curricula with specific content for energy and GHG issues. • Support outreach into • K-12 schools on energy, water and environmental issues. • Support K-12 schools to develop curricula that support their local communities as part of class assignments.

Strategy 2-1: Collaboratively identify appropriate goals and strategies to build California’s energy efficiency workforce through 2020, focusing on training that increases participation from within minority, low-income and disadvantaged communities in achieving California’s economic energy efficiency potential.

The number of units receiving education and weatherization services during ~~2013-2014~~~~2010-2012~~ program period is expected to expand greatly. During 2009, WE&T will focus on

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expanding behavior modification in existing training programs to increase emphasis on energy efficient practices.

Additionally, training in the form of train-the-trainer sessions may be possible with third party groups to design and expand teaching of weatherization and energy efficiency in minority and disadvantage communities specifically.

Summary:

Potential Stakeholders	<p>WE&T Task Force</p> <ul style="list-style-type: none"> • CPUC • Key traditional education sector representatives • Business Community • California Community Colleges Chancellor’s Office • Continuing Education Programs • Laney and Delta College HVAC program (PG&E) • Department of Employment Development • Industry / Labor Associations • Technical and Vocational Training Programs (e.g., State Prison System) • Community Youth Centers (e.g., YMCA)
Sub Program Implementation	<ul style="list-style-type: none"> • Leverage Marketing Education and Outreach and WE&T task forces to partner with community based organizations and provide targeted outreach on employment opportunities with energy efficiency. • Develop Low Income WE&T Plan • Train qualified diverse business enterprises from minority, low-income and disadvantaged communities to undertake or expand efficiency services.

b) Program delivery and coordination

WE&T Planning includes involvement from a wide range of stakeholders. Implemented in the appropriate manner, WE&T Taskforce members will represent technology, industry, government, community groups, utilities, education and non-energy segments which should facilitate discussion on ways to share current and emerging opportunities to expand the scope of existing WE&T training curriculum, but introduce new WE&T training activities in the area of emerging technologies, codes and standards, and non-IOU programs.

c) Best Practices

Formulation of statewide WE&T Taskforce and regularly scheduled meetings with statewide WE&T stakeholders represent a best practice that facilitates open discussion among are vested parties. The WE&T planning process will have best practice inputs gathered from evaluation of IOU education and training programs to rely upon in discussing real opportunities and the long-term considerations of programs being shared and presented to the WE&T taskforce and IOUs.

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d) Innovation

The whole program can be considered innovative to the degree that statewide coordination and strategic planning is being done, which will help shape California economics in the near term.

e) Integrated/coordinated Demand Side Management

WE&T Planning includes involvement from a wide range of stakeholders. The IOU WE&T representatives in support of the long-term workforce strategy of California to achieve statewide coordination, will work to create coordinated technology demonstration and DSM training to ensure there are no missed opportunities for offering IDSM training and that opportunities to receive such training are made available to the fullest extent possible which will aid efforts in achieving energy neutral buildings by 2020.

f) Integration across resource types

WE&T Planning includes involvement from a wide range of stakeholders. Implemented in the appropriate manner, WE&T Taskforce members will represent technology, industry, government, community groups, utilities, education and non-energy segments and facilitate discussion on ways to share current and emerging opportunities to expand the scope of existing WE&T training curriculum to include water and GHG mitigation.

g) Pilots

The whole program can be considered innovative to the degree that statewide coordination and strategic planning with regard to workforce training is being done in a manner that require iteration and learning in order to arrive at implementation models and action steps that can be deemed effective.

h) EM&V

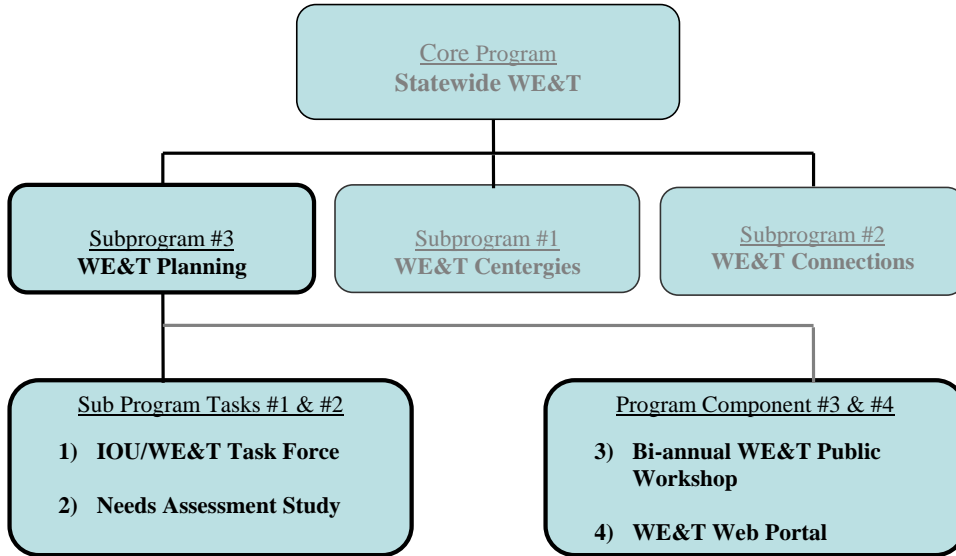
[The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.](#)

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~~IOUs will continue to work with EM&V to assess market effectiveness and impacts of educational education training programs. Collaborating with the WE&T Taskforce, IOUs will take input from stakeholders on proposing reasonable and supportable ways to measure workforce training effectiveness, market transformation and progress in achieving long term strategic goals.~~

7) Diagram of Program

See above Section 6.2.



Below is the logic model for the WE&T Connections Subprogram:-

Note: On December 2, 2010, the Commission issued Resolution E 4385, approving Program Performance Metrics (PPMs) for Pacific Gas & Electric Company, Southern California Edison Company, Southern California Gas Company, and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for Workforce Education and Training.

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ATTACHMENT 1

2013-2014 WE&T Program Implementation Plan Addendum

Joint IOU Response to Staff Request for Additional Informationⁱ

Energy Division application guidance requested the IOUs include in this addendum the following information, as applicable, for relevant WE&T programs:

- Describe “soft skill” training efforts such as business and sales development, marketing skills, and hands-on training strategies.

IOU Response:

“Soft skill” training efforts include classes that teach students critical non-technical skills that will help them during the interview process and/or while on the job interacting with customers. Such skills include sales and marketing, communication skills, interview techniques, resume writing, and workplace conduct.

There is some ‘soft skill’ training provided at IOU Energy Centers through, and as part of, industry member organizations. Rather than conduct these trainings themselves, the IOUs propose to provide students a list of resources available through existing organizations like workforce investment boards, community college courses, and professional development resources. Where appropriate, IOUs will also partner with organizations that provide such soft skills to better direct interested participants to resources for acquiring soft skills.

PG&E will build upon its “soft skills” classes, including courses on financial analysis classes for selling energy efficiency. Such classes provide the energy efficiency workforce tools for calculating and presenting the right financial model for presenting a case to invest in energy efficiency to various audiences, including customers, CEOs, individual contributors, etc.

- Include estimates of training related costs for programs, participating contractors, and customers, as well as related increases in energy savings benefits, lower costs over lifecycle of equipment, and creation of higher quality jobs.

IOU Response:

As the IOUs implement sector strategies, they will gather estimates of training related costs for programs, participating contractors, and customers. IOUs will work with EM&V to assess and track related increases in energy savings benefits, lower costs over lifecycle of equipment, and creation of higher quality jobs.

At the time of drafting this Program Implementation Plan, since IOUs are in the process of planning sector strategies for various sectors, information requested herein does not

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yet exist. However, requested information about CALCTP is provided in the Centergies Subprogram and provided again below for reference.

- 1) When the program requires CALCTP certified installers, the cost to the customer for the labor component of the project may be 10% - 15% more than prior when no certification was required.
 - 2) Compliance and permitting cost are directly associated to the cost of proper training programs for designers, installers, manufacturers, etc. which may be equivalent to an additionally 20% to the project cost. However, proper collaboration with industry associations and manufacturers may offset this cost.
 - 3) With proper incentive levels and education of the segment, it is anticipated that adoption/participation would increase since the misperceptions of advanced lighting control systems, potential for demand response and how DR or ADR works will be corrected causing more demand for the control solution.
 - 4) It has been proven with advanced lighting control system assessment projects at PG&E, SCE and SDG&E that the customer will achieve a minimum of an additional 30% savings over traditional lighting efficiency measures. And dependent upon the level of control allowed to individual employees, savings may increase an additional 5% - 10%. With the opportunity to participation in DR, the customer will achieve even greater cost savings due to the ability to shave or control peak loads. The actual dollar values will be determined as the program adoption occurs and customer site performance is monitored and data collected.
 - 5) Additional benefits include: a. systems do not get overridden due to better understanding as well as the system being designed and installed. Also, ease of proper training of customer personnel regardless of turnover with the local certified installer; b. SCE proved in their assessments, fewer, if any, call backs will be experienced when the system is installed by a certified installer. In contrast, an SDG&E project required numerous call backs before the system was able to be commissioned when a non-certified installer was used. c) increased proper maintenance, d) higher visibility of actual energy use in lighting due to the potential of graphic interfaces and other reporting. e) ability to track GHG emission reductions. f) create market disruption as customers begin talking to others about how well their advanced lighting control system is working and saving them money due to proper design and installation.
- Identify existing skill standards and certification supported by the training activities. Identify any new standards to be developed including identification of partnership entities that will help develop them. Include descriptions of efforts to ensure program contractors support high road strategies and track and report on these efforts.

IOU Response:

The IOUs will work with existing and new industry partnerships and applicable DSM programs to support and promote new skills standards training. Currently, the IOUs offer education and training from among the following continuing education and certificate programs and organizations:

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- American Institute of Architects (AIA)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- APPA: Leadership in Educational Facilities
- ASIS International
- Association of Energy Engineers (AEE)
- Association for Facilities Engineering (AFE)
- Building Owners and Managers Association (BOMA)
- BOMI International
- Building Performance Institute (BPI)
- California Home Energy Rating System (C-HERS)
- Carpet and Rug Institute (CRI)
- Cleaning Management Institute (CMI)
- CoreNet Global
- Counselors of Real Estate (CRE)
- Institute of Real Estate Management (IREM)
- International Brotherhood of Electrical Workers (IBEW)
- International Facility Management Association (IFMA)
- ISSA, The Worldwide Cleaning Industry Association
- National Association of the Remodeling Industry (NARI)
- National Council on Qualifications for the Lighting Professions (NCQLP)
- National Electrical Contractors Association (NECA)
- North American Technician Excellence (NATE)
- San Diego Association of Realtors (SDAR)
- Society for College and University Planning (SCUP)
- Society of Industrial and Office Realtors (SIOR)
- U.S. Green Building Council (USGBC)

As part of their shift toward a sector strategy approach and as identified in the Needs Assessment, where applicable and possible, IOUs will work with organizations to modify course content and/or create credential programs that result in stackable credentials that are of value to employers.

Residential and Commercial HVAC Quality Maintenance and Quality Installation programs in the portfolio ensure that contractors support high-road strategies through the programs' requirements that the minimum level of services conducted and incentivized through the programs are based on the HVAC industry's own set of quality standards that define the appropriate high-road level of installation and maintenance services for customers. Tracking of the success of these program requirements that demand high-road quality levels is done through the regular tracking of these HVAC programs that measure the increasing use of these practices as the uptake in the programs grow.

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- Describe how the program will target low-income and disadvantaged populations for participation in training programs and/or demand side management (DSM) program delivery.

IOU Response:

IOUs will leverage existing communication channels to reach members of low-income and disadvantaged communities. At a local and regional level, IOUs work with local community-based organizations that have established relationships to support their low-income and disadvantaged population. This is often done with the aid of Public Affairs, Community Relations and Diverse Business Enterprises. IOUs will also collaborate with their individual low-income energy efficiency program managers and partners as another channel toward reaching low-income and disadvantaged persons and helping to increase their awareness and participation in IOU education and training opportunities.

Through its PowerPathway Training Network for Energy Efficiency (PPTNEE), PG&E will continue and expand its partnerships with organizations, including but not limited to RichmondBUILD, Rising Sun Energy Center, Proteus, Inc., and the Central Valley Opportunity Center, that have been serving members of the disadvantaged and low income communities. Such partnerships will allow PG&E to leverage their resources and subject matter expertise to work with organizations that already have those connections to low-income and disadvantaged populations.

- Describe how the program will support entry level career pipelines and pathways supporting development of entry level skills leading to higher skill sets utilizing state apprenticeship and pre-apprenticeship programs as appropriate.

IOU Response:

IOUs will collaborate with existing implementers of career skills development programs targeted to high school students with degrees, continuing education and post-secondary students for entry level career pipelines and pathways and higher skill sets aligned with pre-apprenticeship and state apprenticeships. Given the wide range of apprenticeship and pre-apprenticeship programs, IOUs will work with State agencies, including the California Division of Apprenticeship Standards, to determine which apprentice/pre-apprenticeship programs should be targeted during 2013-2014. The goal of the partnerships will be to increase awareness and participation in the wide range of training options for students to develop their careers. Trainings will support the spectrum of knowledge and skill level being applicable to someone just entering the energy field, to someone seeking to advance his/her place in a specific career path.

IOUs will collaborate on an effort to develop a statewide memorandum of understanding (MOU) with the California Division of Apprenticeship Standards. The MOU will provide a framework for partnering with labor, trade, and professional organizations that resembles the existing CALCTP program.

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- For WE&T sector strategy efforts describe which characteristics will be sought for employer partners, such as level of joint investment in training efforts, support and participation in apprenticeship programs, enforcement of permitting, code, safety compliance, and other labor laws.

IOU Response:

IOUs will involve other organizations that can help to leverage existing and new IOU training opportunities. Potential partners will be sought from government agencies, employers, community colleges, labor organizations, manufacturers, professional organizations, and community-based organizations. IOUs will expect partners to commit direct and indirect resources toward developing specific sector strategies. Partners will need to help drive training program participation to their target audiences, and will be expected to support and participate in apprenticeship programs, support and enforcement of permitting, code and safety compliance and other laws, as appropriate to their roles and activities involved, include participating in leadership roles where possible.

- Also, describe the following: Describe the governance structure within sector strategy partnerships, such as processes for agenda development, recording minutes, and decision making;

IOU Response:

Each sector strategy effort will be led by one IOU with other IOUs as major contributors and partners. IOU sector strategies efforts will include a steering committee to drive overall development and governance over the strategy. Some sector strategy efforts could require an Advisory Council to drive specific issues within the strategy such as certifications or knowledge, skills, and abilities attached to a particular occupation. The lead IOU will be responsible for assuring that meeting logistics, including agenda development, meeting notices, and recording/disseminating minutes are well-orchestrated.

- Describe the process to develop a mutually agreed upon plan to support existing or new training certifications for each subsector or technology in the non-residential HVAC sector strategy effort and any other sector strategy efforts the IOUs pursue;

IOU Response:

All 2013-2014 sector strategy approaches will include a plan for cross-sector stakeholder support towards an existing or new certification, or other appropriate set of qualifications that lead to support of Strategic Plan goals. Such industry-recognized credentials are an essential and necessary hallmark of a successful sector strategy. IOUs will work closely with the internal and external team involved in the HVAC installation programs and associated stakeholders, including through the Western HVAC Performance (WHPA) to develop a mutually agreed plan to support any appropriate existing or new training certifications or set of qualifications for each aspect of the non-residential HVAC sector strategy effort. A similar approach is anticipated in coordinating a sector strategies approach on WE&T intervention for Emerging Technology adoption, codes adoption

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with Codes & Standards and targeted training of market agents critical to the success of Energy Upgrade California. Through careful and thorough assessment of options, and ongoing and open dialogue with varied stakeholders across the sector at issue, the strategy will be predicated on cross-stakeholder support towards an agreed-upon certification(s) or other appropriate set(s) of qualifications.

- Describe how the program will develop skill upgrade programs that are aligned with the state approved apprenticeship training programs. Skill upgrade programs should include robust entry prerequisites and pathways to other educational establishments.

IOU Response:

IOUs will collaborate with stakeholders in a manner similar to that of the WE&T Taskforce structure, taking input on revisions to the sector strategies approach, course portfolio, and training partnerships. IOUs will also work with implementers of career skills development on career pipelines and pathways that lead into higher skill set training equivalents to those of pre-apprenticeship and state approved apprenticeship. IOUs will create a forum for discussion among these stakeholders to continuously evaluate training alignment. Given the wide range of apprenticeship and pre-apprenticeship programs, IOUs will work under an MOU with State agencies, including the California Division of Apprenticeship Standards, to determine which pre-apprentice/apprenticeship programs should be targeted during 2013-2014. A core component of this plan will be the development of partnerships, which will include an implementation plan similar to that used in the CALCTP sector strategies approach

- Include a separate table indicating allocated funding for:
 - Sector strategy efforts

IOU Response:

The IOUs do not see Sector Strategy efforts as mutually exclusive of current WE&T Centergies implementation strategy. IOUs will support sector strategies as a way of restructuring portions of their programs to focus on specific audiences. IOU staff will be allocated on priority sector strategies efforts such as for Commercial HVAC, but in all cases being efficient and effective in funding sector strategies efforts.

PG&E will continue to support CALCTP as a proven sector strategy approach toward upskilling the lighting sector, including electricians, installers, middle-management and salespersons. PG&E will lead the statewide sector strategy effort for commercial HVAC, considering both quality installation and quality maintenance efforts for the program WE&T connection, in order to determine a best path for a timely pilot, and so that the pilot can lead most directly to improvements of the broader HVAC workforce education and training effort. Other sector strategy efforts will include, but not be limited to the architectural design sector as well as small/medium business commercial building auditors.

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Where appropriate, all sector strategy efforts will be advised by stakeholders, including community colleges, 4-year colleges and universities, trade organizations, labor organizations, professional organizations, and state agencies.

- Efforts to target low-income and disadvantaged populations

IOU Response:

IOUs will proactively partner with community-based organizations, workforce investment boards, community colleges and other local workforce development and training programs to both articulate training leading to certification and assist in easy access to energy center offerings. In addition, where applicable, IOUs will continue to or begin to partner with their internal groups that serve low income and disadvantaged communities.

PG&E will continue its support of the Energy Savings Assistance Program (ESAP). ESAP provides no-cost weatherization services to low-income households who meet the CARE income guidelines. Services provided include attic insulation, energy efficient refrigerators, energy efficient furnaces, weather-stripping, caulking, low-flow showerheads, water heater blankets, and door and building envelope repairs which reduce air infiltration.

- Describe an evaluation plan that will collect, monitor, and track:
 - Hours of instruction and locations of classes;
 - Partner organizations and related co-funding / resource sharing arrangements;
 - Specific commitments from employers that support high-road strategies
 - Number, specific occupation, skill level, and demographic characteristics of participants;
 - Associated certifications and skill standard requirements being leveraged with current training efforts. Track new standards developed and/or required for DSM program delivery;
 - Training completion and job placement rates;
 - A listing of resource programs that are aligned with training and certification WE&T efforts ;
 - Include a description of career pathways in which the relevant resource program is embedded, including points of entry and paths for advancement;
 - Improvements in the quality of installations and / or service activities for contractors participating in the sector strategy.
 - Strategies to identify job creation and metrics that result from sector strategy training activities and coordination of training activities with core DSM programs.

IOU Response:

IOUs have been making changes to their tracking methods, processes, and infrastructure. To protect customer privacy, certain data such as specific occupation,

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skill level, and demographic characteristics of participants will be collected on a voluntary basis during time of registration.

Data such as job placement rates, commitments from employers, strategies to identify job creation will be tracked for specific sector strategies as opposed to the thousands of energy center participants that participate in energy center classes.

Tracking information such as improvements in the quality of installations and/or service activities for contractors participating in IOU sector strategy efforts and strategies to identify metrics that result from sector strategy training activities and coordination of training activities with core DSM programs will be considered and monitored with assistance from IOU EM&V groups within the collaborative EM&V effort managed by CPUC Energy Division.

ⁱ Attachment 1 is additional information the Staff requested be provided in its May 24, 2012 guidance documents, Appendix F.

Work, Education & Training
List of Courses
Attachment 2

Green Collar Sector

Course Title	HVAC	Designers, Architects & Building Contractors-Existing	Designers, Architects & Building Contractors-New	Designers, Architects & Building Contractors-New & Existing	Building & Energy Managers	Non-HVAC Installers	Codes & Standards	Energy & Environment K-12	Careers in Energy Management-College	Trade Level Apprenticeship or Pre-Apprenticeship
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars) (ERC)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (ERC)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (ERC)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars) (ERC)	x						x			x
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (ERC)	x						x			x
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (ERC)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (ERC)	x						x			x
IHACI - NATE Training Series (8 seminars) (ERC)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars)(CHATS)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (CHATS)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (CHATS)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars)(CHATS)	x						x			x
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (CHATS)	x						x			x
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (CHATS)	x						x			x
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (CHATS)	x						x			x
IHACI - NATE Training Series (8 seminars) (CHATS)	x						x			x
Benchmarking with EnergyStar Portfolio Manager (Hands-on, will need Laptop)		x			x					
Benchmarking with EnergyStar Portfolio Manager: Bosch Training Center, Irvine, CA		x			x					
Benchmarking: You Benchmarked your Building, What's Next		x			x					
Benchmarking: You Benchmarked your Building, What's Next: Bosch Training Ceter, Irvine, CA		x			x					
Bosch Solution Center: Solar & Tankless Water Heating System Training				x						x
CalGreen and the LEED for New Construction Rating System			x				x			x
California's 2013 new Title 24 Standards: Compliance and Beyond				x			x			x
Certified Green Building Professional Training plus Exam				x						x
Certified Green Real Estate Professional Training & Certification Exam (Build It Green)							x			x
CHPS Modernization Bootcamp (Part 2)	x			x	x			x		
CHPS Modernizations Bootcamp (Part 1)	x			x	x			x		
Designing High Performance Homes				x			x			x

Course Title	HVAC	Designers, Architects & Building Contractors-Existing	Designers, Architects & Building Contractors-New	Designers, Architects & Building Contractors-New & Existing	Building & Energy Managers	Non-HVAC Installers	Codes & Standards	Energy & Environment K-12	Careers in Energy Management-College	Trade Level Apprenticeship or Pre-Apprenticeship
DOE PHAST Specialist: 2 1/2 Day Workshop & Exam					X	X	X			
DOE Fundamentals of Compressed Air Systems: 1-day workshop					X	X	X			
DOE Steam Specialist: 2 1/2 Day Workshop & Exam					X	X	X			
DOE: Process Heating End User Training, Co-sponsored with the California Energy Commission					X	X	X			
DOE: Steam End User Training, Co-Sponsored with The California Energy Commission					X	X	X			
Energy Smart Landscapes Series: Residential-Commercial seminars.										X
EnergyPro 5: Existing Building Rating Systems				X	X	X				X
EnergyPro 5: Residential New Construction				X	X	X				X
EnergyPro Training: Advanced				X	X	X				X
EnergyPro Training: Envelope and Windows				X	X	X				X
EnergyPro Training: Indoor & Outdoor Lighting				X	X	X				X
EnergyPro Training: Mechanical				X	X	X				X
Financial Analysis Techniques for Energy Efficiency Projects				X	X					X
GreenPoint Rated Core Seminar				X						X
GreenPoint Rated Existing Home Single Family				X						X
Industrial Burner and Control Technologies for Energy Efficiency					X					X
JAC Local 501 Energy and Boiler Class: Combustion Overview										X
LA Steam Operator's License Training 3 Day Seminar Series: This includes 4 seminars and practice Exams.										X
LATTC Refrigeration: Los Angeles Trade-Tech AC & Heating Overview	X									X
LATTC Steam, Los Angeles Trade-Tech Combustion Overview										X
LEED Green Associate Exam Prep Class				X		X				X
MGBCE ~ Munciple Green Building Conference & Expo	X			X	X	X	X			X
Succeed at LEED (Advanced Class)				X		X				X
Understanding the Residential Mandatory Measures of the CAL Green Code			X		X	X				X
Boiler Basics for Energy Efficiency					X	X				X
Boiler Water Treatment					X	X				X
Cooling Tower Design & Operation					X	X				X
Cooling Tower Water Treatment					X	X				X
Combustion Seminar-ERC- 2 Day					X	X				X

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Course Title	HVAC	Designers, Architects & Building Contractors-Existing	Designers, Architects & Building Contractors-New	Designers, Architects & Building Contractors-New & Existing	Building & Energy Managers	Non-HVAC Installers	Codes & Standards	Energy & Environment K-12	Careers in Energy Management-College	Trade Level Apprenticeship or Pre-Apprenticeship
Infrared Cameras: Introduction to Residential and Commercial Thermographic Applications					x	x				x
Save Energy & Save Money Through Process Improvement & Optimization Techniques					x	x				x
Well and Pump Engineering - Gaining Efficiencies Through Technology					x	x	x			x
Natural Gas Engine User Group, Efficiency & Air Quality					x	x	x			x
Association of Energy Engineers(AEE) Certified Energy Manager (CEM) 5 Day Class					x		x	x	x	x
Association of Energy Engineers (AEE) So Cal Chapter Certified Energy Manager (CEM) Examination Session					x		x	x	x	x
Fuel Cell Technology: Energy Efficient Solutions					x		x	x	x	x
FLIR Level one training (Infrared)					x		x	x	x	x
FLIR Level one Examination Session (Infrared)					x		x	x	x	x
Navigating the course of AB 32					x	x	x			x
Job Skill Workshop (Work Readiness Certification)					x		x	x	x	x
Soft Skills Workshop (Work Readiness Certification)					x		x	x	x	x
PRTNRSHF SEM - PV Inspection and Permit Streamlining - (PG&E) San Luis Obispo, CA										
PRTNRSHF SEM - PV Inspection and Permit Streamlining - (PG&E) Santa Maria, CA										
PRTNRSHF SEM - Title 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA										
Partnership TITLE 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA										
Foodservice Forecast (2013)					X	X				
Operating an Energy Efficient Restaurant (2013)					X	X				
Greener Restaruants (2013)					X	X				
Purchasing Energy Efficient for Kitchens (2013)					X	X				
Kitchen Ventilation Integrating HVAC (2013)	X				X		X			
Foodservice Equipment Expo (2013)	X				X	X		X	X	
Equipment Maintenance for Optimum Efficiency (2013&14)	X				X	X				
The Ultimate Fryer Cookoff (2013)					X	X				
Cooking Sous Vide (2013)					X	X				
Real World Insights for School Foodservice (2013)							X			
International Taste Tour (2013&14)					X	X				
Multiunit Operators: Energy Efficiency and Performance Enhancements (2013)					X	X				

L

Course Title	HVAC	Designers, Architects & Building Contractors-Existing	Designers, Architects & Building Contractors-New	Designers, Architects & Building Contractors-New & Existing	Building & Energy Managers	Non-HVAC Installers	Codes & Standards	Energy & Environment K-12	Careers in Energy Management-College	Trade Level Apprenticeship or Pre-Apprenticeship
Foodservice Energy Efficiency for Cal Poly Pomona Nutrition Students (2013&14)								X		
Foodservice Energy Efficiency for Orange Coast College Culinary Students (2013&14)								X		
Foodservice Energy Efficiency for Cal State Long Beach Nutrition Students (2013&14)								X		
Foodservice Energy Efficiency for Art Institute of America Culinary Students (2013&14)								X		
Foodservice Energy Efficiency for Los Angeles City College Dietetic Students(2013&14)								X		
Foodservice Energy Efficiency for Long Beach City College Dietetic Students (2013&14)								X		
Multilingual Food Safety Certification (2013&14)			X	X	X					X
Certified Foodservice Professional (2013)			X	X	X					X
Southern California Plan Check Equipment Safety and Sanitation (2013&14)			X	X	X	X				
Los Angeles County Health Department Inspector Equipment Safety and Sanitation (2013&14)			X	X	X	X				
Community College Culinary Symposium (2013&14)								X	X	
Food Industry Business Roundtable Efficiency and Equipment Symposium (2013&14)			X	X	X					
Strategies for Success in Hiring and Retaining Young Adults in Foodservice (2013)			X	X	X			X		
Waste Management Solutions for Foodservice (2014)	X		X	X	X					
Foodservice Equipment Expo (2014)			X	X	X					
Baking Technologies (2014)			X	X	X					
Combination Cooking Strategies and Success (2014)			X	X	X					
Foodservice Facility Design (2014)	X		X	X	X	X				
Design of Hot Water Systems (2014)			X	X	X					
Innovative Foodservice Technologies and Efficiencies (2014)			X	X	X					
Energy Efficiency in the Dishroom (2014)			X	X	X					
LEED for Foodservice (2014)			X	X	X	X				
Kitchen Ventilation Tips & Tricks (2014)	X		X	X		X				

L

Course Title	Admin	Class Location	Ed. Level (1)	Collaborators (2)	Class Length (3)
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars) (ERC)	SCG	Downey	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (ERC)	SCG	Downey	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (ERC)	SCG	Downey	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars) (ERC)	SCG	Downey	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (ERC)	SCG	Downey	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (ERC)	SCG	Downey	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (ERC)	SCG	Downey	T/L	IHACI	4
IHACI - NATE Training Series (8 seminars) (ERC)	SCG	Downey	T/L	IHACI	8
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars)(CHATS)	SCG	Chatsworth	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (CHATS)	SCG	Chatsworth	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (CHATS)	SCG	Chatsworth	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars)(CHATS)	SCG	Chatsworth	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (CHATS)	SCG	Chatsworth	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (CHATS)	SCG	Chatsworth	T/L	IHACI	4
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (CHATS)	SCG	Chatsworth	T/L	IHACI	4
IHACI - NATE Training Series (8 seminars) (CHATS)	SCG	Chatsworth	T/L	IHACI	8
Benchmarking with EnergyStar Portfolio Manager (Hands-on, will need Laptop)	SCG	Downey	T/L	Commercial Programs	H/D
Benchmarking with EnergyStar Portfolio Manager: Bosch Training Center, Irvine, CA	SCG	Irvine	T/L	Commercial Programs	H/D
Benchmarking: You Benchmarked your Building, What's Next	SCG	Downey	T/L	Commercial Programs	H/D
Benchmarking: You Benchmarked your Building, What's Next: Bosch Training Ceter, Irvine, CA	SCG	Irvine	T/L	Commercial Programs	H/D
Bosch Solution Center: Solar & Tankless Water Heating System Training	SCG	Downey	T/L	Residential/Rebates	F/D
CalGreen and the LEED for New Construction Rating System	SCG	Downey	T/L		H/D
California's 2013 new Title 24 Standards: Compliance and Beyond	SCG	Downey	T/L		F/D
Certified Green Building Professional Training plus Exam	SCG	Downey	T/L	Build it Green	F/D
Certified Green Real Estate Professional Training & Certification Exam (Build It Green)	SCG	Downey	T/L	Build it Green	F/D
CHPS Modernization Bootcamp (Part 2)	SCG	Downey	T/L		F/D
CHPS Modernizations Bootcamp (Part 1)	SCG	Downey	T/L		F/D
Designing High Performance Homes	SCG	Downey	T/L	CSPomona	HD

Course Title	Admin	Class Location	Ed. Level (1)	Collaborators (2)	Class Length (3)
DOE PHAST Specialist: 2 1/2 Day Workshop & Exam	SCG	Downey	T/L	DOE	Three Day
DOE Fundamentals of Compressed Air Systems: 1-day workshop	SCG	Downey	T/L	DOE	F/D
DOE Steam Specialist: 2 1/2 Day Workshop & Exam	SCG	Downey	T/L	DOE	Three Day
DOE: Process Heating End User Training, Co-sponsored with the California Energy Commission	SCG	Downey	T/L	DOE	F/D
DOE: Steam End User Training, Co-Sponsored with The California Energy Commission	SCG	Downey	T/L	DOE	F/D
Energy Smart Landscapes Series: Residential-Commercial seminars.	SCG	Downey	T/L		H/D
EnergyPro 5: Existing Building Rating Systems	SCG	Downey	T/L		H/D
EnergyPro 5: Residential New Construction	SCG	Downey	T/L		H/D
EnergyPro Training: Advanced	SCG	Downey	T/L		H/D
EnergyPro Training: Envelope and Windows	SCG	Downey	T/L		H/D
EnergyPro Training: Indoor & Outdoor Lighting	SCG	Downey	T/L		H/D
EnergyPro Training: Mechanical	SCG	Downey	T/L		H/D
Financial Analysis Techniques for Energy Efficiency Projects	SCG	Downey	T/L		F/D
GreenPoint Rated Core Seminar	SCG	Downey	T/L	Build it Green	F/D
GreenPoint Rated Existing Home Single Family	SCG	Downey	T/L	Build it Green	F/D
Industrial Burner and Control Technologies for Energy Efficiency	SCG	Downey	T/L		F/D
JAC Local 501 Energy and Boiler Class: Combustion Overview	SCG	Downey	T/L		H/D
LA Steam Operator's License Training 3 Day Seminar Series: This includes 4 seminars and practice Exams.	SCG	Downey	T/L		Three Day
LATTC Refrigeration: Los Angeles Trade-Tech AC & Heating Overview	SCG	Downey	T/L		H/D
LATTC Steam, Los Angeles Trade-Tech Combustion Overview	SCG	Downey	T/L		H/D
LEED Green Associate Exam Prep Class	SCG	Downey	T/L		F/D
MGBCE ~ Munciple Green Building Conference & Expo	SCG	Downey	T/L	LAGBC	F/D
Succeed at LEED (Advanced Class)	SCG	Downey	T/L		F/D
Understanding the Residential Mandatory Measures of the CAL Green Code	SCG	Downey	T/L		H/D
Boiler Basics for Energy Efficiency	SCG	Downey	T/L	City of Los Angeles	FD
Boiler Water Treatment	SCG	Downey	T/L	City of Los Angeles	FD
Cooling Tower Design & Operation	SCG	Downey	T/L	City of Los Angeles	FD
Cooling Tower Water Treatment	SCG	Downey	T/L	City of Los Angeles	FD
Combustion Seminar-ERC- 2 Day	SCG	Downey/Other	T/L		FD

Course Title	Admin	Class Location	Ed. Level (1)	Collaborators (2)	Class Length (3)	
Infrared Cameras: Introduction to Residential and Commercial Thermographic Applications	SCG	Downey	T/L		FD	
Save Energy & Save Money Through Process Improvement & Optimization Techniques	SCG	Downey	T/L		FD	
Well and Pump Engineering - Gaining Efficiencies Through Technology	SCG	Downey	T/L		FD	
Natural Gas Engine User Group, Efficiency & Air Quality	SCG	Downey	T/L		FD	
Association of Energy Engineers(AEE) Certified Energy Manager (CEM) 5 Day Class	SCG	Downey	T/L	AEE	5D	
Association of Energy Engineers (AEE) So Cal Chapter Certified Energy Manager (CEM) Examination Session	SCG	Downey	T/L	AEE	HD	
Fuel Cell Technology: Energy Efficient Solutions	SCG	Downey	T/L		FD	
FLIR Level one training (Infrared)	SCG	Downey	T/L		5D	
FLIR Level one Examination Session (Infrared)	SCG	Downey	T/L		HD	
Navigating the course of AB 32	SCG	Downey	T/L		FD	
Job Skill Workshop (Work Readiness Certification)	SCG	Downey	T/L	LA Chamber of Commerce	HD	
Soft Skills Workshop (Work Readiness Certification)	SCG	Downey	T/L	LA Chamber of Commerce	HD	
PRTNRSHIP SEM - PV Inspection and Permit Streamlining - (PG&E) San Luis Obispo, CA						
PRTNRSHIP SEM - PV Inspection and Permit Streamlining - (PG&E) Santa Maria, CA						
PRTNRSHIP SEM - Title 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA						
Partnership TITLE 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA						
Foodservice Forecast (2013)	SCG	Downey	T/L	Foodservice Equipment	HD	
Operating an Energy Efficient Restaurant (2013)	SCG	Downey	T/L	Fisher Nickel Inc	HD	
Greener Restaurants (2013)	SCG	Downey	T/L	Fisher Nickel Inc	HD	
Purchasing Energy Efficient for Kitchens (2013)	SCG	Downey	T/L	Fisher Nickel Inc	HD	
Kitchen Ventilation Integrating HVAC (2013)	SCG	Downey	T/L	Fisher Nickel Inc	HD	
Foodservice Equipment Expo (2013)	SCG	Downey	T/L	MAFSI (Marketing Agency)	FD	
Equipment Maintenance for Optimum Efficiency (2013&14)	SCG	Downey	T/L		HD	
The Ultimate Fryer Cookoff (2013)	SCG	Downey	T/L	Equipment Manufacturer	HD	
Cooking Sous Vide (2013)	SCG	Downey	T/L	Equipment Manufacturer	HD	
Real World Insights for School Foodservice (2013)	SCG	Downey	K-12		HD	
International Taste Tour (2013&14)	SCG	Downey	T/L		HD	
Multiunit Operators: Energy Efficiency and Performance Enhancements (2013)	SCG	Downey	T/L		HD	

Course Title	Admin	Class Location	Ed. Level (1)	Collaborators (2)	Class Length (3)
Foodservice Energy Efficiency for Cal Poly Pomona Nutrition Students (2013&14)	SCG	Downey	CSU	Cal Poly Pomona	HD
Foodservice Energy Efficiency for Orange Coast College Culinary Students (2013&14)	SCG	Downey	CC	Orange Coast College	HD
Foodservice Energy Efficiency for Cal State Long Beach Nutrition Students (2013&14)	SCG	Downey	CSU	Cal State Long Beach	HD
Foodservice Energy Efficiency for Art Institute of America Culinary Students (2013&14)	SCG	Downey	Private	Art Institute of America	HD
Foodservice Energy Efficiency for Los Angeles City College Dietetic Students(2013&14)	SCG	Downey	CC	Los Angeles City College	HD
Foodservice Energy Efficiency for Long Beach City College Dietetic Students (2013&14)	SCG	Downey	CC	Long Beach City College	HD
Multilingual Food Safety Certification (2013&14)	SCG	Downey	T/L	ServSafe	FD
Certified Foodservice Professional (2013)	SCG	Downey	T/L	NAFEM (North America)	2D
Southern California Plan Check Equipment Safety and Sanitation (2013&14)	SCG	Downey	T/L	CA Health Department	HD
Los Angeles County Health Department Inspector Equipment Safety and Sanitation (2013&14)	SCG	Downey	T/L	Los Angeles Health Department	HD
Community College Culinary Symposium (2013&14)	SCG	Downey	CC	CA Community College	FD
Food Industry Business Roundtable Efficiency and Equipment Symposium (2013&14)	SCG	Downey	T/L	FIBR (Food Industry Business Roundtable)	FD
Strategies for Success in Hiring and Retaining Young Adults in Foodservice (2013)	SCG	Downey	T/L	WAVES	HD
Waste Management Solutions for Foodservice (2014)	SCG	Downey	T/L		HD
Foodservice Equipment Expo (2014)	SCG	Downey	T/L		HD
Baking Technologies (2014)	SCG	Downey	T/L		HD
Combination Cooking Strategies and Success (2014)	SCG	Downey	T/L	Equipment Manufacturer	HD
Foodservice Facility Design (2014)	SCG	Downey	T/L		HD
Design of Hot Water Systems (2014)	SCG	Downey	T/L	Fisher Nickel Inc	HD
Innovative Foodservice Technologies and Efficiencies (2014)	SCG	Downey	T/L	Fisher Nickel Inc	HD
Energy Efficiency in the Dishroom (2014)	SCG	Downey	T/L	Fisher Nickel Inc	HD
LEED for Foodservice (2014)	SCG	Downey	T/L	Fisher Nickel Inc	HD
Kitchen Ventilation Tips & Tricks (2014)	SCG	Downey	T/L	Fisher Nickel Inc	HD

Course Title	# Times/Yr	Approximate Annual Cost		Continuing Ed, Entry Level or Both (4)	Codes & Standards	Class Compon		
		(IOU)	(Collaborator)			Integration- Existing Bldgs (5)	ZNE (6)	Low Income Outreach (7)
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars) (ERC)	1	\$8000/\$16000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (ERC)	1	\$8000/\$16000		B-EE-DR	x			
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (ERC)	1	\$8000/\$16000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars) (ERC)	1	\$8000/\$16000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (ERC)	1	\$8000/\$16000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (ERC)	1	\$8000/\$16000		B-EE-DR	x			
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (ERC)	1	\$8000/\$16000		B-EE	x			
IHACI - NATE Training Series (8 seminars) (ERC)	1	\$16000/\$32000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars)(CHATS)	1	\$8000/\$12000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (CHATS)	1	\$8000/\$12000		B-EE-DR	x			
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (CHATS)	1	\$8000/\$12000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars)(CHATS)	1	\$8000/\$12000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (CHATS)	1	\$8000/\$12000		B-EE	x			
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (CHATS)	1	\$8000/\$12000		B-EE-DR	x			
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (CHATS)	1	\$8000/\$12000		B-EE	x			
IHACI - NATE Training Series (8 seminars) (CHATS)	1	\$16000/\$24000		B-EE	x			
Benchmarking with EnergyStar Portfolio Manager (Hands-on, will need Laptop)	2	\$500	\$1700/\$2200	B EE				
Benchmarking with EnergyStar Portfolio Manager: Bosch Training Center, Irvine, CA	2	\$500	\$1700/\$2200	B EE				
Benchmarking: You Benchmarked your Building, What's Next	2	\$500	\$1700/\$2500	B EE				
Benchmarking: You Benchmarked your Building, What's Next: Bosch Training Ceter, Irvine, CA	2	\$500	\$1700/\$2500	B EE				
Bosch Solution Center: Solar & Tankless Water Heating System Training	2	\$1,500	\$1,500	B EE			x	
CalGreen and the LEED for New Construction Rating System	1	\$2400/\$4400		B	x			
California's 2013 new Title 24 Standards: Compliance and Beyond	2	\$1800/\$3800		B	x		x	
Certified Green Building Professional Training plus Exam	1	\$1,200	Fee Based	B	x			
Certified Green Real Estate Professional Training & Certification Exam (Build It Green)	1	\$1,200	Fee Based	B	x			
CHPS Modernization Bootcamp (Part 2)	1	\$2500/\$4000		B	x			
CHPS Modernizations Bootcamp (Part 1)	1	\$2500/\$3500		B	x			
Designing High Performance Homes	1	\$1,500	\$2,000	B	X			

Course Title	# Times/Yr	Approximate Annual Cost (IOU)	Approximate Annual Cost (Collaborator)	Continuing Ed, Entry Level or Both (4)	Codes & Standards	Integration- Existing Bldgs (5)	ZNE (6)	Low Income Outreach (7)
DOE PHAST Specialist: 2 1/2 Day Workshop & Exam	Every other year	\$12000/\$14500	\$11,000	B	x			
DOE Fundamentals of Compressed Air Systems: 1-day workshop	1	\$3500/\$4500	\$3,000	B	x			
DOE Steam Specialist: 2 1/2 Day Workshop & Exam	Every other year	\$12000/\$14500	\$11,000	B	x			
DOE: Process Heating End User Training, Co-sponsored with the California Energy Commission	1	\$1100/\$2000	\$3,000	B	x			
DOE: Steam End User Training, Co-Sponsored with The California Energy Commission	1	\$1100/\$2000	\$3,000	B	x			
Energy Smart Landscapes Series: Residential-Commercial seminars.	2	\$2000/\$4000		B				
EnergyPro 5: Existing Building Rating Systems	2	\$1500/\$2500		B	x	x		
EnergyPro 5: Residential New Construction	2	\$1500/\$2500		B	x	x		
EnergyPro Training: Advanced	2	\$1500/\$2500		B	x	x		
EnergyPro Training: Envelope and Windows	2	\$1500/\$2500		B	x	x		
EnergyPro Training: Indoor & Outdoor Lighting	2	\$1500/\$2500		B	x	x		
EnergyPro Training: Mechanical	2	\$1500/\$2500		B	x	x		
Financial Analysis Techniques for Energy Efficiency Projects	Every other year	\$2800/\$4600		B				
GreenPoint Rated Core Seminar	1	\$1,200	Fee Based	B	x			
GreenPoint Rated Existing Home Single Family	1	\$1,200	Fee Based	B	x			
Industrial Burner and Control Technologies for Energy Efficiency	Every other year	\$2200/\$3600		B				
JAC Local 501 Energy and Boiler Class: Combustion Overview	1	\$500/\$1500		B				
LA Steam Operator's License Training 3 Day Seminar Series: This includes 4 seminars and practice Exams.	2	\$14000/\$21000		B	x			
LATTC Refrigeration: Los Angeles Trade-Tech AC & Heating Overview	2	\$1000/\$2000		B				
LATTC Steam, Los Angeles Trade-Tech Combustion Overview	1	\$500/\$1500		B				
LEED Green Associate Exam Prep Class	1	\$4300/\$7000		B	x			
MGBCE ~ Munciple Green Building Conference & Expo	1	\$8000/\$16000		B	x	x	x	
Succeed at LEED (Advanced Class)	1	\$4300/\$7000		B	x			
Understanding the Residential Mandatory Measures of the CAL Green Code	1	\$4300/\$7000		B	x			
Boiler Basics for Energy Efficiency	2	\$7000/\$10000		B -EE	x			
Boiler Water Treatment	2	\$7000/\$10000		B -EE	x			
Cooling Tower Design & Operation	1	\$3500/\$5000		B -EE	x			
Cooling Tower Water Treatment	1	\$3500/\$5000		B -EE	x			
Combustion Seminar-ERC- 2 Day	2	\$2000/\$3000		B -EE	x			

Course Title	# Times/Yr	Approximate Annual Cost (IOU)	Approximate Annual Cost (Collaborator)	Continuing Ed, Entry Level or Both (4)	Codes & Standards	Integration- Existing Bldgs (5)	ZNE (6)	Low Income Outreach (7)
Infrared Cameras: Introduction to Residential and Commercial Thermographic Applications	1	\$4000/\$5500		B -EE	x			
Save Energy & Save Money Through Process Improvement & Optimization Techniques	2	\$6000/\$8000		B -EE	x			
Well and Pump Engineering - Gaining Efficiencies Through Technology	2	\$3500/\$5000		B -EE	x			
Natural Gas Engine User Group, Efficiency & Air Quality	2	\$3500/\$5000		B -EE	x			
Association of Energy Engineers(AEE) Certified Energy Manager (CEM) 5 Day Class	1	\$500/\$1000	\$8,000	B -EE - DR	x			
Association of Energy Engineers (AEE) So Cal Chapter Certified Energy Manager (CEM) Examination Session	1	\$700/\$700		B -EE - DR	x			
Fuel Cell Technology: Energy Efficient Solutions	1	\$3500/\$5000		B -EE - DR	x			
FLIR Level one training (Infrared)	1	\$500/\$500	\$4,000	B -EE	x			
FLIR Level one Examination Session (Infrared)	1	\$700/\$700		B -EE	x			
Navigating the course of AB 32	1	\$3500/\$5000		B -EE	x			
Job Skill Workshop (Work Readiness Certification)	2	\$1500/\$2000			x			
Soft Skills Workshop (Work Readiness Certification)	2	\$1500/\$2000			x			
PRTNRSHIP SEM - PV Inspection and Permit Streamlining - (PG&E) San Luis Obispo, CA								
PRTNRSHIP SEM - PV Inspection and Permit Streamlining - (PG&E) Santa Maria, CA								
PRTNRSHIP SEM - Title 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA								
Partnership TITLE 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA								
Foodservice Forecast (2013)	1	\$5,000		B				
Operating an Energy Efficient Restaurant (2013)	1	\$1,500	\$2,000	B				
Greener Restaruant (2013)	1	\$1,500	\$2,000	B				
Purchasing Energy Efficient for Kitchens (2013)	1	\$1,500	\$2,000	B				
Kitchen Ventilation Integrating HVAC (2013)	1	\$1,500	\$2,000	B				
Foodservice Equipment Expo (2013)	1	\$15,000		B				
Equipment Maintenance for Optimum Efficiency (2013&14)	1	\$4,000		B				
The Ultimate Fryer Cookoff (2013)	1	\$4,000		B				
Cooking Sous Vide (2013)	1	\$4,000		B				
Real World Insights for School Foodservice (2013)	1	\$4,000		B				
International Taste Tour (2013&14)	1	\$4,000		B				
Multiunit Operators: Energy Efficiency and Performance Enhancements (2013)	1	\$4,000		B				

Course Title	# Times/Yr	Approximate Annual Cost (IOU)	Approximate Annual Cost (Collaborator)	Continuing Ed, Entry Level or Both (4)	Codes & Standards	Integration- Existing Bldgs (5)	ZNE (6)	Low Income Outreach (7)
Foodservice Energy Efficiency for Cal Poly Pomona Nutrition Students (2013&14)	1	\$1,200		B				
Foodservice Energy Efficiency for Orange Coast College Culinary Students (2013&14)	1	\$1,200		B				
Foodservice Energy Efficiency for Cal State Long Beach Nutrition Students (2013&14)	1	\$1,200		B				
Foodservice Energy Efficiency for Art Institute of America Culinary Students (2013&14)	1	\$1,200		B				
Foodservice Energy Efficiency for Los Angeles City College Dietetic Students(2013&14)	1	\$1,200		B				
Foodservice Energy Efficiency for Long Beach City College Dietetic Students (2013&14)	1	\$1,200		B				
Multilingual Food Safety Certification (2013&14)	1	\$1,500		B				
Certified Foodservice Professional (2013)	1	\$1,000	\$5,000	B				
Southern California Plan Check Equipment Safety and Sanitation (2013&14)	1	\$1,500		B	X			
Los Angeles County Health Department Inspector Equipment Safety and Sanitation (2013&14)	1	\$1,500		B	X			
Community College Culinary Symposium (2013&14)	1	\$1,200		B				
Food Industry Business Roundtable Efficiency and Equipment Symposium (2013&14)	1	\$1,500		B				
Strategies for Success in Hiring and Retaining Young Adults in Foodservice (2013)	1	\$2,000	\$2,000	B				
Waste Management Solutions for Foodservice (2014)	1	\$4,000		B				
Foodservice Equipment Expo (2014)	1	\$4,000		B				
Baking Technologies (2014)	1	\$4,000		B				
Combination Cooking Strategies and Success (2014)	1	\$4,000		B				
Foodservice Facility Design (2014)	1	\$4,000		B	X			
Design of Hot Water Systems (2014)	1	\$1,500	\$2,000	B				
Innovative Foodservice Technologies and Efficiencies (2014)	1	\$1,500	\$2,000	B				
Energy Efficiency in the Dishroom (2014)	1	\$1,500	\$2,000	B				
LEED for Foodservice (2014)	1	\$1,500	\$2,000	B	X			
Kitchen Ventilation Tips & Tricks (2014)	1	\$1,500	\$2,000	B	X			

Course Title	Emerging Technology (8)	Sector Strategies (9)	Needs Assessment (10)	Targeted Market Sector (11)	IOU Course Contact	Phone	E-mail
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars) (ERC)	x		SS	C,R, C&S	RR ANDERSON	562-803-7461	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (ERC)	x		SS	C,R, C&S	RR ANDERSON	562-803-7462	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (ERC)	x		SS	C,R, C&S	RR ANDERSON	562-803-7463	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars) (ERC)	x		SS	C,R, C&S	RR ANDERSON	562-803-7464	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (ERC)	x		SS	C,R, C&S	RR ANDERSON	562-803-7465	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (ERC)	x		SS	C,R, C&S	RR ANDERSON	562-803-7466	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (ERC)	x		SS	C,R, C&S	RR ANDERSON	562-803-7468	rranderson@semprautilities.com
IHACI - NATE Training Series (8 seminars) (ERC)	x		SS, C	C,R, C&S	RR ANDERSON	562-803-7469	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Air Conditioning and Heat Pump Module (4 seminars)(CHATS)	x		SS	C,R, C&S	RR ANDERSON	562-803-7470	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Air Distribution Module (4 seminars) (CHATS)	x		SS	C,R, C&S	RR ANDERSON	562-803-7471	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Electrical Module (4 seminars) (CHATS)	x		SS	C,R, C&S	RR ANDERSON	562-803-7472	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Gas Heating Module (4 seminars)(CHATS)	x		SS	C,R, C&S	RR ANDERSON	562-803-7473	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) System Diagnostics (4 seminars) (CHATS)	x		SS	C,R, C&S	RR ANDERSON	562-803-7474	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) System Performance (4 seminars) (CHATS)	x		SS	C,R, C&S	RR ANDERSON	562-803-7475	rranderson@semprautilities.com
IHACI - (CAQI/CAQM/CAQS) Indoor Air Quality (4 seminars) (CHATS)	x		SS	C,R, C&S	RR ANDERSON	562-803-7477	rranderson@semprautilities.com
IHACI - NATE Training Series (8 seminars) (CHATS)	x		SS, C	C,R, C&S	RR ANDERSON	562-803-7478	rranderson@semprautilities.com
Benchmarking with EnergyStar Portfolio Manager (Hands-on, will need Laptop)			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
Benchmarking with EnergyStar Portfolio Manager: Bosch Training Center, Irvine, CA			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
Benchmarking: You Benchmarked your Building, What's Next			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
Benchmarking: You Benchmarked your Building, What's Next: Bosch Training Ceter, Irvine, CA			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
Bosch Solution Center: Solar & Tankless Water Heating System Training			SS	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
CalGreen and the LEED for New Construction Rating System			SS	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
California's 2013 new Title 24 Standards: Compliance and Beyond			SS	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
Certified Green Building Professional Training plus Exam			SS, C	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
Certified Green Real Estate Professional Training & Certification Exam (Build It Green)			SS, C	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
CHPS Modernization Bootcamp (Part 2)			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
CHPS Modernizations Bootcamp (Part 1)			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
Designing High Performance Homes			SS	R	L BENNETT	562-803-7570	lbennett@semprautilities.com

Course Title	Emerging Technology (8)	Sector Strategies (9)	Needs Assessment (10)	Targeted Market Sector (11)	IOU Course Contact	Phone	E-mail
DOE PHAST Specialist: 2 1/2 Day Workshop & Exam	x	x	SS, C	C, I, C&S	L BENNETT	562-803-7570	lbennett@semprautilities.com
DOE Fundamentals of Compressed Air Systems: 1-day workshop	x	x	SS	C, I, C&S	L BENNETT	562-803-7570	lbennett@semprautilities.com
DOE Steam Specialist: 2 1/2 Day Workshop & Exam	x	x	SS, C	C, I, C&S	L BENNETT	562-803-7570	lbennett@semprautilities.com
DOE: Process Heating End User Training, Co-sponsored with the California Energy Commission	x	x	SS	C, I, C&S	L BENNETT	562-803-7570	lbennett@semprautilities.com
DOE: Steam End User Training, Co-Sponsored with The California Energy Commission	x	x	SS	C, I, C&S	L BENNETT	562-803-7570	lbennett@semprautilities.com
Energy Smart Landscapes Series: Residential-Commercial seminars.			SS	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
EnergyPro 5: Existing Building Rating Systems			SS	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
EnergyPro 5: Residential New Construction			SS	R	L BENNETT	562-803-7570	lbennett@semprautilities.com
EnergyPro Training: Advanced			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
EnergyPro Training: Envelope and Windows			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
EnergyPro Training: Indoor & Outdoor Lighting			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
EnergyPro Training: Mechanical			SS	C	L BENNETT	562-803-7570	lbennett@semprautilities.com
Financial Analysis Techniques for Energy Efficiency Projects			SS	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
GreenPoint Rated Core Seminar			SS, C	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
GreenPoint Rated Existing Home Single Family			SS, C	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
Industrial Burner and Control Technologies for Energy Efficiency			SS	C, I	L BENNETT	562-803-7570	lbennett@semprautilities.com
JAC Local 501 Energy and Boiler Class: Combustion Overview			SS	C, R, I	L BENNETT	562-803-7570	lbennett@semprautilities.com
LA Steam Operator's License Training 3 Day Seminar Series: This includes 4 seminars and practice Exams.	x		SS, C	C, I, C&S	L BENNETT	562-803-7570	lbennett@semprautilities.com
LATTC Refrigeration: Los Angeles Trade-Tech AC & Heating Overview			SS	C,R, I	L BENNETT	562-803-7570	lbennett@semprautilities.com
LATTC Steam, Los Angeles Trade-Tech Combustion Overview			SS	C,R, I	L BENNETT	562-803-7570	lbennett@semprautilities.com
LEED Green Associate Exam Prep Class			SS, C	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
MGBCE ~ Munciple Green Building Conference & Expo	x		SS	C, R, I	L BENNETT	562-803-7570	lbennett@semprautilities.com
Succeed at LEED (Advanced Class)			SS	C, R	L BENNETT	562-803-7570	lbennett@semprautilities.com
Understanding the Residential Mandatory Measures of the CAL Green Code			SS	R	L BENNETT	562-803-7570	lbennett@semprautilities.com
Boiler Basics for Energy Efficiency		x	SS, JP	I, C, A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Boiler Water Treatment		x	SS, JP	I, C, A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Cooling Tower Design & Operation		x	SS, JP	I, C, A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Cooling Tower Water Treatment		x	SS, JP	I, C, A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Combustion Seminar-ERC- 2 Day		x	SS	I, C, A, R	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com

Course Title	Emerging Technology (8)	Sector Strategies (9)	Needs Assessment (10)	Targeted Market Sector (11)	IOU Course Contact	Phone	E-mail
Infrared Cameras: Introduction to Residential and Commercial Thermographic Applications	x	x	SS,	C , R	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Save Energy & Save Money Through Process Improvement & Optimization Techniques	x	x	SS, JP	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Well and Pump Engineering - Gaining Efficiencies Through Technology	x	x	SS, JP	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Natural Gas Engine User Group, Efficiency & Air Quality	x	x	SS, JP	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Association of Energy Engineers(AEE) Certified Energy Manager (CEM) 5 Day Class	x	x	SS, JP	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Association of Energy Engineers (AEE) So Cal Chapter Certified Energy Manager (CEM) Examination Session	x	x	SS, JP, C	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Fuel Cell Technology: Energy Efficient Solutions	x	x	SS, JP, C	I, C , A, R	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
FLIR Level one training (Infrared)	x	x	SS, JP, C	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
FLIR Level one Examination Session (Infrared)	x	x	SS, JP, C	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Navigating the course of AB 32	x	x	SS, JP	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Job Skill Workshop (Work Readiness Certification)	x	x	SS, JP, C	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
Soft Skills Workshop (Work Readiness Certification)	x	x	SS, JP, C	I, C , A	GD JOHNSON	562-803-7403	gdjohnson@semprautilities.com
PRTNRSHIP SEM - PV Inspection and Permit Streamlining - (PG&E) San Luis Obispo, CA							
PRTNRSHIP SEM - PV Inspection and Permit Streamlining - (PG&E) Santa Maria, CA							
PRTNRSHIP SEM - Title 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA							
Partnership TITLE 24/CALGreen For Builders - (PG&E) San Luis Obispo, CA							
Foodservice Forecast (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Operating an Energy Efficient Restaurant (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Greener Restaruants (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Purchasing Energy Efficient for Kitchens (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Kitchen Ventilation Integrating HVAC (2013)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Equipment Expo (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Equipment Maintenance for Optimum Efficiency (2013&14)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
The Ultimate Fryer Cookoff (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Cooking Sous Vide (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Real World Insights for School Foodservice (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
International Taste Tour (2013&14)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Multiunit Operators: Energy Efficiency and Performance Enhancements (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com

Course Title	Emerging Technology (8)	Sector Strategies (9)	Needs Assessment (10)	Targeted Market Sector (11)	IOU Course Contact	Phone	E-mail
Foodservice Energy Efficiency for Cal Poly Pomona Nutrition Students (2013&14)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Energy Efficiency for Orange Coast College Culinary Students (2013&14)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Energy Efficiency for Cal State Long Beach Nutrition Students (2013&14)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Energy Efficiency for Art Institute of America Culinary Students (2013&14)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Energy Efficiency for Los Angeles City College Dietetic Students(2013&14)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Energy Efficiency for Long Beach City College Dietetic Students (2013&14)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Multilingual Food Safety Certification (2013&14)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Certified Foodservice Professional (2013)	X		C	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Southern California Plan Check Equipment Safety and Sanitation (2013&14)	X		C	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Los Angeles County Health Department Inspector Equipment Safety and Sanitation (2013&14)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Community College Culinary Symposium (2013&14)	X	X	SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Food Industry Business Roundtable Efficiency and Equipment Symposium (2013&14)	X		SS	C, I	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Strategies for Success in Hiring and Retaining Young Adults in Foodservice (2013)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Waste Management Solutions for Foodservice (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Equipment Expo (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Baking Technologies (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Combination Cooking Strategies and Success (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Foodservice Facility Design (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Design of Hot Water Systems (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Innovative Foodservice Technologies and Efficiencies (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Energy Efficiency in the Dishroom (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
LEED for Foodservice (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com
Kitchen Ventilation Tips & Tricks (2014)	X		SS	C	Melisa Marks	562-803-7307	mmarks@semprautilities.com

2013 -2014 WE&T Course / Program Listing Legend:

	Column Header	Definition	Code
(1)	Ed. Level	Education Sector	CSU, UC, K-12, CC (Community College), Trade / Labor (including IOU only courses)
(2)	Collaborators	External Entities Partnering with the IOU to provide resources for training effort (ex: Facilities, materials, trainers, outreach)	List Name of Collaborator
(3)	Class Length	Number of Days	Half-Day, Full Day, Two Day, Three Day, Annual (if traditional school schedule), etc.
(4)	Continuing Education, Entry Level, or Both	Indicate if the target audience for the class are entry level participants or continuing education or both.	C - Continuing Education, E - Entry Level, Both - B Include the designation EE, DR, and /or DG to indicate which demand side resources are covered by the class.
(5)	Integration - Existing Bldgs.	The class incorporates other demand side technologies (EE, DR, & DG) via an integrated systems approach.	X - if applicable
(6)	Zero Net Energy	The class addresses primarily new buildings, incorporating all demand side technologies (EE, DR, & DG) in a whole building perspective.	X - if applicable
(7)	Low Income Outreach	The class is actively promoted to low income participants and a procedure is in place to make it more affordable and convenient for these entities to participate.	X - if applicable
(8)	Emerging Technology	The class includes training for emerging technologies	X - if applicable

2013 -2014 WE&T Course / Program Listing Legend:

	Column Header	Definition	Code
(9)	Sector Strategies	The class is offered as part of a more comprehensive 'sector strategy" (Pursuant to SDG&E AL 2260-E-B/ 2041-G-B <i>et al.</i>) effort involving educational/ training partnerships with external partners and addresses recommendations identified in the Statewide WE&T needs assessment, published by UCB in March of 2011.	X - if applicable
(10)	Needs Assessment	The class addresses a recommendation area included in the Statewide WE&T needs assessment.	Indicate which NA recommendation area the class addresses; SS - Skills Standards, C - Certifications, JP - Job Placement.)
(11)	Market Sector	Indicate what market sector the course caters to. Use the same market sectors identified in the strategic plan. If codes & standards are included in the training indicate by including "C&S" after the market sector identification.	Commercial, Residential, Industrial, Agricultural

2013-2014 PIP Addendum

Program Name	Statewide Integrated Demand-Side Management Program	Date Submitted	7/2/2012
Subprogram Name	NA	Utility Name	SoCalGas
Program ID	SCG 3734	IOU Program Contact	Ron Sugimoto
		Program Cycle	2013-2014

This form is to be used to document any required changes to the Program Implementation Plans (PIPs). The following are triggers that will require a PIP change:

1. Changes to eligibility rules
2. Changes affecting incentive levels (indicate advice letter approval below if required)
3. Fund shifts (indicate advice letter approval below if required)
4. Portfolio Budget and Other Commission-Directed Changes
5. Changes to Program Theory/Logic Models
6. Addition or elimination of programs and/or sub-programs (indicate advice letter approval below)
7. Changes in program targets
8. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs (to be defined) with IOUs
9. Changes in incented measures
10. Changes in adopted PPMs/MTIs (indicate advice letter approval below if required)

Identify Specific Trigger (above) requiring the PIP change

4. Portfolio Budget and Other Commission-Directed Changes

Driver of Change:

For IDSM, SoCalGas will continue to develop the infrastructure and tools for creating a cross-cutting approaches and tools to enable sustainable building projects and communities. The new construction Sustainable Communities program will now be integrated into this program. The original focus of the Sustainable Communities program was a specific master-planned community, Rancho Mission Viejo (RMV), due to economic circumstances, this project has not progressed. This program will now be open to other projects to carry out the program's original objectives.

Description of Change (if advice letter approval required, indicate Commission resolution or approval and provide hyperlink to advice letter):

N/A

PIP Section and/or Wording to be Changed or replaced:

See attached red-line PIP

Replacement Language or Information

See attached red-lined PIP

Revised Energy Savings (If Any):

This is a non resource program

Other PIP Changes Required:

N/A

**2013-2014 Energy Efficiency Programs
Statewide Integrated Demand-Side Management Program
Program Implementation Plan**

- 1. Program Name:** Integrated Demand-Side Management Program
Program ID#: SCG3734
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Integrated Demand Side Management Program					
3734	SW-IDSMS-IDSMS	\$71,924	\$24,900	\$553,177	\$0	\$650,000
	TOTAL:	\$71,924	\$24,900	\$553,177	\$0	\$650,000

3. Projected Program Gross Impacts Table

Table 2

Program #	Main/Sub Program Name	2013-2014 Gross kW Savings	2013-2014 Gross kWh Savings	2013-2014 Gross Therm Savings
	SW Integrated Demand Side Management Program			
3734	SW-IDSMS-IDSMS	0	0	0
	TOTAL:	0	0	0

IDSMS is a non-resource program.

4. Program Description

a) Description

The California Long Term Energy Efficiency Strategic Plan (Strategic Plan) encourages programs that integrate the full range of demand-side management (DSM) options including energy efficiency (EE), demand response (DR), and distributed generation (DG) as fundamental to achieving California’s strategic energy goals. This program implementation plan (PIP) presents the coordinated effort that Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas and Electric Company (SDG&E) and Southern California Gas Company (SoCalGas), (together referred to as “the IOUs”) will make to integrate those DSM options in full collaboration with the Commission’s Energy Division in compliance with Decisions (D.) 09-09-047 and D.05-12-015 that approved the IOU IDSMS Statewide program and required continuation of IDSMS activities.

In addition to the IOUs’ individual IDSMS pilots, projects, programs, and activities, the IOUs established a Statewide Integration Task Force (Task Force). Responsibilities of the Task Force have encompassed activities that promote, in a statewide-coordinated fashion, two specific IDSMS strategies identified in the Strategic Plan. These include

**2013-2014 Energy Efficiency Programs
Statewide Integrated Demand-Side Management Program
Program Implementation Plan**

stakeholder coordination (Strategy 1.3)¹ and new technologies (Strategy 1.4)². The IOUs believe that Strategy 1.1—“Carry out integrated marketing of DSM opportunities across all customer classes” should be coordinated with the statewide Marketing, Education and Outreach (ME&O) efforts (*see* SW ME&O PIP filed in a separate application in R.09-11-014) and implemented at the local level by the IOUs focused on particular segment and customer-specific strategies.

In 2013-2014, the IDSM Task Force will continue to expand its role as a coordinating body across many proceedings, programs, and across the IOUs to identify gaps, best practices and to improve efficiencies around delivery of programs in a comprehensive manner to customers. Taskforce representatives will strive to actively participate in all applicable proceedings to help develop of a record in each proceeding that will aid in developing policies, funding opportunities, and mechanisms to promote IDSM.

Decision 12.05.015 directs the IOUs to continue and expand integration efforts in the following areas:

- **Increased Coordination** across different proceedings with the IDSM Task Force as lead.
- **IDSM Funding:** Consideration of appropriate funding from the other proceedings to support IDSM efforts
- **Increased involvement of Stakeholders:** Inclusion of stakeholders and experts in the efforts of the IDSM Task Force
- **Information on IDSM Projects:** Detailed information on the Pilot programs and projects
- **Audits:** Continued development of the integrated Audit tool
- **IDSM Marketing:** Increased integrated marketing efforts and improved reporting / communicating with ED
- **IDSM Tracking Databases:** Improved databases for tracking integrated projects

b) Statement of Problem and Solutions to Overcome the Problem

There is a policy requirement and need to focus on integration of DSM activities and programs on a statewide and local level by customers, utilities, regulators, and legislators.

The CPUC’s Strategic Plan provides its vision that “energy efficiency, energy conservation, demand response, advanced metering, and distributed generation technologies are offered as elements of an integrated solution that supports energy and carbon reduction goals immediately, and eventually water and other resource conservation goals in the future.” The State Legislature has proposed Assembly Bill

¹ *Id.*, Strategy 1.3: Develop integrated DSM programs across resources, including energy, water, and transportation.

² *Id.*, Strategy 1.4: Promote development and support of new technologies that enable or facilitate DSM Coordination and Integration.

**2013-2014 Energy Efficiency Programs
Statewide Integrated Demand-Side Management Program
Program Implementation Plan**

AB51,³ requiring the Commission to integrate the DSM programs within its jurisdiction in order to enable offerings of integrated packages that will maximize savings and minimize costs to ratepayers.

In order to ensure that the vision of IDSM progresses operationally to meet the Strategic Plan, the Task Force will continue to identify and promulgate best practices, address implementation and policy issues, and design effective metrics to measure progress on IDSM.

The Task Force will focus on include the eight tasks as defined in D. 09-09-047:

1. Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes GHG and water reductions benefits and the potential long-term economic and electric/gas hedging benefits.

a. Description:

The Commission has approved the California Standard Practice Manual that serves as the reference document for proposed cost effectiveness tests and methodologies for EE programs. Rulemaking (R.) 07-01-041 is considering identifying and approving a cost effectiveness methodology for DR programs, and R.08-03-008 is considering cost effectiveness methodologies to measure the cost benefit of DG programs. To effectively integrate DSM program design, a set of internally consistent proposed cost-effectiveness methodologies need to be developed for integrated projects, and for program efforts that seek to combine all of these demand side resource options within an integrated portfolio. Cost effectiveness is being considered in R.09-11-014.

b. Tasks and Timelines:

- Under contract to the IOUs, Black and Veatch completed a white paper on integrated cost effectiveness and presented observations and recommendations via public workshop in 2011. The progress of this activity has been on hold pending guidance from the Energy Division.
- The IOUs and CPUC will work together on next steps for integrated cost – effectiveness efforts.

2. Development of proposed measurement and evaluation protocols for IDSM programs and projects.

a. Description:

³ Assembly Bill No. 51, Amended in Assembly June 1, 2009, Amended in Assembly May 5, 2009, Amended in Assembly April 14, 2009, California legislature—2009–10 regular session; An act to amend Section 399.4 of the Public Utilities Code Relating to Energy.

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In order to effectively evaluate IDSM programs, activities and pilots, specific protocols need to be developed to document and attribute energy savings, demand reductions, and CO2 reductions from various DSM customer activities. The Task Force will coordinate with IOU and ED EM&V resources to develop a proposal of appropriate metrics for assessing integration.

Draft EM&V protocols will also be applied to the IOU IDSM pilot programs. This exercise will allow for immediate feedback as to the feasibility of the draft IDSM EM&V protocols.

b. Tasks and Timelines:

- The Task Force will explore a phased approach to developing appropriate EM&V protocols for IDSM programs and projects. In collaboration with IOUs, ED EM&V resources will develop a white paper that will be publicly vetted.
- Energy Division has put the development of the EM&V white paper on hold until the next steps are determined for the Integrated Cost Effectiveness development activity.
- The IOUs and CPUC will work together on next steps for integrated EM&V efforts.

3. Review IDSM enabling emerging technologies for potential inclusion in integrated programs.

a. Description:

The Commission has approved various research and development (R&D) and Emerging Technologies (ET) programs in both Energy Efficiency and Demand Response that promote IDSM. The ET program will focus on integrating hybrid and renewable technologies as well as study and assess interactive effects, especially for technologies like lighting and HVAC. The program will launch demonstration showcases and scaled field placement featuring integrated energy systems for proof-of-concept, technology and usability assessment, market exposure, and public awareness. The IDSM Task Force will track the results of the ET program's technology integration and help chart its future course and monitor the inclusion of integrated ET products into customer projects.

b. Tasks and Timelines:

- The IOUs will explore leveraging emerging-technology efforts through various channels to offer and promote multiple integrated measures such as efficient lighting, HVAC equipment, or pumps coupled with controls that will provide both energy savings and auto-DR capabilities. The IOUs will also explore leveraging existing or emerging technologies that individually or as a system combine EE, DR, DG, AMI, or water-savings potential as part of an integrated program offering.

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4. Development of cross-utility standardized integrated audit tools using PG&E's developed audits as a starting point.

a. Description:

Program evaluation studies conducted for program cycles 2002, 2003, and 2004-2005 clearly identify energy surveys and customer site audits as one of the most powerful tools in creating awareness of energy conservation potential. The IOUs currently offer integrated audits to medium and large customers (generally with demands upwards of 200 kW) that include appropriate EE, DR, and DG/CSI project and/or program recommendations. Integrated audits are described in the Commercial, Industrial, and Agriculture Statewide PIPs under the Customer Services sub-program.

Standardization of Audit and Survey Tools

The IOUs are working to standardize a statewide online audit tools portfolio and customize audit recommendations based on customer profiles, operating characteristics, market sector potential, and cost-effectiveness of the offering. This process will consider more meaningful ways to implement the audit and survey tools for the customer and identify choices of potential measures in various DSM programs or technologies specific to a particular customer.

b. Tasks and Timelines:

- Timeline for the online tool development for each utility can be found in the Commercial PIP.

5. Track integration pilot programs to estimate energy savings and lessons learned and develop standard integration best practices that can be applied to all IOU programs based on pilot program evaluations and the results of additional integration promoting activities (i.e., EM&V and cost-benefit results).

a. Description:

In addition to the formal Task Force, internal IOU teams will actively participate in discussions of the pilots, perform assessments based on data collected from the pilot program managers, and return recommendations based on lessons learned to the management-level staff of the Task Force.

During the 2013-2014 portfolio cycle, the IOUs shall work with Commission Staff to ensure that an adequate level of detail is provided in their reports on Integrated Demand Side Management pilot efforts. In addition, per the Commission direction, the table below describes all Integrated Demand-Side Management pilot programs and projects. The offerings address CPUC guidance

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on resource comprehensiveness, design characteristics, promotion of emerging technologies, and the testing of integrated cost-effectiveness and evaluation methodologies that support IDSM objectives.

Integrated Pilots

Pilot Program	Demand Side Resources Included (1)	Enabling Technologies Included (2)	Emerging Technologies Included (3)	Existing or New Construction (4)	% of ZNE Anticipated (program / avg project)		Anticipated Savings kWh (program / avg project)		Anticipated Savings kW (program / avg project)		Anticipated Savings Therms (program / avg project)		Program Cycle Budget Allocation (6)	Estimated Avg Cost Per Building	Accounts Included in the Pilot (7)	Notes
PG&E- Zero Net Energy	EE, DR, DG	AMI, O	X	RMC NFRN C	40-50%	40-50%	n/a	n/a	n/a	n/a	n/a	n/a	\$6 million (2010-12)	n/a	25	Other (O) Enabling Technologies as appropriate based on building type.
SCE- Zero Net Energy	EE, DR, DG	AMI, Battery Storage	X	NC	75	80	4000	200	10	0.5	3000	150	400,000	20,000	30	Have looked at AMI; including any enabling or emerging technologies that make sense for a specific project
SCE- Sustainable Communities	EE, DR, DG	AMI, Battery Storage	X	NC	10	1	N/A	N/A	N/A	N/A	N/A	N/A	1,100,000	55,000	8	Have looked at AMI; including any enabling or emerging technologies that make sense for a specific project
SDG&E Behavioral Pilot	EE	AMI Data	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$2.9 million	\$10/year	at least 100K	Comparative usage pilot continuation
SCG - Sustainable Communities	EE, DG	AMI, Fuel Cells	X	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	650,000	N/A	N/A	Other Enabling Technologies as appropriate based on project characteristics

b. Tasks and Timelines:

- During the 2013-2014 period, the IOUs will explore existing project tracking and reporting systems and determine the best approach to consolidate and improve these systems across multiple programs (EE, DR, DG/CSI) and business areas to benefit customers, customer facing staff, internal planning and reporting.

6. Develop regular reports on progress and recommendations to the Commission.⁵

a. Description:

The Task Force has developed a communications strategy that will include regular meetings and reports to the ED; template under review.

b. Tasks and Timelines:

⁵ Heading remains consistent with CPUC directive in D. 09-09-047.

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- Since Q1 2010, the IOUs have provided quarterly reports accessible through EEGA; discussions are ongoing to determine the appropriate reporting requirements for 2013-2014.
- The Task Force (including IOU and Energy Division representatives) meets, in person, as needed, for deep dives and will continue in 2013-14.
- The Task Force, including subcommittees, holds planning and coordination conference calls to discuss progress on integrated activities and will continue in 2013-2014.
- The Statewide IOU Integration team participates on conference calls for SW collaboration, communication, and preparation for Task Force meetings and will continue in 2013-2014.

7. Organize and oversee internal utility IDSMS strategies by establishing internal Integration Teams with staff from EE, DR, DG, marketing, and delivery channels.

a. Description:

The IOUs will establish internal integration teams with representatives from EE, DR, Energy Savings Assistance Program (ESAP), distributed generation (DG)/Solar, green programs, marketing and delivery channels.

b. Deliverables of the Integration Team:

- Facilitate and communicate to promote inclusion of EE, DR, solar and other offerings (e.g., DG, Rates) into comprehensive energy cost reduction offerings to customers
- Coordinate with marketing team to promote integrated offerings including a centralized marketing function and consistent messaging
- Develop and implement sales and program training for integrated offerings including a targeted customers approach and sales training plan
- Coordinate responses to Commission directives, inquiries and data requests
- Coordinate development and delivery of integrated programs to create seamless market-segment-based customer solutions
- Coordinate/track delivery and progress of integrated pilots and activities
- Participate in regulatory proceedings and filings to maintain consistent, coordinated message
- Review and provide comments on regulatory filings
- SCE has committed to developing and begin implementation of an IDSMS Action Plan that sets goals, strategies, and tactics across the organization to facilitate and optimize efficiencies gained through the utilization of integrated approaches. SoCalGas, where the service territories overlap significantly, will endeavor to partner with them in this to find synergies and economies of scale.

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In order to educate and share best practices and experience with integrated products, marketing, and sales; integrated sales training will be developed, or in some cases continued, for the IOU customer facing, marketing and the Program teams. Training will focus on how to present integrated audits and offerings to customers and promote knowledge transfer among participants. Elements will include:

- Sales representatives from all appropriate delivery channels and program staff will be trained on IDSM integration to improve the sales effectiveness of programs
- Incorporate IDSM into external events and internal training of customer-facing staff, as appropriate

b. Tasks and Timelines:

These tasks are ongoing within each utility.

8. Provide feedback and recommendations for the utilities' integrated marketing campaigns including how the working group will ensure that demand response marketing programs approved as category 9 Demand Response programs are coordinated with EE integrated marketing efforts.

a. Description:

All IOUs are conducting Residential and Non-residential outreach events, developing and delivering collateral, and utilizing website updates and campaigns to cross market programs. Research on customer approach has also been conducted on the effectiveness and appropriate order, timing and combination of bundling of programs to customers.

Integrated Local Marketing Education and Outreach Strategy

The IOUs' integrated marketing plans are designed to generate ongoing customer engagement in Energy Efficiency, Demand Response and other DSM programs and services, by providing residential and non-residential customers with the right message, through the right channel, at the right time. The plans will leverage and complement the SW ME&O activities, which will be designed to "provide general energy education and demand side management program information," (D.12-05-015, OP 117a) while "prompting residential and small business customers to immediately take action." (OP 117f)

In 2013-2014, a new Statewide ME&O campaign will focus on creating awareness and educating customers about energy management and integrated DSM. The IOUs expect to leverage the increased interest generated by the SW ME&O campaign and use that point of contact and education as a step towards deeper EE engagement. The IOU's local integrated marketing strategy will focus

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on helping customers understand the relevance of EE programs and services and enabling customers to take actions that are appropriate to their needs -- including one-time measures such as rebates as well as deeper whole house retrofits. This local EE marketing strategy will be coordinated through a variety of channels and tactics, with the intent of reaching customers at the right place and at the right time to drive increased participation and ongoing engagement.

Integrated Local Marketing Education and Outreach Messaging

In order to provide customers with relevant messages, the IOUs will use segmentation and internal data analysis to help refine our current understanding of customers' IDSM needs, by customer segment and target offerings appropriately. By cross-selling DSM programs and services that are meaningful to the customer, the IOUs will encourage customers to take action.

When appropriate, integrated messaging will deliver information to customers in a way that bundles relevant EE, DR and other DSM programs and services. For example, the IOUs will develop print and electronic case studies that feature customers who have implemented integrated solutions in order to address their energy management needs.

In addition to cross-selling DSM programs and promoting bundled solutions through integrated campaigns, integrated messaging will also be designed to motivate customers to enroll in web-based billing and analysis tools. This action will enable and encourage customers to better understand and manage their energy usage by taking advantage of the online tools. It will also provide the utilities with additional opportunities to continue to cross-sell DSM programs and services.

Integrated Local Marketing Education and Outreach Tactics

Local integrated marketing campaigns leverage multiple tactics and multiple communications that combine to present customers with a holistic view of programs and service offerings and a connection to the actions customers can take to participate. To reach California's diverse customers, the IOUs will use a mix of communication channels and languages. When possible, the IOUs will utilize the customer's preferred method for receiving communications. Marketing channels may include, but are not limited to: customer call centers, business account representatives, direct mail, email, IOU and 3rd Party websites, bill inserts, outreach events, partnership activities, social media, and ethnic advertising.

Integrated Local Marketing Education and Outreach Reporting

To increase and showcase marketing integration, IOUs will continue to conduct regular coordination meetings to share integration results, review best practices, and identify potential areas for improvement. For example, in May 2012, the IOUs presented an overview of their marketing integration efforts at the Quarterly

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IDSMS Task Force meeting. Additionally, IOUs will continue to submit updates of their integrated marketing activities within their quarterly report.

b. Tasks and Timelines:

- The Task Force will continue to work in 2013-2014 with the statewide ME&O effort to ensure integrated messaging and coordination at a statewide level and will identify areas of integration with other demand-side programs by identifying and developing a product planning/review process that involves ME&O members of the IDSMS Task Force.
- In 2013-2014, the Task Force will conduct internal review of local utility marketing efforts where there are opportunities to integrate messages and campaigns, resources, and program offerings that promote demand side integration of AMI, DR, EE, and DG resources.
- The IOUs will continue to share information with the Task Force on local IOU integrated marketing, training, and education efforts. The IOUs will report all integrated marketing activities in the quarterly reports and will highlight integrated marketing efforts at the regular IDSMS Task Force meetings.

c) Program Goals, Strategies and Measurable Objectives

The primary purpose of the Task Force is to facilitate the integration of the full range of IOU DSM program options for California. To achieve this purpose the Task Force will pursue several objectives:

1. Determine membership and identify key liaisons and stakeholders

Initial Task Force membership will include representatives from each of the utilities, non-utility representatives as appropriate, and from the Commission's Energy Division. Utility membership will include people representation from strategic planning, EE, ESAP, DR and DG programs as well as emerging technologies, marketing, delivery channels and regulatory coordination, and possibly advanced metering. Statewide membership may be expanded to include representatives from the municipal utilities, the California Energy Commission (CEC) and other stakeholders. The Task Force may have regular representation from each of the leads of the other SW Program working groups, such as Industrial, Agricultural, Commercial, Residential, ME&O, WE&T, and New Construction.

In the 2013-2014 period, the IDSMS Task Force will make strides to include subject matter experts and other external stakeholders in the discussions of the eight specific directives in order to get perspective and additional feedback on the various topics and subjects. As directed, the IOUs will work in collaboration with the CPUC to identify and invite stakeholders to participate where and when appropriate.

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The Task Force will coordinate and communicate with teams associated with other programs and proceedings. Included in this effort is the ESA Integration Working Group; the Task Force and the ESA Integration Working Group /subcommittee work together to maintain directional alignment and to identify and report on best practices across the EE, ESAP and other proceedings.

2. Continue to identify and describe progress of:
 - Existing utility activities, efforts, programs and pilots,
 - IDSM best practices, and
 - IDSM metrics (including pilots) and cost effectiveness methodologies
3. Identify key issues affecting successful integration, such as cost-effectiveness, enhancing progress on technical innovations and regulatory jurisdictional issues. The Task Force will work with ET and program planning staff to develop potential solutions to the issues raised, and then follow through to see that the solutions are represented in future program modifications.
4. Develop metrics and reporting mechanism for tracking success of integrated efforts (EM&V protocols) consistent with the EM&V development plan described earlier in section 4.A.2.
5. Develop proposals for policy and program initiatives necessary to forward IDSM.
6. Establish program-funding protocols.
7. Identify and recommend adoption of enabling/supporting policies for inclusion in appropriate DSM programs and reports consistent with descriptions in prior sections of this PIP.
8. Identify and propose changes to inhibiting policies, metrics, and reports consistent with descriptions in prior sections of this PIP.

Tasks and Timelines

Goals defined above will involve ongoing efforts of the Task Force.

d) Target Audience(s)

The target audience for this statewide IDSM program effort is IDSM stakeholders including, but not limited to, the IOUs, CPUC, CEC, DSM solutions providers (e.g., EE service providers, DR aggregators, CSI installers) and utility customers.

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e) Identify If and How this Program will Provide any Elements of Workforce Education and Training (WE&T)

To date, the Task Force has collaborated with the WE&T SW team to develop the acceptable protocol for integrated training at the training centers. The Task Force will continue to identify and report best practices. Any IOU budgets associated with Integrated WE&T are included in the WE&T PIP.

5. Program Rationale and Expected Outcome

The Strategic Plan calls for an ongoing task force to establish a blueprint for integration. A statewide non-resource program is an effective means of coordinating such a blueprint.

a) Quantitative Baseline and Market Transformation Information

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Integrated Demand Side Management Statewide Program (Resolution E-4385, Appendix A):

PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
1. Awareness and knowledge among relevant IOU program staff (to be specified – e.g. account reps, engineers that administer the audit (3 rd party); program designers and managers) regarding how IDSM relates to and impacts their efforts and programs	2b
2. Number and percentage of integrated audits provided to each customer class and NAICS code.	2b
3. A status report that identifies how well “integrated” (EE, DR, DG) all IOU demand-side energy program offerings and components are (e.g., CEI, Commercial, Agricultural, Industrial, Residential, Audits) including lessons learned, best practices, improvement plans, and how the program portfolio is addressing strategic planning goals / objectives. D.09-09-047 also provides directives regarding integration, as well as the IDSM program objectives specified in the PPM Worksheet. The report will review how the IOUs have developed internal and external frameworks that support integration of IDSM programs and technologies. (Y/N)	2b

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<p>4. Number and percent of integrated audit participants (identify NRA participants) in all customer classes (Residential, Commercial, Industrial, Agriculture) that implement recommended DSM measures / participate in other DSM programs (EE, DR, DG – Track which categories implemented / participated in) or other recommended technical process and practice improvements. (If possible, identify whether participants received incentives or not.)*</p> <p>*Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates.</p>	2b
<p>5. Program participant awareness of IDSM practices in each of the market sector subprograms.</p>	2b

b) Market Transformation Information

No MTIs have been approved for this program.

c) Program Design to Overcome Barriers

As stated in the Strategic Plan, “Historically, demand side management (DSM) options for energy consumers have been “siloeed” activities within regulatory bodies, utilities, environmental organizations, and among private sector service providers. The current narrow focus on a single product offering does not maximize energy savings nor minimize the costs of program delivery.” The Task Force and associated integration efforts within each utility is working to overcome this and other barriers to maximize benefits for customers and reduce costs for ratepayers.

d) Quantitative Program Targets

Not applicable for this non-resource program.

e) Advancing Strategic Plan goals and objectives

In support of the Strategic Plan,⁷ the IOUs will evaluate the DSM pilot programs and determine what components will lead to successful DSM integration, consistent with the strategies in the Strategic Plan. The Task Force will discuss the applicability of these Emerging Technologies and initiatives in the context of IDSM. The ET program will undertake a coordinated effort to support innovation in EE, DR, and renewable / self-generation. ET forums will be used by the Task Force to review and vet proposed ET technologies that can be funded and integrated across DSM programs. Lastly, through coordinated DSM marketing, the Task Force will promote program integration across the DSM campaigns in order to maximize EE, DR, & DG opportunities.

6. Program Implementation

⁷ California Long Term Energy Efficiency Strategic Plan, Section 8,4 pp. 72-73.

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a) Statewide IOU Coordination

This is a statewide program.

- i. Integrated Demand Side Management
- ii. All program delivery mechanisms

As described earlier in this document, the Task Force does not replace the individual IOU governance of DSM programs and is not intended to duplicate reporting or regulatory activities.

- iii. Marketing materials and message

The Task Force will work with the Statewide and internal IOU M&O teams to leverage statewide awareness and coordinated program messaging; and, explore utilizing educational efforts that direct customers to local utility integration efforts and offerings.

- iv. IOU program interactions with CEC, air resources boards, air quality management districts, local government programs, other government programs, community-based organizations, non-governmental organizations, manufacturers, retailers, trade and business associations, as applicable.

The IDSM Task Force will explore opportunities to interact with other programs/ organizations that could include municipal utilities, local and state governments, water districts and DSM solutions providers to offer integrated services, obtain input/feedback, share knowledge/best practices, and generally promote IDSM efforts and activities. Expansion of Task Force participation may be in the form of periodic expert input and ad hoc workshops as needed to solicit input from the broader group of participants in a fair and equitable manner. Future program milestones, lessons learned, and best practices can be shared with outside stakeholders to further IDSM activity outside of IOU programs.

- v. Similar IOU and POU programs

The IDSM Task Force will coordinate with all IOU SW programs and will interact with other programs/ organizations, municipalities and DSM solutions providers to offer integrated services. Future program milestones, lessons learned, and best practices can be shared with outside stakeholders to further IDSM activity outside of IOU programs.

b) Program Delivery Mechanisms

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The Task Force will not be involved in direct implementation but will develop and provide the knowledge necessary to promote integrated program delivery mechanisms.

c) Marketing Plan

The Task Force will not be providing direct marketing services, but the coordination of marketing will be an integral part of integrated approaches and will be included in each individual program's approach where applicable. In addition, as described in Task 8, above, the Task Force will work with the Statewide and internal IOU M&O teams to leverage statewide awareness and coordinated program messaging; and, explore utilizing educational efforts that direct customers to local utility integration efforts and offerings.

d) Best Practices

The Task Force's involvement in reviewing utility integration activities, pilots and practices (e.g., Zero Net Energy, Food Processing) will lead to the establishment of Integrated Best Practices.

e) Innovation

Individual utilities are working on integrated approaches locally to meet customer needs on a comprehensive, solutions-based level and coordinating and tracking of these integrated pilots and activities.

f) Integrated/Coordinated Demand Side Management

The basis of this program is entirely integrated and coordinated demand side management on a statewide basis with local efforts feeding into the overall strategy.

g) Integration Across Resource Types

Where possible, the Task Force will continue to identify opportunities for integrating across non-energy areas like water and electric vehicles. Most likely, this information will come from pilots and other customer-focused activities and will be considered future pilots and best practice recommendations.

h) Pilots

The Task Force will be the principal governance structure to track the integrated efforts of the IOUs and develop SW metrics to evaluate their success. The Task Force will identify pilots, projects, programs and activities being conducted by individual IOUs that might be replicated in other parts of the state. As described in section 4.b.5, above, integrated pilots and activities will continue to be identified and tracked by the Task Force in Quarterly Reports. A critical component of evaluating these pilots, projects, and program activities is identifying what data should be captured to optimally evaluate the

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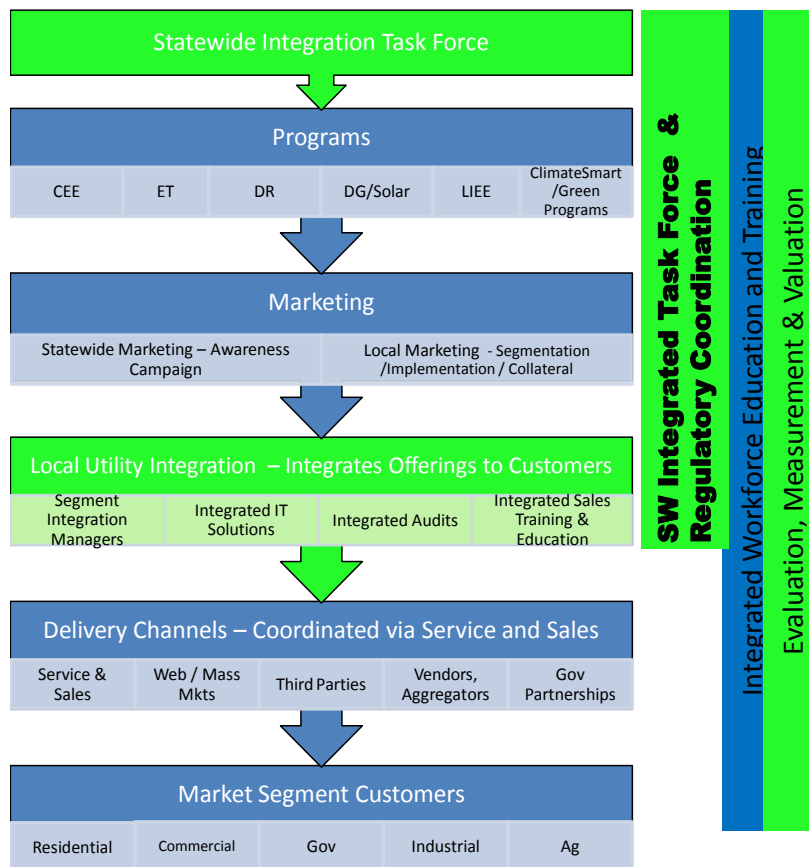
ongoing success of these pilots and IDSM activities. The Task Force will coordinate with ED staff to ensure that an adequate level of data is collected.

i) EM&V

The Task Force will continue tracking and measuring the metrics described in Section 5 of this PIP, leveraging evaluation studies and resources where appropriate. The IDSM Omnibus Process Evaluation is underway and will provide recommendations for overcoming barriers and improving future IDSM offerings. Subsequent evaluation needs will be determined at the conclusion of the Omnibus Evaluation.

7. Program Diagram

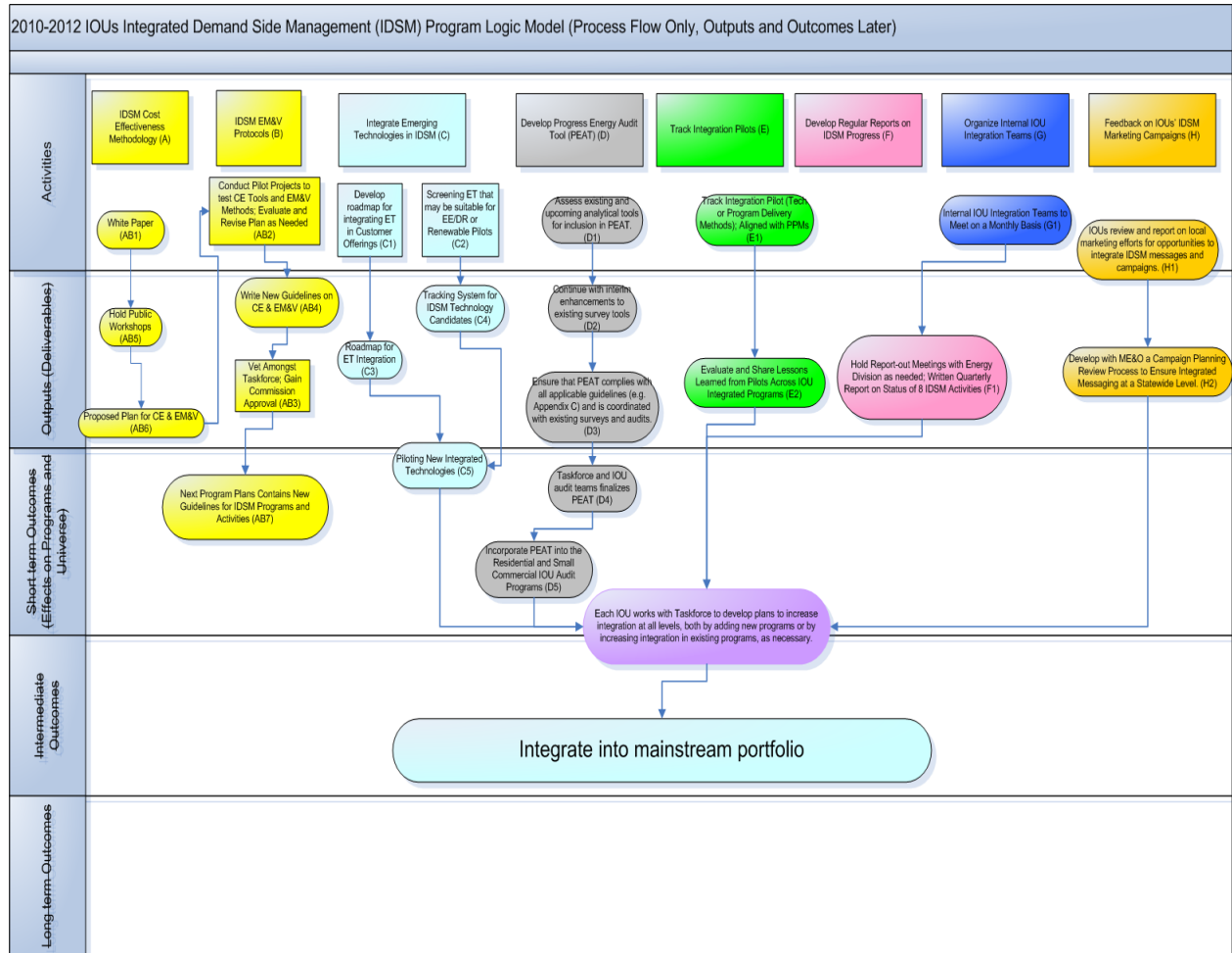
Program Diagram – IDSM Task Force



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8. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Integrated Demand Side Management Program.



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9. Local Sustainable Communities Case Studies Program

The SoCalGas IDSM Program is made up of two major, but related, components.

1. The previously addressed Statewide IDSM effort
2. The Sustainable Communities Case Studies Program

SoCalGas' Sustainable Communities (SC) program provides the framework for the design and building of communities that support the environment through energy- and resource-efficiency. SC helps to enhance quality of life by protecting and preserving natural resources and improving economic development. Incentives and other assistance are available to developers, building owners, and design teams that construct highly energy-efficient buildings with sustainable design, and long-term energy-efficiency.

This highly innovative program will be SoCalGas' flagship program providing the path for all other programs in meeting California's long-term energy efficiency goals, including zero net energy homes by 2020. This program will enable market transformation resulting in measurable energy efficiency, integrated demand response, distributed generation, renewables and natural resource savings while optimizing long term ecological, social and economic health of California. It accomplishes this by comprehensively integrating the "vertical" development (buildings and their components) with the "horizontal" development (land and utility and transportation infrastructure) over the full planning horizon. This holistic approach to program design and implementation is coupled with a new management model and evolutionary improvements in energy, water and air quality savings over the project life.

Another key feature of SC's flagship approach is its longer-term focus and crosscutting implementation to avoid trapping the key market players in the usual "organizational silos." SC achieves this through the unique partnership between SoCalGas and the Master Developer by developing early market interventions deployed by 3rd party implementers upstream of the usual core programs. This innovation produces more productive and resilient market change with greater cost-effectiveness.

Sustainable Design and Construction Training

A training program and training materials will be developed for participating builders and contractors. The training, for both residential and non-residential building, will cover all relevant issues including sustainable design and construction impacting energy efficiency, solar, water, waste, utility infrastructure (smart grid and AMI), and transportation.

A metric of this service will be determined in tracking the impact early intervention and training have on increasing energy-efficient design of residential structures. Developing training goals and objectives, curriculum and tracking of buildings energy performance will be used to measure success of the training. The minimum specifications will be covered in the training developed to help encourage and monitor innovative design and exceeding building performance targets set by the developer and utilities. The utility will support training developed and provided by developer's consultants for builder subcontractors.

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The incorporation of a Learning Center within the development is proposed to help educate and build awareness of energy efficiency, renewable generation and sustainable measures that have been incorporated into the development. The Learning Center will create a powerful teaching tool due to its interactive software and real time graphics. This tool could demonstrate the community's energy savings compared to non-efficient developments, showcase the development's green features and show environmental impacts and equivalent comparisons. In addition, kiosks will contain renewable energy education and incorporate actual data related to utility owned on-site generation. The center would be strategically located within the community near a school, library, or public center. This location could also be used for utility hosted energy workshops highlighting energy efficiency and green building design.

Sustainable Design Assistance

Design assistance will be provided to participating engineers, architects, planners, and builders. The program will encourage innovative and less traditional approaches to meeting and exceeding sustainability goals. Design assistance will occur much earlier in the development process than traditional utility offerings to embrace this flagship program's crosscutting nature and to better leverage its holistic ambitions and goals.

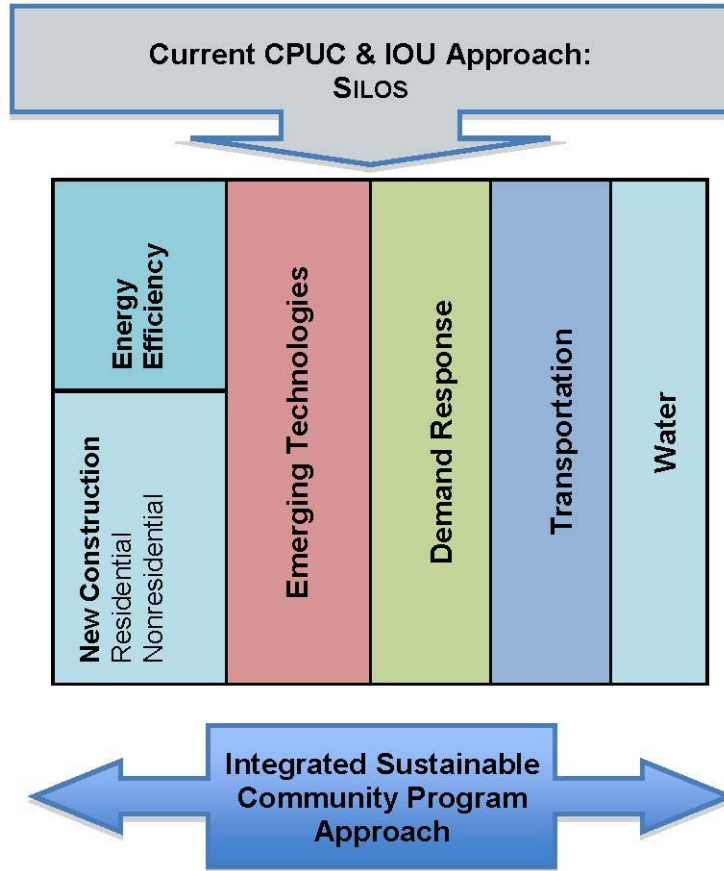
Residential Modeling Procedure and Protocol Development

Because builders will be required to submit documentation illustrating how their designs will meet the sustainability requirements, this program will develop the modeling procedures and other requirements for this documentation. Sustainability targets would be set at 35% above Title 242 for all residential building and would also include participation in the New Solar Homes Partnership program to foster development of renewable energy on each residential building. Similar energy performance targets would be established for commercial projects with corresponding participation in the CSI program.

2 Title 24 2005.

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Figure 1: Sustainable Communities Crosscutting Approach

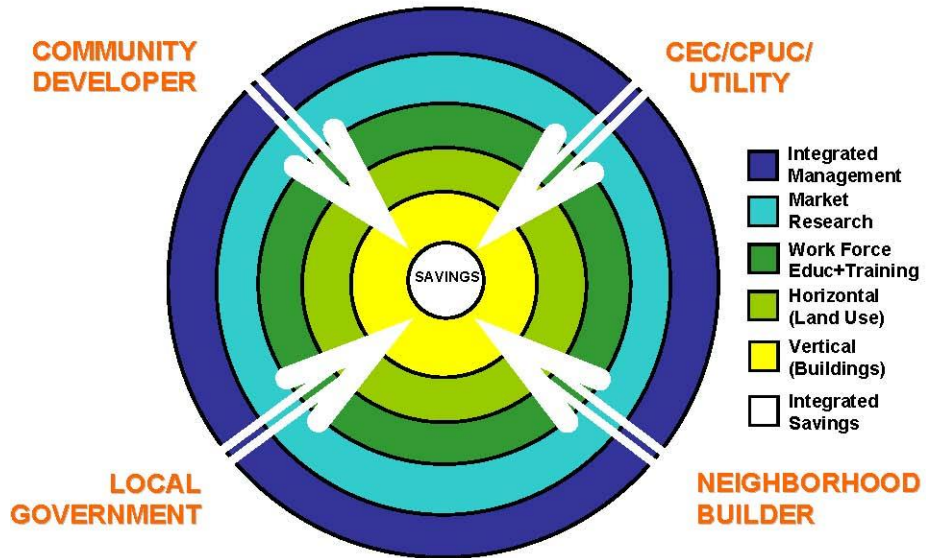


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Figure 2: Sustainable Communities Integrated Savings Approach

The New Paradigm . . .

. . . an integrated management approach



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Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not strong confidence would not be productive. Therefore, the utilities respectfully exclude "draft" metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

As explained immediately above, the utilities propose to provide these draft metrics when available.

Program Design to Overcome Barriers

- SoCalGas program offerings work in silos and result in lost savings opportunities at the community level.
- The Pilot will work directly with the Community Developer to achieve integration across community energy end-uses such as buildings, transportation, water, and generation. This allows 100% participation by the community and encourages the developer to be innovative and aggressive in setting energy efficiency and renewable energy goals.
- Working through the Community Developer will enable SoCalGas to influence multiple types of consultants (architects, landscape architects, urban designers, transportation engineers, mechanical and electrical engineers), trades (mechanical, electrical, plumbing, roofing, and renewable installers) and supply chain partners such as manufacturers as

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well as local governments.

- Program cycles are too short for stakeholders with long-term planning and development horizons. 3-year program cycles ignore market conditions and long project lead-times.
- Master-planned communities typically have twenty year planning horizons which is much longer than typical IOU program timelines. This program resolves this by proposing a sufficient timeline that allows for full program integration into the development plan. Master-planned communities typically have twenty year planning horizons. Front-loading the program recommendations will maximize market transformation and allow the program benefits to properly deliver over the full length of the master development process.

For example, Rancho Mission Viejo's Ranch Plan went through a decade of science-based planning, and processing; development of the first planning area (PA1) will commence once the market recovers, hopefully by 2010 (www.TheRanchPlan.com). Another example is Otay Ranch, a large master planned community in Chula Vista went through a ten-year planning process, opened in 1999, and ten years later still is nowhere near completion despite being San Diego County's top selling planned community. (<http://otayranch.com/about/aboutIndex.shtml>). This program resolves this by proposing a sufficient timeline that allows for full program integration into the development plan.

- IOUs and non-governmental organizations lack the coordinated efforts that are needed to accomplish the goals. Disincentives exist at the CPUC, CEC, and IOUs that delay and inhibit effective and persistent market transformation:

Incentives availability is unpredictable for long-term stakeholders, and they are unable to utilize or secure them for projects.

Current organizational "silos" at IOUs and CPUC associated with various rulings make it impractical to do an integrated and comprehensive sustainable communities program. This creates missed opportunities for EE and DR savings up and down the energy supply and demand chains.

Utility customers are seeking integrated solutions addressing their entire energy infrastructure needs from smart appliances, smart meters, smart grid functionality including vehicle-to-grid capability, to promoting grid-enabled renewables. Existing program structures prevent appropriate creation and delivery of an integrated market solution.

Advancing Strategic Plan goals and objectives

SoCalGas' Sustainable Communities (SC) program supports the Statewide Strategic Plan, and promoting a sustainable future for Southern California. By addressing environment concerns and energy and resource efficiency, the program seeks to support the residential 2020 goals of zero net energy in new construction. Coupled with the focus on sustainable design and green building practices, the program is uniquely positioned to influence the

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design and construction of sustainable communities in its broadest definition. Consistent with The California Long Term Energy Efficient Strategic Plan, Residential New Construction will reach “zero net energy” (ZNE) performance for all new single and multi-family homes by 2020, and commercial new construction will increasingly embrace zero net energy performance (including clean, on site distributed generation), reaching 100% penetration of new starts in 2030. Near term, by 2011, 50% of new homes will surpass 2005 Title 24 energy efficiency standards by 35%; 10% will surpass 2005 Title 24 standards by 55%..

Residential

To support the CLTEESP objectives, SoCalGas proposes a separate *Sustainable Communities Case Studies* program that focuses on the Ranch Plan being developed by the Master-planned community company.

The program guides the target community toward this goal by setting beyond-code minimums in the interim, which facilitates building to ZNE in the target timeframe. The Pilot will incorporate a Learning Center within the development to educate builders and homeowners as well as provide the Community Developer access to SoCalGas’ full gamut of energy efficiency programs.

The program will provide design assistance for builders, during which SoCalGas will push for the incorporation of innovative building practices. The pilot integrated approach will include a comprehensive array of strategies including energy-efficiency measures, educational opportunities for demand response, onsite renewable distributed generation (as applicable), and smart meters.

Commercial

New construction will increasingly embrace zero net energy performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030.(Goal 1)

Codes and Standards: Adopt aggressive and progressive minimum energy codes and standards for buildings and plug loads, effective code compliance and enforcement, and parallel, tiered voluntary energy efficiency standards (Strategy 1). The Pilot sets increasingly rigid energy efficiency goals that provide a workable path to achieving this goal. Specifically, at least 75% of commercial square footage must be 20% better by 2012.

Innovation

Sustainable Communities will be SoCalGas’ flagship program providing the path for all other programs to meet California’s long-term energy-efficiency goals, including net-zero energy homes by 2020.

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SC enables enhanced market transformation resulting in measurable energy efficiency, integrated demand response, distributed generation, renewables and natural resource savings while optimizing long-term ecological, social and economic health of California. It accomplishes this by comprehensively integrating the “vertical” development (buildings and their components) with the „horizontal“ development (land and utility and transportation infrastructure) over the full planning horizon. This holistic approach to program design and implementation is coupled with a new management model and evolutionary improvements in energy, water and air quality savings over the project life.

Master-planned communities typically have twenty-year planning horizons which is why weaving the vertical program elements with horizontal elements are so critical to its success. This program is unique in its breath and the level of integration to achieve long-term savings for: electricity, natural gas, water, wastewater, carbon emissions, and greenhouse gases.

Sustainable Communities recognizes that master-planned community developments provide a “proving ground” for interrelated pilot program offerings. This program will help SoCalGas and the CPUC to better understand barriers and opportunities with different stakeholders as part of a pilot/program rather than from numerous disjointed efforts. In addition to establishing SoCalGas as a leader in promoting sustainable development, SC provides the CPUC the opportunity to establish their leadership and overall policy guidance in support of these innovative programs.

The process for developing sustainable, livable land-use practices and building design is creative, technical and, participatory. The basic principles of sustainable development merge similar objectives to protect and restore the natural environment while providing nurturing, high-quality communities for people to work and live in.

The common fundamental characteristic throughout the program is its focus on performance approaches rather than prescriptive approaches to fully integrate building systems with infrastructure enabling SoCalGas into California’s Smart Grid. The Smart Grid concept overlaps various functions such as smart meters, smart appliances, demand response, self-generation, highly efficient PV systems and transportation.

Integrated/coordinated Demand Side Management

Fundamental to SC’s innovative design is it fully embraces an IDSM methodology by closely “knitting” EE, DR, DG and renewables across development components. Its very nature speaks to integration to form synergistic impacts that are typically unattainable through EE business as usual.

At a minimum, all marketing materials will be developed to support energy-efficient design process in helping cross promote demand response to educate customers on the availability of IOU DR programs/Smart Meters etc. Additional work will take place during the three-year program cycle to evaluate closer linkages between EE and DR via Program Managers and success with this concept with various case study projects. Additionally, this feedback

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mechanism establishes a means to facilitate technology approaches that enable SC to crosscut organizational silos in achieving its strategic vision.

Integration across resource types (energy, water, air quality, etc.)

SC is a comprehensive program with a cross-cutting focus on energy-design, green building practices, and increased utilization of renewable resources. Infrastructure, transportation planning, energy, water, materials, and waste are all addressed in the program rather than as separate elements. This provides the opportunity for exponential energy- and resource-savings throughout the community – giving SoCalGas and developers the ability to shift to cleaner forms of energy to power our communities. The key difference is that SC approaches the market with the Master Developer as its focus. Rather than address market barriers at the tail end of the market cycle, SC deals with barriers earlier in the development process thereby enhancing and improving its leverage to create substantially greater impacts as displayed in the table below. The pilot will engage with CEC, DOE, MWD and other government agencies responsible for various aspects of New Construction in California.

Integrated Community-Based Solutions

The main elements addressed by the participating projects will be structured around three key concepts – Environment, Resources, and Energy – with a detailed focus to the following principles:

- Sustainable site design
- Energy efficiency
- Advanced renewables integration
- Pollution reduction
- Water efficiency
- Indoor air quality
- Resource preservation
- Smart Grid
- Integrating local Governments
- Transportation.
- Smart Land-Use Options (ex: mixed housing, walk-ability / bike-ability)

These energy- and land-use practices, sensitive to both the human community and natural environment, will be achieved through the *Sustainable Communities Case Studies* program and will allow the utility to initiate a collaborative partnership with the design community, developers, builders and related industries.

Master-planned community (to be determined)

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To support the *Case Study* program concept and to integrate it into the *Sustainable Communities* program, SoCalGas proposes a separate *Sustainable Communities Case Studies* program that will focus on a to be selected Plan being developed by a Master-planned community developer.

These projects will be comprised open space, residential units, commercial construction, schools, hospitals and other related development.

The project will be developed with sustainability as its guiding principle and addresses. This would include:

- Interdependence of humanity and nature
- Intergenerational stewardship
- Optimized value
- Design with natural systems
- Conservation of natural resources
- High-performance design technologies
- Resource-efficient healthy materials
- Elimination of waste
- Multi-modal transportation
- Innovation, education, and ongoing evolution

The project will also address quantitative environmental metrics of:

- Energy use
- Air pollution
- Greenhouse gases
- Water use
- Storm water and runoff

The tools developed, results achieved and lessons learned from the pilot have direct application Statewide and will be shared to further advance sustainable development elsewhere in California. This provides a much-needed proving ground serving to enrich sustainable community development at a cost-effective level unattainable through traditional approaches.

Project Opportunities

Utilizing the first plans as a case study will provide both short- and long-term opportunities for energy savings and other benefits in a cost-effective environment. It will also provide a comprehensive mix of energy-efficient market potential for multiple residential, commercial, and retail sectors. It will provide a model to successfully implement the programmatic initiatives found in the Strategic Plan.

Working through the community developer will enable the IOU to influence multiple types of consultants (architects, landscape architects, urban designers, transportation engineers, and mechanical and electrical engineers), trades (mechanical, electrical, plumbing, roofing, and

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renewable installers), and supply chain partners such as manufacturers as well as local governments.

Project Funding

The Sustainable Communities Model developed by CTG Energetics, Inc. and the selected Master-Planned Community Sustainability Team, is the core controlling element in the analysis of the Project. Funding for the development and maintenance of the Sustainable Communities Model is needed to support the case study and evaluate the energy and environmental impacts, and sustainable design decision making for the chosen project. This Sustainable Communities Model will be the core controlling element in the analysis of the project. The Sustainable Communities Model® (SCM) quantifies total environmental impacts (including energy use, water use, greenhouse gas emissions, air pollution emissions, stormwater, transportation impacts, solid waste, and other factors) allowing communities to optimize planning and design decisions that result in the greatest environmental benefit for the least cost. The SCM takes a quantitative, systems-based approach towards sustainability. This enables a project's design team to "connect" each specialty's detailed analyses together to explore and optimize environmental impacts that cross disciplinary boundaries. The landscape architect can explore the impacts that various planting palettes has on building energy use (shading, microclimate modification, evaporative cooling), water consumption, carbon sequestration and embodied environmental impacts such as the amount of embodied energy/carbon in water. The SCM is scalable over a wide range of community sizes, and can be applied to "communities" ranging from municipalities, to large master planned developments/re-developments, to academic and corporate campuses, down to individual buildings.

Funding for the development and maintenance of the Sustainable Communities Model is needed to support the case study and evaluate the energy and environmental impacts, and sustainable design decision making for both the phases and the broader project. The funds are anticipated to support five key areas of the Sustainable Communities Model:

1. Implementation of the entire project in SCM to facilitate further investigation and analysis
2. Support of on-going plan design changes (densities, unit types, etc.)
3. Development and refinement of peer review and referencing methodologies to support the environmental benefit calculations, and
4. Development of new calculations and modules needed to support specific decision points for the project (e.g. large scale photovoltaic, cogeneration, district heating and cooling, etc.)

Additional funding will be required to cover:

- An on-site HERS-certified inspector during the build-out of the project. This inspector will perform the required tests and inspections and will ensure consistency and quality in the Planning Area 1 homes.
- Full-time, on-site technical support for 3rd party inspections and tests of building to ensure quality, program compliance, energy savings, and measurement and verification.

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- Sales training
- Timeline of completion
 - The program will roughly be scheduled through the end of 2014, but the master development and results will continue for up to 20 years, or 2034.
- Timeline of results
 - Some results will be available annually; a more comprehensive study will be completed at the end of the program cycle.
- The Statewide IDSM program is tasked with developing an appropriate cost effectiveness methodology for integrated projects/pilots. The methodology will be used for this pilot as it becomes available.

The Green Energy Systems (GES) program (see Statewide New Construction PIP, Savings By Design for an example) will explore the potential for utility ownership of major energy efficiency equipment to facilitate the installation of the highest efficiency HVAC systems in commercial buildings. The program recognizes that building owner financing is constrained and without utility ownership, the system design will not maximize energy savings. The objective of GES is to capture energy efficiency opportunities that would otherwise be lost for the 20 to 30 year life of the HVAC equipment. This pilot will build on the success of the Sustainable Communities program that incorporates utility ownership of clean energy generation systems on customer facilities.

Under GES, SoCalGas will seek to identify projects with the following characteristics:

- The project is of sufficient size to warrant the effort (>\$2,000,000 investment)
- The building is intended to be owner occupied or owner managed
- The HVAC system is a central plant configuration

If an appropriate project is identified, with an owner willing to enter into a contractual agreement with the utility to own and operate the building's HVAC central plant, then the utility will file an advice letter for approval of incremental capital and maintenance costs and will demonstrate that the project meets the following criteria of the project is cost effective as a stand-alone energy-efficiency project and delivers incremental energy savings beyond what the building owner would otherwise have installed.

If approved, the utility will sub-contract out the design, construction, and operation of the facility but will serve as project manager to ensure it is constructed and operated at the design efficiency levels.

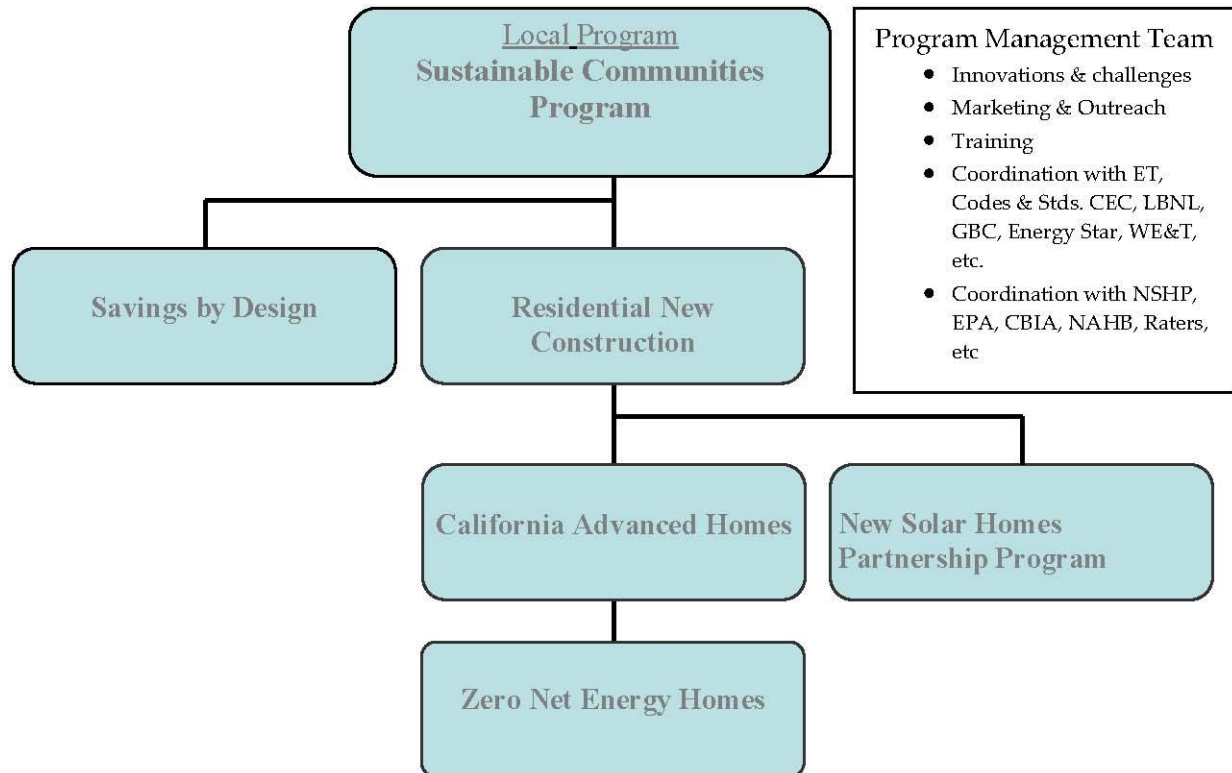
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Savings By Design: Neighborhood Retail, Business Park, and Offices, Fire/Police Stations, churches and Civic.

California Advanced Homes: Single family detached, single family attached, multi-family apartments and Assisted Living Community.

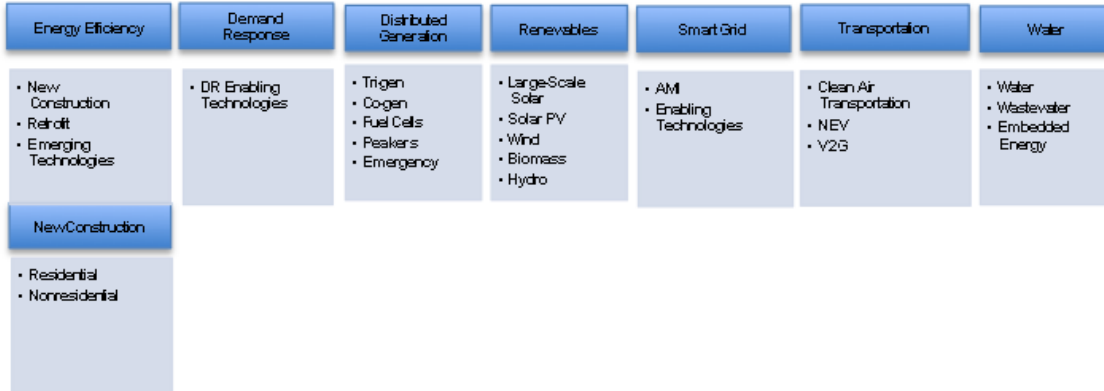
New Solar Homes Partnership Program:
Single family detached, single family attached, multi-family apartments.

Zero Net Energy Homes: Single family detached, single family attached, multi-family apartments.



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Figure 2: Sustainable Communities Program Linkages

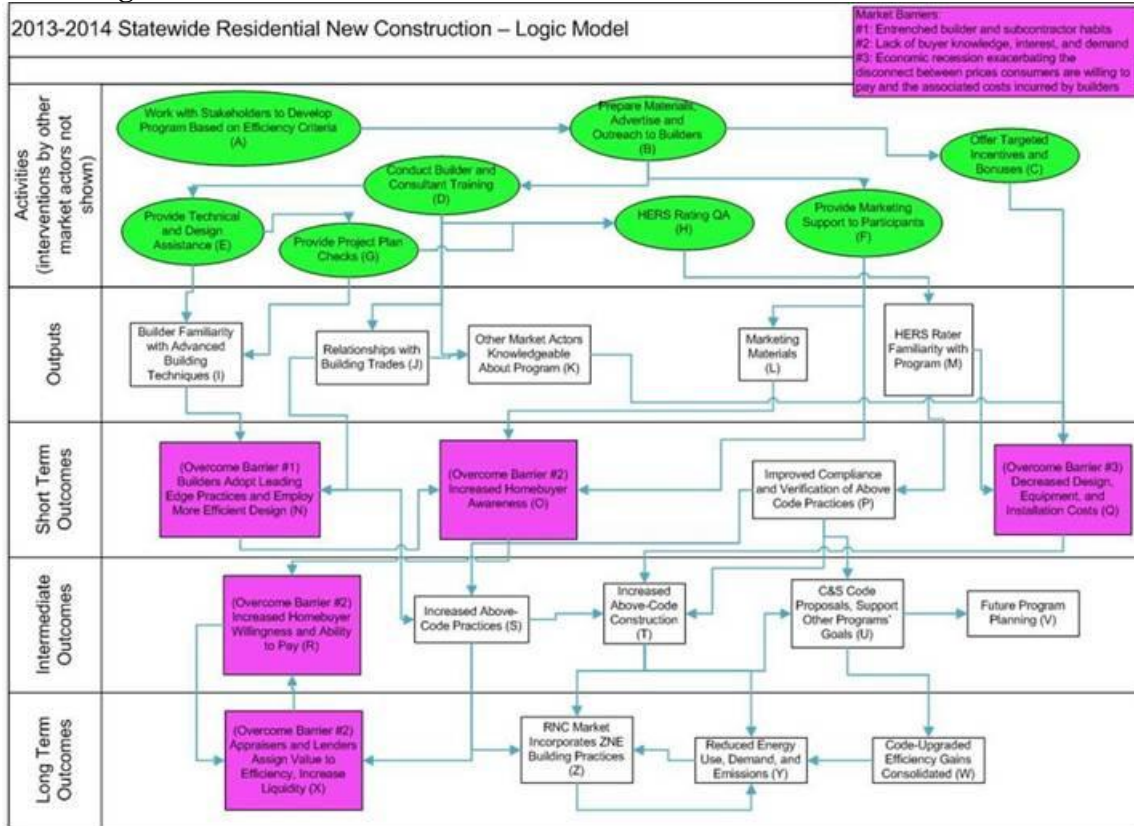


Master Developer	
OPPORTUNITIES	CHALLENGES
Integrated community-based approach	Funding format and prescriptive incentives not conducive
Reduce energy consumption and increase renewables	Added costs viewed as too high vs. return
Influence multiple stakeholders	Current incentive programming focused only on homeowner and builder
Implement research and pilot programs	Master Developer not included in existing incentive structure
Stimulate market transformation	Funding cycles too short for Master Developer timeframes

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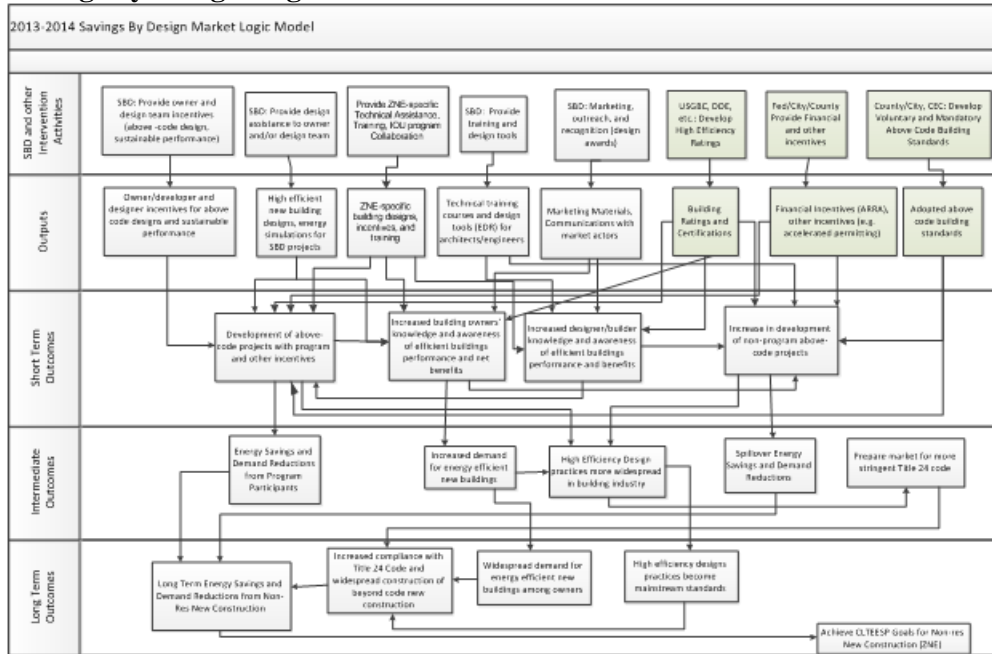
8. Program Logic Models

CAHP Logic Model



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Savings by Design Logic Model



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- 1. Program Name:** Integrated Demand-Side Management Program
Program ID#: SCG3734
Program Type: Statewide Core Program

2. Projected Program Budget Table

Table 1

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Integrated Demand Side Management Program					
3734	SW-IDSM-IDSM	\$71,924	\$24,900	\$553,177	\$0	\$650,000
	TOTAL:	\$71,924	\$24,900	\$553,177	\$0	\$650,000

3. Projected Program Gross Impacts Table

Table 2

Program #	Main/Sub Program Name	2013-2014 Gross kW Savings	2013-2014 Gross kWh Savings	2013-2014 Gross Therm Savings
	SW Integrated Demand Side Management Program			
3734	SW-IDSM-IDSM	0	0	0
	TOTAL:	0	0	0

IDSM is a non-resource program.

4. Program Description

a) Description

The California Long Term Energy Efficiency Strategic Plan (Strategic Plan) encourages programs that integrate the full range of demand-side management (DSM) options including energy efficiency (EE), demand response (DR), and distributed generation (DG) as fundamental to achieving California’s strategic energy goals. This program implementation plan (PIP) presents the coordinated effort that Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas and Electric Company (SDG&E) and Southern California Gas Company (SoCalGas), (together referred to as “the IOUs”) will make to integrate those DSM options in full collaboration with the Commission’s Energy Division in compliance with Decisions (D.) 09-09-047 and D.05-12-015 that approved the IOU IDSM Statewide program and required continuation of IDSM activities.

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In addition to the IOUs’ individual IDSM pilots, projects, programs, and activities, the IOUs established a Statewide Integration Task Force (Task Force). Responsibilities of the Task Force have encompassed activities that promote, in a statewide-coordinated fashion, two specific IDSM strategies identified in the Strategic Plan. These include

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stakeholder coordination (Strategy 1.3)¹ and new technologies (Strategy 1.4)². The IOUs believe that Strategy 1.1—“Carry out integrated marketing of DSM opportunities across all customer classes” should be coordinated with the statewide Marketing, Education and Outreach (ME&O) efforts (*see* SW ME&O PIP [filed in a separate application in R.09-11-014](#)) and implemented at the local level by the IOUs focused on particular segment and customer-specific strategies.

In 2013-2014, the IDSM Task Force will continue to expand its role as a coordinating body across many proceedings, programs, and across the IOUs to identify gaps, best practices and to improve efficiencies around delivery of programs in a comprehensive manner to customers. Taskforce representatives will strive to actively participate in all applicable proceedings to help develop of a record in each proceeding that will aid in developing policies, funding opportunities, and mechanisms to promote IDSM.

Decision 12.05.015 directs the IOUs to continue and expand integration efforts in the following areas:

- **Increased Coordination** across different proceedings with the IDSM Task Force as lead.
- **IDSM Funding:** Consideration of appropriate funding from the other proceedings to support IDSM efforts
- **Increased involvement of Stakeholders:** Inclusion of stakeholders and experts in the efforts of the IDSM Task Force
- **Information on IDSM Projects:** Detailed information on the Pilot programs and projects
- **Audits:** Continued development of the integrated Audit tool
- **IDSM Marketing:** Increased integrated marketing efforts and improved reporting / communicating with ED
- **IDSM Tracking Databases:** Improved databases for tracking integrated projects

b) Statement of Problem and Solutions to Overcome the Problem

There is a policy requirement and need to focus on integration of DSM activities and programs on a statewide and local level by customers, utilities, regulators, and legislators.

The CPUC’s Strategic Plan provides its vision that “energy efficiency, energy conservation, demand response, advanced metering, and distributed generation technologies are offered as elements of an integrated solution that supports energy and carbon reduction goals immediately, and eventually water and other resource conservation goals in the future.” The State Legislature has proposed Assembly Bill

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<#>In 2013-2014, taskforce representatives will strive to actively participate in the service lists for all applicable proceedings to develop of a record in each proceeding that would aid in developing a policy, funding opportunities, and mechanisms to promote IDSM.¶

<#>On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The metrics are further defined in Section 5, below.¶

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¹ *Id.*, Strategy 1.3: Develop integrated DSM programs across resources, including energy, water, and transportation.

² *Id.*, Strategy 1.4: Promote development and support of new technologies that enable or facilitate DSM Coordination and Integration.

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AB51,³ requiring the Commission to integrate the DSM programs within its jurisdiction in order to enable offerings of integrated packages that will maximize savings and minimize costs to ratepayers.

In order to ensure that the vision of IDSM progresses operationally to meet the Strategic Plan, the Task Force will continue to identify and promulgate best practices, address implementation and policy issues, and design effective metrics to measure progress on IDSM.

The Task Force will focus on include the eight tasks as defined in D. 09-09-047:

1. Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes GHG and water reductions benefits and the potential long-term economic and electric/gas hedging benefits.

a. Description:

The Commission has approved the California Standard Practice Manual that serves as the reference document for proposed cost effectiveness tests and methodologies for EE programs. Rulemaking (R.) 07-01-041 is considering identifying and approving a cost effectiveness methodology for DR programs, and R.08-03-008 is considering cost effectiveness methodologies to measure the cost benefit of DG programs. To effectively integrate DSM program design, a set of internally consistent proposed cost-effectiveness methodologies need to be developed for integrated projects, and for program efforts that seek to combine all of these demand side resource options within an integrated portfolio. Cost effectiveness is being considered in R.09-11-014.

b. Tasks and Timelines:

- Under contract to the IOUs, Black and Veatch completed a white paper on integrated cost effectiveness and presented observations and recommendations via public workshop in 2011. The progress of this activity has been on hold pending guidance from the Energy Division.
- The IOUs and CPUC will work together on next steps for integrated cost – effectiveness efforts.

2. Development of proposed measurement and evaluation protocols for IDSM programs and projects.

a. Description:

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¶ This Task Force does not replace the individual IOU governance of DSM programs and is not intended to duplicate reporting or regulatory activities. Rather, the Task Force will specifically look for important opportunities, identify barriers, and work through the IOU program staff to promote the advancement of IDSM, using lessons learned and best practices to establish a continuous improvement process.

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³ Assembly Bill No. 51, Amended in Assembly June 1, 2009, Amended in Assembly May 5, 2009, Amended in Assembly April 14, 2009, California legislature—2009–10 regular session; An act to amend Section 399.4 of the Public Utilities Code Relating to Energy.

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In order to effectively evaluate IDSM programs, activities and pilots, specific protocols need to be developed to document and attribute energy savings, demand reductions, and CO2 reductions from various DSM customer activities. The Task Force will coordinate with IOU and ED EM&V resources to develop a proposal of appropriate metrics for assessing integration.

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Draft EM&V protocols will also be applied to the IOU IDSM pilot programs. This exercise will allow for immediate feedback as to the feasibility of the draft IDSM EM&V protocols.

b. Tasks and Timelines:

- The Task Force will explore a phased approach to developing appropriate EM&V protocols for IDSM programs and projects. In collaboration with IOUs, ED EM&V resources will develop a white paper that will be publicly vetted.
- Energy Division has put the development of the EM&V white paper on hold until the next steps are determined for the Integrated Cost Effectiveness development activity.
- The IOUs and CPUC will work together on next steps for integrated EM&V efforts.

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 Status update submitted in May 2012 PIP Addendum:
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3. Review IDSM enabling emerging technologies for potential inclusion in integrated programs.

a. Description:

The Commission has approved various research and development (R&D) and Emerging Technologies (ET) programs in both Energy Efficiency and Demand Response that promote IDSM. The ET program will focus on integrating hybrid and renewable technologies as well as study and assess interactive effects, especially for technologies like lighting and HVAC. The program will launch demonstration showcases and scaled field placement featuring integrated energy systems for proof-of-concept, technology and usability assessment, market exposure, and public awareness. The IDSM Task Force will track the results of the ET program's technology integration and help chart its future course and monitor the inclusion of integrated ET products into customer projects.

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b. Tasks and Timelines:

- The IOUs will explore leveraging emerging-technology efforts through various channels to offer and promote multiple integrated measures such as efficient lighting, HVAC equipment, or pumps coupled with controls that will provide both energy savings and auto-DR capabilities. The IOUs will also explore leveraging existing or emerging technologies that individually or as a system combine EE, DR, DG, AMI, or water-savings potential as part of an integrated program offering.

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4. Development of cross-utility standardized integrated audit tools using PG&E’s developed audits as a starting point.

a. Description:

Program evaluation studies conducted for program cycles 2002, 2003, and 2004-2005 clearly identify energy surveys and customer site audits as one of the most powerful tools in creating awareness of energy conservation potential. The IOUs currently offer integrated audits to medium and large customers (generally with demands upwards of 200 kW) that include appropriate EE, DR, and DG/CSI project and/or program recommendations. Integrated audits are described in the Commercial, Industrial, and Agriculture Statewide PIPs under the Customer Services sub-program.

Standardization of Audit and Survey Tools

The IOUs are working to standardize a statewide online audit tools portfolio and customize audit recommendations based on customer profiles, operating characteristics, market sector potential, and cost-effectiveness of the offering. This process will consider more meaningful ways to implement the audit and survey tools for the customer and identify choices of potential measures in various DSM programs or technologies specific to a particular customer.

b. Tasks and Timelines:

- Timeline for the online tool development for each utility can be found in the Commercial PIP.

5. Track integration pilot programs to estimate energy savings and lessons learned and develop standard integration best practices that can be applied to all IOU programs based on pilot program evaluations and the results of additional integration promoting activities (i.e., EM&V and cost-benefit results).

a. Description:

In addition to the formal Task Force, internal IOU teams will actively participate in discussions of the pilots, perform assessments based on data collected from the pilot program managers, and return recommendations based on lessons learned to the management-level staff of the Task Force.

During the 2013-2014 portfolio cycle, the IOUs shall work with Commission Staff to ensure that an adequate level of detail is provided in their reports on Integrated Demand Side Management pilot efforts. In addition, per the Commission direction, the table below describes all Integrated Demand-Side Management pilot programs and projects. The offerings address CPUC guidance

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Quarter	Tool Status
Q1 2010	PG&E Res-Vendor Selected
Q2 2010	PG&E Res-Vendor Selected
Q3 2010	PG&E Res-Vendor Selected
Q4 2010	PG&E Res-Vendor Selected
Q1 2010	PG&E Interim Solar Calculator-Vendor Selected
Q2 2010	PG&E Interim Solar Calculator-Vendor Selected
Q3 2010	PG&E Interim Solar Calculator-Vendor Selected
Q4 2010	PG&E Interim Solar Calculator-Vendor Selected
Q1 2010	PG&E Int Calculator
Q2 2010	PG&E Int Calculator
Q3 2010	PG&E Int Calculator
Q4 2010	PG&E Int Calculator
Q1 2010	PG&E Res: Tool in Development
Q2 2010	PG&E Res: Tool in Development
Q3 2010	PG&E Res: Tool in Development
Q4 2010	PG&E Res: Tool in Development

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**2013-2014 Energy Efficiency Programs
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on resource comprehensiveness, design characteristics, promotion of emerging technologies, and the testing of integrated cost-effectiveness and evaluation methodologies that support IDSM objectives.

Integrated Pilots

Pilot Program	Demand Side Resources Included (1)	Enabling Technologies Included (2)	Emerging Technologies Included (3)	Existing or New Construction (4)	% of ZNE Anticipated (program / avg project)	Anticipated Savings kWh (program / avg project)	Anticipated Savings kW (program / avg project)	Anticipated Savings Therms (program / avg project)	Program Cycle Budget Allocation (6)	Estimated Avg Cost Per Building	Accounts Included in the Pilot (7)	Notes				
PG&E- Zero Net Energy	EE, DR, DG	AMI, O	X	RNC N/RN C	40-50%	40-50%	n/a	n/a	n/a	n/a	n/a	Other (O) Enabling Technologies as appropriate based on building type.				
SCE- Zero Net Energy	EE, DR, DG	AMI, Battery Storage	X	NC	75	80	4000	200	10	0.5	3000	150	400,000	20,000	30	Have looked at AMI; including any enabling or emerging technologies that make sense for a specific project
SCE- Sustainable Communities	EE, DR, DG	AMI, Battery Storage	X	NC	10	1	N/A	N/A	N/A	N/A	N/A	N/A	1,100,000	55,000	8	Have looked at AMI; including any enabling or emerging technologies that make sense for a specific project
SDG&E Behavioral Pilot	EE	AMI Data	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$2.9 million	\$10/year	at least 100K	Comparative usage pilot continuation
SCG - Sustainable Communities	EE, DG	AMI, Fuel Cells	X	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	650,000	N/A	N/A	Other Enabling Technologies as appropriate based on project characteristics

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Pilot Program	Demand Side Resources Included (1)	Enabling Technologies Included (2)	Emerging Technologies Included (3)	Existing or New Construction (4)
PG&E- Zero Net Energy	EE, DR, DG	AMI, O	X	RNC NRNC
PG&E- Green Communities	N/A	N/A	N/A	N/A
SCE- Zero Net Energy	EE, DR, DG	AMI, Battery Storage	X	NC
SCE- Sustainable Communities	EE, DR, DG	AMI, Battery Storage	X	NC
SDG&E- Sustainable Communities	EE, DR, DG			
SDG&E Micro Grid				
SCG - IDSM & Sustainable Communities	EE, DG	AMI, Fuel Cells,		NC

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b. Tasks and Timelines:

- During the 2013-2014 period, the IOUs will explore existing project tracking and reporting systems and determine the best approach to consolidate and improve these systems across multiple programs (EE, DR, DG/CSI) and business areas to benefit customers, customer facing staff, internal planning and reporting.

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6. Develop regular reports on progress and recommendations to the Commission.⁵

a. Description:

The Task Force has developed a communications strategy that will include regular meetings and reports to the ED; template under review.

b. Tasks and Timelines:

⁵ Heading remains consistent with CPUC directive in D. 09-09-047.

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- ~~Since Q1 2010, the IOUs have provided~~ quarterly reports ~~accessible~~ through EEGA; ~~discussions are ongoing to determine the appropriate reporting requirements for 2013-2014.~~
- The Task Force (including IOU and Energy Division representatives) ~~meets, in person, as needed,~~ for deep dives and will continue in 2013-14.
- ~~The Task Force, including subcommittees, holds~~ planning and coordination conference calls ~~to discuss progress on integrated activities and will continue in 2013-2014.~~
- ~~The Statewide IOU Integration team participates on~~ conference calls for SW collaboration, communication, and preparation for Task Force meetings ~~and will continue in 2013-2014.~~

7. Organize and oversee internal utility IDSM strategies by establishing internal Integration Teams with staff from EE, DR, DG, marketing, and delivery channels.

a. Description:

~~The IOUs will establish~~ internal integration teams ~~with representatives from~~ EE, DR, ~~Energy Savings Assistance Program~~ (ESAP), distributed generation (DG)/Solar, green programs, marketing and delivery channels.

b. Deliverables of the Integration Team:

- Facilitate and communicate to promote inclusion of EE, DR, solar and other offerings (e.g., DG, Rates) into comprehensive energy cost reduction offerings to customers
- Coordinate with marketing team to promote integrated offerings including a centralized marketing function and consistent messaging
- Develop and implement sales and program training for integrated offerings including a targeted customers approach and sales training plan
- Coordinate responses to Commission directives, inquiries and data requests
- Coordinate development and delivery of integrated programs to create seamless market-segment-based customer solutions
- Coordinate/track delivery and progress of integrated pilots and activities
- Participate in regulatory proceedings and filings to maintain consistent, coordinated message
- Review and provide comments on regulatory filings
- ~~SCE has committed to developing and begin implementation of an IDSM Action Plan that sets goals, strategies, and tactics across the organization to facilitate and optimize efficiencies gained through the utilization of integrated approaches. SoCalGas, where the service territories overlap significantly, will endeavor to partner with them in this to find synergies and economies of scale.~~

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In order to educate and share best practices and experience with integrated products, marketing, and sales; integrated sales training will be developed, or in some cases, continued, for the IOU customer facing, marketing and the Program teams. Training will focus on how to present integrated audits and offerings to customers and promote knowledge transfer among participants. Elements will include:

- Sales representatives from all appropriate delivery channels and program staff will be trained on IDSM integration to improve the sales effectiveness of programs.
- Incorporate IDSM into external events and internal training of customer-facing staff, as appropriate.

b. Tasks and Timelines:

These tasks are ongoing within each utility.

8. Provide feedback and recommendations for the utilities' integrated marketing campaigns including how the working group will ensure that demand response marketing programs approved as category 9 Demand Response programs are coordinated with EE integrated marketing efforts.

a. Description:

All IOUs are conducting Residential and Non-residential outreach events, developing and delivering collateral, and utilizing website updates and campaigns to cross market programs. Research on customer approach has also been conducted on the effectiveness and appropriate order, timing and combination of bundling of programs to customers.

Integrated Local Marketing Education and Outreach Strategy

The IOUs' integrated marketing plans are designed to generate ongoing customer engagement in Energy Efficiency, Demand Response and other DSM programs and services, by providing residential and non-residential customers with the right message, through the right channel, at the right time. The plans will leverage and complement the SW ME&O activities, which will be designed to "provide general energy education and demand side management program information," (D.12-05-015, OP 117a) while "prompting residential and small business customers to immediately take action." (OP 117f)

In 2013-2014, a new Statewide ME&O campaign will focus on creating awareness and educating customers about energy management and integrated DSM. The IOUs expect to leverage the increased interest generated by the SW ME&O campaign and use that point of contact and education as a step towards deeper EE engagement. The IOU's local integrated marketing strategy will focus

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- Program staff will be trained on integrated concepts and understand success with customers upon which they can leverage integrated program development.
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- IOU Budgets to support these additional internal efforts, support functions and training are as follows.¶ Utility
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- Regular coordination meetings currently exist to review EE, DR, DG and ESAP results with internal marketing management and discuss course change
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**2013-2014 Energy Efficiency Programs
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on helping customers understand the relevance of EE programs and services and enabling customers to take actions that are appropriate to their needs -- including one-time measures such as rebates as well as deeper whole house retrofits. This local EE marketing strategy will be coordinated through a variety of channels and tactics, with the intent of reaching customers at the right place and at the right time to drive increased participation and ongoing engagement.

Integrated Local Marketing Education and Outreach Messaging

In order to provide customers with relevant messages, the IOUs will use segmentation and internal data analysis to help refine our current understanding of customers' IDSM needs, by customer segment and target offerings appropriately. By cross-selling DSM programs and services that are meaningful to the customer, the IOUs will encourage customers to take action.

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When appropriate, integrated messaging will deliver information to customers in a way that bundles relevant EE, DR and other DSM programs and services. For example, the IOUs will develop print and electronic case studies that feature customers who have implemented integrated solutions in order to address their energy management needs.

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In addition to cross-selling DSM programs and promoting bundled solutions through integrated campaigns, integrated messaging will also be designed to motivate customers to enroll in web-based billing and analysis tools. This action will enable and encourage customers to better understand and manage their energy usage by taking advantage of the online tools. It will also provide the utilities with additional opportunities to continue to cross-sell DSM programs and services.

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Integrated Local Marketing Education and Outreach Tactics

Local integrated marketing campaigns leverage multiple tactics and multiple communications that combine to present customers with a holistic view of programs and service offerings and a connection to the actions customers can take to participate. To reach California's diverse customers, the IOUs will use a mix of communication channels and languages. When possible, the IOUs will utilize the customer's preferred method for receiving communications. Marketing channels may include, but are not limited to: customer call centers, business account representatives, direct mail, email, IOU and 3rd Party websites, bill inserts, outreach events, partnership activities, social media, and ethnic advertising.

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Integrated Local Marketing Education and Outreach Reporting

To increase and showcase marketing integration, IOUs will continue to conduct regular coordination meetings to share integration results, review best practices, and identify potential areas for improvement. For example, in May 2012, the IOUs presented an overview of their marketing integration efforts at the Quarterly

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The Task Force will coordinate and communicate with teams associated with other programs and proceedings. Included in this effort is the ESA Integration Working Group; the Task Force and the ESA Integration Working Group /subcommittee work together to maintain directional alignment and to identify and report on best practices across the EE, ESAP and other proceedings.

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2. Continue to identify and describe progress of:

- Existing utility activities, efforts, programs and pilots,
- IDSM best practices, and
- IDSM metrics (including pilots) and cost effectiveness methodologies

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3. Identify key issues affecting successful integration, such as cost-effectiveness, enhancing progress on technical innovations and regulatory jurisdictional issues. The Task Force will work with ET and program planning staff to develop potential solutions to the issues raised, and then follow through to see that the solutions are represented in future program modifications.

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4. Develop metrics and reporting mechanism for tracking success of integrated efforts (EM&V protocols) consistent with the EM&V development plan described earlier in section 4.A.2.
5. Develop proposals for policy and program initiatives necessary to forward IDSM.
6. Establish program-funding protocols.
7. Identify and recommend adoption of enabling/supporting policies for inclusion in appropriate DSM programs and reports consistent with descriptions in prior sections of this PIP.
8. Identify and propose changes to inhibiting policies, metrics, and reports consistent with descriptions in prior sections of this PIP.

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The Task Force will identify key issue

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Tasks and Timelines

Goals defined above will involve ongoing efforts of the Task Force.

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d) Target Audience(s)

The target audience for this statewide IDSM program effort is IDSM stakeholders including, but not limited to, the IOUs, CPUC, CEC, DSM solutions providers (e.g., EE service providers, DR aggregators, CSI installers) and utility customers.

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e) Identify If and How this Program will Provide any Elements of Workforce Education and Training (WE&T)

To date, the Task Force has collaborated with the WE&T SW team to develop the acceptable protocol for integrated training at the training centers. The Task Force will continue to identify and report best practices. Any IOU budgets associated with Integrated WE&T are included in the WE&T PIP.

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5. Program Rationale and Expected Outcome

The Strategic Plan calls for an ongoing task force to establish a blueprint for integration. A statewide non-resource program is an effective means of coordinating such a blueprint.

a) Quantitative Baseline and Market Transformation Information

Program Performance Metrics (PPMs)

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Integrated Demand Side Management Statewide Program (Resolution E-4385, Appendix A):

PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
1. Awareness and knowledge among relevant IOU program staff (to be specified – e.g. account reps, engineers that administer the audit (3 rd party); program designers and managers) regarding how IDSM relates to and impacts their efforts and programs	2b
2. Number and percentage of integrated audits provided to each customer class and NAICS code.	2b
3. A status report that identifies how well “integrated” (EE, DR, DG) all IOU demand-side energy program offerings and components are (e.g., CEI, Commercial, Agricultural, Industrial, Residential, Audits) including lessons learned, best practices, improvement plans, and how the program portfolio is addressing strategic planning goals / objectives. <u>D.09-09-047 also provides</u> directives regarding integration, as well as the IDSM program objectives specified in the PPM Worksheet. The report will review how the IOUs have developed internal and external frameworks that support integration of IDSM programs and technologies. (Y/N)	2b

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4. Number and percent of integrated audit participants (identify NRA participants) in all customer classes (Residential, Commercial, Industrial, Agriculture) that implement recommended DSM measures / participate in other DSM programs (EE, DR, DG – Track which categories implemented / participated in) or other recommended technical process and practice improvements. (If possible, identify whether participants received incentives or not.)* *Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates.	2b
5. Program participant awareness of IDSMP practices in each of the market sector subprograms.	2b

b) Market Transformation Information

No MTIs have been approved for this program.

c) Program Design to Overcome Barriers

As stated in the Strategic Plan, “Historically, demand side management (DSM) options for energy consumers have been “siloe” activities within regulatory bodies, utilities, environmental organizations, and among private sector service providers. The current narrow focus on a single product offering does not maximize energy savings nor minimize the costs of program delivery.” The Task Force and associated integration efforts within each utility is working to overcome this and other barriers to maximize benefits for customers and reduce costs for ratepayers.

d) Quantitative Program Targets

Not applicable for this non-resource program.

e) Advancing Strategic Plan goals and objectives

In support of the Strategic Plan,⁷ the IOUs will evaluate the DSM pilot programs and determine what components will lead to successful DSM integration, consistent with the strategies in the Strategic Plan. The Task Force will discuss the applicability of these Emerging Technologies and initiatives in the context of IDSMP. The ET program will undertake a coordinated effort to support innovation in EE, DR, and renewable / self-generation. ET forums will be used by the Task Force to review and vet proposed ET technologies that can be funded and integrated across DSM programs. Lastly, through coordinated DSM marketing, the Task Force will promote program integration across the DSM campaigns in order to maximize EE, DR, & DG opportunities.

6. Program Implementation

⁷ California Long Term Energy Efficiency Strategic Plan, Section 8.4 pp. 72-73.

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a) Statewide IOU Coordination

This is a statewide program.

- i. Integrated Demand Side Management
- ii. All program delivery mechanisms

As described earlier in this document, the Task Force does not replace the individual IOU governance of DSM programs and is not intended to duplicate reporting or regulatory activities.

iii. Marketing materials and message

The Task Force will work with the Statewide and internal IOU M&O teams to leverage statewide awareness and coordinated program messaging, and explore utilizing educational efforts that direct customers to local utility integration efforts and offerings.

- iv. IOU program interactions with CEC, air resources boards, air quality management districts, local government programs, other government programs, community-based organizations, non-governmental organizations, manufacturers, retailers, trade and business associations, as applicable.

The IDSM Task Force will explore opportunities to interact with other programs/ organizations that could include municipal utilities, local and state governments, water districts and DSM solutions providers to offer integrated services, obtain input/feedback, share knowledge/best practices, and generally promote IDSM efforts and activities. Expansion of Task Force participation may be in the form of periodic expert input and ad hoc workshops as needed to solicit input from the broader group of participants in a fair and equitable manner. Future program milestones, lessons learned, and best practices can be shared with outside stakeholders to further IDSM activity outside of IOU programs.

v. Similar IOU and POU programs

The IDSM Task Force will coordinate with all IOU SW programs and will interact with other programs/ organizations, municipalities and DSM solutions providers to offer integrated services. Future program milestones, lessons learned, and best practices can be shared with outside stakeholders to further IDSM activity outside of IOU programs.

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b) Program Delivery Mechanisms

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The Task Force will not be involved in direct implementation but will develop and provide the knowledge necessary to promote integrated program delivery mechanisms.

c) Marketing Plan

The Task Force will not be providing direct marketing services, but the coordination of marketing will be an integral part of integrated approaches and will be included in each individual program's approach where applicable. In addition, as described in Task 8, above, the Task Force will work with the Statewide and internal IOU M&O teams to leverage statewide awareness and coordinated program messaging; and, explore utilizing educational efforts that direct customers to local utility integration efforts and offerings.

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d) Best Practices

The Task Force's involvement in reviewing utility integration activities, pilots and practices (e.g., Zero Net Energy, Food Processing) will lead to the establishment of Integrated Best Practices.

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e) Innovation

Individual utilities are working on integrated approaches locally to meet customer needs on a comprehensive, solutions-based level and coordinating and tracking of these integrated pilots and activities.

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f) Integrated/Coordinated Demand Side Management

The basis of this program is entirely integrated and coordinated demand side management on a statewide basis with local efforts feeding into the overall strategy.

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g) Integration Across Resource Types

Where possible, the Task Force will continue to identify opportunities for integrating across non-energy areas like water and electric vehicles. Most likely, this information will come from pilots and other customer-focused activities and will be considered future pilots and best practice recommendations.

h) Pilots

The Task Force will be the principal governance structure to track the integrated efforts of the IOUs and develop SW metrics to evaluate their success. The Task Force will identify pilots, projects, programs and activities being conducted by individual IOUs that might be replicated in other parts of the state. As described in section 4.b.5, above, integrated pilots and activities will continue to be identified and tracked by the Task Force in Quarterly Reports. A critical component of evaluating these pilots, projects, and program activities is identifying what data should be captured to optimally evaluate the

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ongoing success of these pilots and IDSM activities. The Task Force will coordinate with ED staff to ensure that an adequate level of data is collected.

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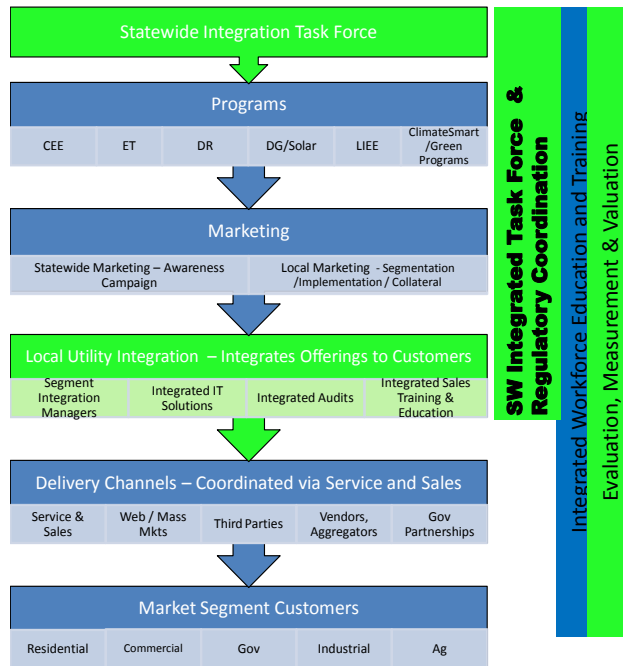
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The Task Force will continue tracking and measuring the metrics described in Section 5 of this PIP, leveraging evaluation studies and resources where appropriate. The IDSM Omnibus Process Evaluation is underway and will provide recommendations for overcoming barriers and improving future IDSM offerings. Subsequent evaluation needs will be determined at the conclusion of the Omnibus Evaluation.

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7. **Program Diagram**

Program Diagram – IDSM Task Force

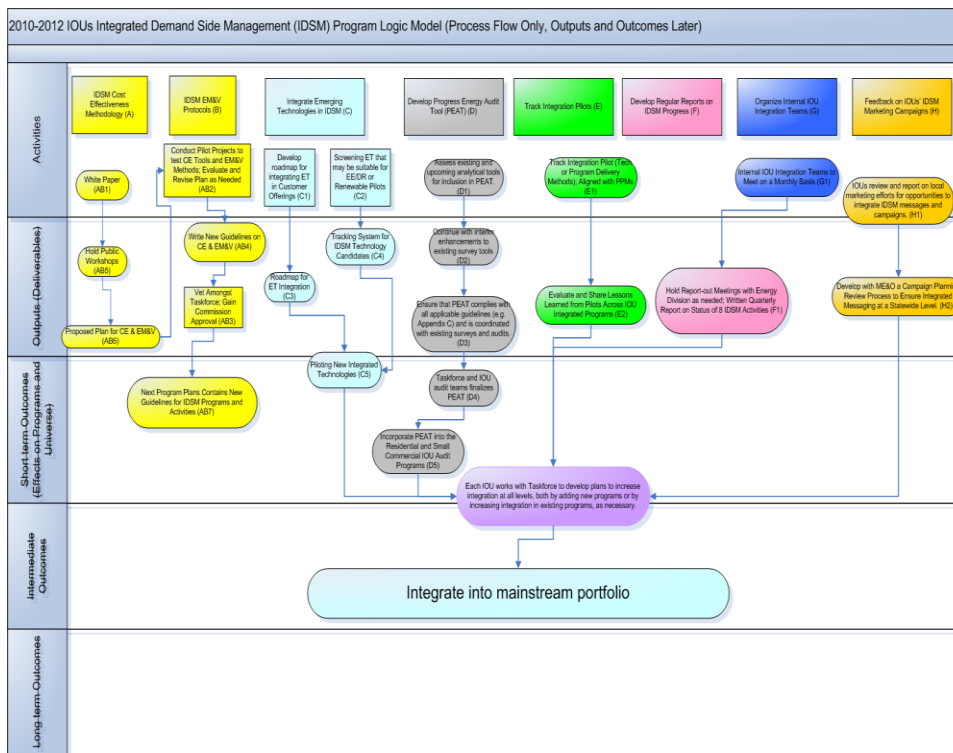


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8. Program Logic Model

Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Integrated Demand Side Management Program.



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Table 12 – Integrated Pilots

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Pilot Program	Demand Side Resources Included (1)	Enabling Technologies Included (2)	Emerging Technologies Included (3)	Existing or New Construction (4)	% of ZNE Anticipated (program / avg)
PG&E- Zero Net Energy	EE, DR, DG				
PG&E- Green Communities	N/A	N/A	N/A	N/A	N/A
SCE- Zero Net Energy	EE, DR, DG				
SCE- Sustainable Communities					
SDG&E- Sustainable Communities SDG&E Micro Grid	EE, DR, DG				
SCG- Sustainable Communities	EE, DR, DG				

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9. Local Sustainable Communities Case Studies Program

The SoCalGas IDSM Program is made up of two major, but related, components.

1. The previously addressed Statewide IDSM effort
2. The Sustainable Communities Case Studies Program

SoCalGas' Sustainable Communities (SC) program provides the framework for the design and building of communities that support the environment through energy- and resource-efficiency. SC helps to enhance quality of life by protecting and preserving natural resources and improving economic development. Incentives and other assistance are available to developers, building owners, and design teams that construct highly energy-efficient buildings with sustainable design, and long-term energy-efficiency.

This highly innovative program will be SoCalGas' flagship program providing the path for all other programs in meeting California's long-term energy efficiency goals, including zero net energy homes by 2020. This program will enable market transformation resulting in measurable energy efficiency, integrated demand response, distributed generation, renewables and natural resource savings while optimizing long term ecological, social and economic health of California. It accomplishes this by comprehensively integrating the "vertical" development (buildings and their components) with the "horizontal" development (land and utility and transportation infrastructure) over the full planning horizon. This holistic approach to program design and implementation is coupled with a new management model and evolutionary improvements in energy, water and air quality savings over the project life.

Another key feature of SC's flagship approach is its longer-term focus and crosscutting implementation to avoid trapping the key market players in the usual "organizational silos." SC achieves this through the unique partnership between SoCalGas and the Master Developer by developing early market interventions deployed by 3rd party implementers upstream of the usual core programs. This innovation produces more productive and resilient market change with greater cost-effectiveness.

Sustainable Design and Construction Training

A training program and training materials will be developed for participating builders and contractors. The training, for both residential and non-residential building, will cover all relevant issues including sustainable design and construction impacting energy efficiency, solar, water, waste, utility infrastructure (smart grid and AMI), and transportation.

A metric of this service will be determined in tracking the impact early intervention and training have on increasing energy-efficient design of residential structures. Developing training goals and objectives, curriculum and tracking of buildings energy performance will be used to measure success of the training. The minimum specifications will be covered in the training developed to help encourage and monitor innovative design and exceeding building performance targets set by the developer and utilities. The utility will support training developed and provided by developer's consultants for builder subcontractors.

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The incorporation of a Learning Center within the development is proposed to help educate and build awareness of energy efficiency, renewable generation and sustainable measures that have been incorporated into the development. The Learning Center will create a powerful teaching tool due to its interactive software and real time graphics. This tool could demonstrate the community's energy savings compared to non-efficient developments, showcase the development's green features and show environmental impacts and equivalent comparisons. In addition, kiosks will contain renewable energy education and incorporate actual data related to utility owned on-site generation. The center would be strategically located within the community near a school, library, or public center. This location could also be used for utility hosted energy workshops highlighting energy efficiency and green building design.

Sustainable Design Assistance

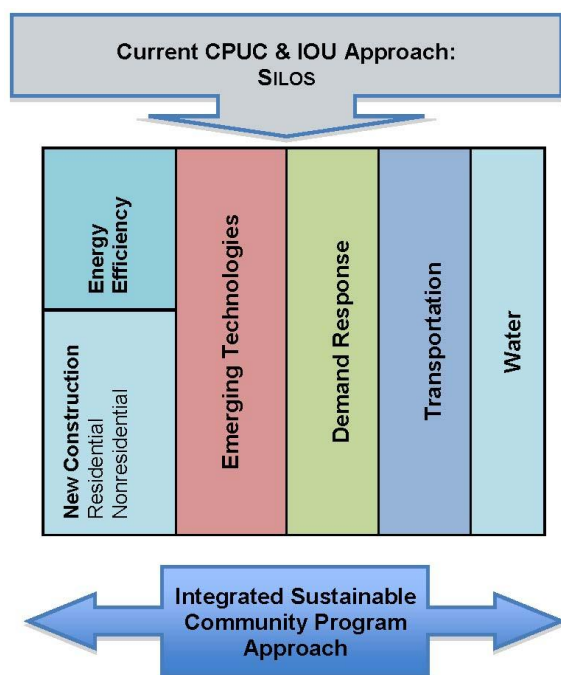
Design assistance will be provided to participating engineers, architects, planners, and builders. The program will encourage innovative and less traditional approaches to meeting and exceeding sustainability goals. Design assistance will occur much earlier in the development process than traditional utility offerings to embrace this flagship program's crosscutting nature and to better leverage its holistic ambitions and goals.

Residential Modeling Procedure and Protocol Development

Because builders will be required to submit documentation illustrating how their designs will meet the sustainability requirements, this program will develop the modeling procedures and other requirements for this documentation. Sustainability targets would be set at 35% above Title 242 for all residential building and would also include participation in the New Solar Homes Partnership program to foster development of renewable energy on each residential building. Similar energy performance targets would be established for commercial projects with corresponding participation in the CSI program.
2 Title 24 2005.

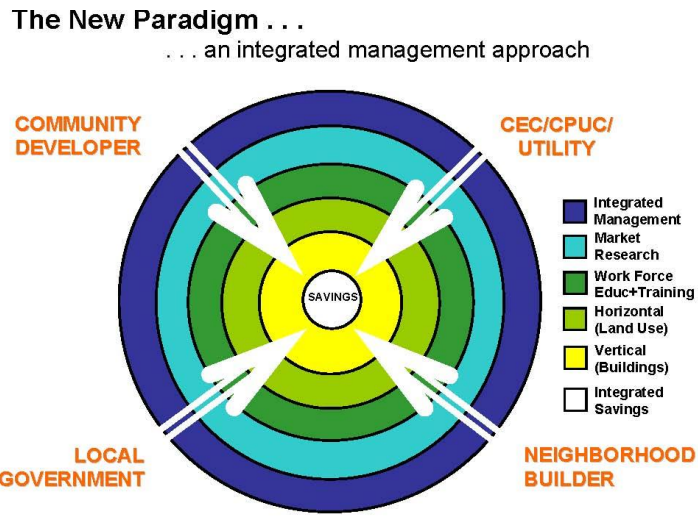
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Figure 1: Sustainable Communities Crosscutting Approach



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Figure 2: Sustainable Communities Integrated Savings Approach



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Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not strong confidence would not be productive. Therefore, the utilities respectfully exclude "draft" metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

As explained immediately above, the utilities propose to provide these draft metrics when available.

Program Design to Overcome Barriers

- SoCalGas program offerings work in silos and result in lost savings opportunities at the community level.
- The Pilot will work directly with the Community Developer to achieve integration across community energy end-uses such as buildings, transportation, water, and generation. This allows 100% participation by the community and encourages the developer to be innovative and aggressive in setting energy efficiency and renewable energy goals.
- Working through the Community Developer will enable SoCalGas to influence multiple types of consultants (architects, landscape architects, urban designers, transportation engineers, mechanical and electrical engineers), trades (mechanical, electrical, plumbing, roofing, and renewable installers) and supply chain partners such as manufacturers as

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well as local governments.

- Program cycles are too short for stakeholders with long-term planning and development horizons. 3-year program cycles ignore market conditions and long project lead-times.
- Master-planned communities typically have twenty year planning horizons which is much longer than typical IOU program timelines. This program resolves this by proposing a sufficient timeline that allows for full program integration into the development plan. Master-planned communities typically have twenty year planning horizons. Front-loading the program recommendations will maximize market transformation and allow the program benefits to properly deliver over the full length of the master development process.

For example, Rancho Mission Viejo's Ranch Plan went through a decade of science-based planning, and processing; development of the first planning area (PA1) will commence once the market recovers, hopefully by 2010 (www.TheRanchPlan.com). Another example is Otay Ranch, a large master planned community in Chula Vista went through a ten-year planning process, opened in 1999, and ten years later still is nowhere near completion despite being San Diego County's top selling planned community. (<http://otayranch.com/about/aboutIndex.shtml>). This program resolves this by proposing a sufficient timeline that allows for full program integration into the development plan.

- IOUs and non-governmental organizations lack the coordinated efforts that are needed to accomplish the goals. Disincentives exist at the CPUC, CEC, and IOUs that delay and inhibit effective and persistent market transformation;

Incentives availability is unpredictable for long-term stakeholders, and they are unable to utilize or secure them for projects.

Current organizational "silos" at IOUs and CPUC associated with various rulings make it impractical to do an integrated and comprehensive sustainable communities program. This creates missed opportunities for EE and DR savings up and down the energy supply and demand chains.

Utility customers are seeking integrated solutions addressing their entire energy infrastructure needs from smart appliances, smart meters, smart grid functionality including vehicle-to-grid capability, to promoting grid-enabled renewables. Existing program structures prevent appropriate creation and delivery of an integrated market solution.

Advancing Strategic Plan goals and objectives

SoCalGas' Sustainable Communities (SC) program supports the Statewide Strategic Plan, and promoting a sustainable future for Southern California. By addressing environmental concerns and energy and resource efficiency, the program seeks to support the residential 2020 goals of zero net energy in new construction. Coupled with the focus on sustainable design and green building practices, the program is uniquely positioned to influence the

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design and construction of sustainable communities in its broadest definition. Consistent with The California Long Term Energy Efficient Strategic Plan, Residential New Construction will reach “zero net energy” (ZNE) performance for all new single and multi-family homes by 2020, and commercial new construction will increasingly embrace zero net energy performance (including clean, on site distributed generation), reaching 100% penetration of new starts in 2030. Near term, by 2011, 50% of new homes will surpass 2005 Title 24 energy efficiency standards by 35%; 10% will surpass 2005 Title 24 standards by 55%..

Residential

To support the CLTEESP objectives, SoCalGas proposes a separate *Sustainable Communities Case Studies* program that focuses on the Ranch Plan being developed by the Master-planned community company.

The program guides the target community toward this goal by setting beyond-code minimums in the interim, which facilitates building to ZNE in the target timeframe. The Pilot will incorporate a Learning Center within the development to educate builders and homeowners as well as provide the Community Developer access to SoCalGas’ full gamut of energy efficiency programs.

The program will provide design assistance for builders, during which SoCalGas will push for the incorporation of innovative building practices. The pilot integrated approach will include a comprehensive array of strategies including energy-efficiency measures, educational opportunities for demand response, onsite renewable distributed generation (as applicable), and smart meters.

Commercial

New construction will increasingly embrace zero net energy performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030.(Goal 1)

Codes and Standards: Adopt aggressive and progressive minimum energy codes and standards for buildings and plug loads, effective code compliance and enforcement, and parallel, tiered voluntary energy efficiency standards (Strategy 1). The Pilot sets increasingly rigid energy efficiency goals that provide a workable path to achieving this goal. Specifically, at least 75% of commercial square footage must be 20% better by 2012.

Innovation

Sustainable Communities will be SoCalGas’ flagship program providing the path for all other programs to meet California’s long-term energy-efficiency goals, including net-zero energy homes by 2020.

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SC enables enhanced market transformation resulting in measurable energy efficiency, integrated demand response, distributed generation, renewables and natural resource savings while optimizing long-term ecological, social and economic health of California. It accomplishes this by comprehensively integrating the “vertical” development (buildings and their components) with the „horizontal“ development (land and utility and transportation infrastructure) over the full planning horizon. This holistic approach to program design and implementation is coupled with a new management model and evolutionary improvements in energy, water and air quality savings over the project life.

Master-planned communities typically have twenty-year planning horizons which is why weaving the vertical program elements with horizontal elements are so critical to its success. This program is unique in its breath and the level of integration to achieve long-term savings for: electricity, natural gas, water, wastewater, carbon emissions, and greenhouse gases.

Sustainable Communities recognizes that master-planned community developments provide a “proving ground” for interrelated pilot program offerings. This program will help SoCalGas and the CPUC to better understand barriers and opportunities with different stakeholders as part of a pilot/program rather than from numerous disjointed efforts. In addition to establishing SoCalGas as a leader in promoting sustainable development, SC provides the CPUC the opportunity to establish their leadership and overall policy guidance in support of these innovative programs.

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The process for developing sustainable, livable land-use practices and building design is creative, technical and participatory. The basic principles of sustainable development merge similar objectives to protect and restore the natural environment while providing nurturing, high-quality communities for people to work and live in.

The common fundamental characteristic throughout the program is its focus on performance approaches rather than prescriptive approaches to fully integrate building systems with infrastructure enabling SoCalGas into California’s Smart Grid. The Smart Grid concept overlaps various functions such as smart meters, smart appliances, demand response, self-generation, highly efficient PV systems and transportation.

Integrated/coordinated Demand Side Management

Fundamental to SC’s innovative design is it fully embraces an IDSM methodology by closely “knitting” EE, DR, DG and renewables across development components. Its very nature speaks to integration to form synergistic impacts that are typically unattainable through EE business as usual.

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At a minimum, all marketing materials will be developed to support energy-efficient design process in helping cross promote demand response to educate customers on the availability of IOU DR programs/Smart Meters etc. Additional work will take place during the three-year program cycle to evaluate closer linkages between EE and DR via Program Managers and success with this concept with various case study projects. Additionally, this feedback

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mechanism establishes a means to facilitate technology approaches that enable SC to crosscut organizational silos in achieving its strategic vision.

Integration across resource types (energy, water, air quality, etc.)

SC is a comprehensive program with a cross-cutting focus on energy-design, green building practices, and increased utilization of renewable resources. Infrastructure, transportation planning, energy, water, materials, and waste are all addressed in the program rather than as separate elements. This provides the opportunity for exponential energy- and resource-savings throughout the community – giving SoCalGas and developers the ability to shift to cleaner forms of energy to power our communities. The key difference is that SC approaches the market with the Master Developer as its focus. Rather than address market barriers at the tail end of the market cycle, SC deals with barriers earlier in the development process thereby enhancing and improving its leverage to create substantially greater impacts as displayed in the table below. The pilot will engage with CEC, DOE, MWD and other government agencies responsible for various aspects of New Construction in California.

Integrated Community-Based Solutions

The main elements addressed by the participating projects will be structured around three key concepts – Environment, Resources, and Energy – with a detailed focus to the following principles:

- Sustainable site design
- Energy efficiency
- Advanced renewables integration
- Pollution reduction
- Water efficiency
- Indoor air quality
- Resource preservation
- Smart Grid
- Integrating local Governments
- Transportation
- Smart Land-Use Options (ex: mixed housing, walk-ability / bike-ability)

These energy- and land-use practices, sensitive to both the human community and natural environment, will be achieved through the *Sustainable Communities Case Studies* program and will allow the utility to initiate a collaborative partnership with the design community, developers, builders and related industries.

Master-planned community (to be determined)

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To support the *Case Study* program concept and to integrate it into the *Sustainable Communities* program, SoCalGas proposes a separate *Sustainable Communities Case Studies* program that will focus on a to be selected *Plan* being developed by a Master-planned community developer.

These projects will be comprised open space, residential units, commercial construction, schools, hospitals and other related development.

The project will be developed with sustainability as its guiding principle and addresses. This would include:

- Interdependence of humanity and nature
- Intergenerational stewardship
- Optimized value
- Design with natural systems
- Conservation of natural resources
- High-performance design technologies
- Resource-efficient healthy materials
- Elimination of waste
- Multi-modal transportation
- Innovation, education, and ongoing evolution

The project will also address quantitative environmental metrics of:

- Energy use
- Air pollution
- Greenhouse gases
- Water use
- Storm water and runoff

The tools developed, results achieved and lessons learned from the pilot have direct application Statewide and will be shared to further advance sustainable development elsewhere in California. This provides a much-needed proving ground serving to enrich sustainable community development at a cost-effective level unattainable through traditional approaches.

Project Opportunities

Utilizing the first plans as a case study will provide both short- and long-term opportunities for energy savings and other benefits in a cost-effective environment. It will also provide a comprehensive mix of energy-efficient market potential for multiple residential, commercial, and retail sectors. It will provide a model to successfully implement the programmatic initiatives found in the Strategic Plan.

Working through the community developer will enable the IOU to influence multiple types of consultants (architects, landscape architects, urban designers, transportation engineers, and mechanical and electrical engineers), trades (mechanical, electrical, plumbing, roofing, and

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renewable installers), and supply chain partners such as manufacturers as well as local governments.

Project Funding

The Sustainable Communities Model developed by CTG Energetics, Inc. and the selected Master-Planned Community Sustainability Team, is the core controlling element in the analysis of the Project. Funding for the development and maintenance of the Sustainable Communities Model is needed to support the case study and evaluate the energy and environmental impacts, and sustainable design decision making for the chosen project. This Sustainable Communities Model will be the core controlling element in the analysis of the project. The Sustainable Communities Model® (SCM) quantifies total environmental impacts (including energy use, water use, greenhouse gas emissions, air pollution emissions, stormwater, transportation impacts, solid waste, and other factors) allowing communities to optimize planning and design decisions that result in the greatest environmental benefit for the least cost. The SCM takes a quantitative, systems-based approach towards sustainability. This enables a project's design team to "connect" each specialty's detailed analyses together to explore and optimize environmental impacts that cross disciplinary boundaries. The landscape architect can explore the impacts that various planting palettes has on building energy use (shading, microclimate modification, evaporative cooling), water consumption, carbon sequestration and embodied environmental impacts such as the amount of embodied energy/carbon in water. The SCM is scalable over a wide range of community sizes, and can be applied to "communities" ranging from municipalities, to large master planned developments/re-developments, to academic and corporate campuses, down to individual buildings.

Funding for the development and maintenance of the Sustainable Communities Model is needed to support the case study and evaluate the energy and environmental impacts, and sustainable design decision making for both the phases and the broader project. The funds are anticipated to support five key areas of the Sustainable Communities Model:

1. Implementation of the entire project in SCM to facilitate further investigation and analysis
2. Support of on-going plan design changes (densities, unit types, etc.)
3. Development and refinement of peer review and referencing methodologies to support the environmental benefit calculations, and
4. Development of new calculations and modules needed to support specific decision points for the project (e.g. large scale photovoltaic, cogeneration, district heating and cooling, etc.)

Additional funding will be required to cover:

- An on-site HERS-certified inspector during the build-out of the project. This inspector will perform the required tests and inspections and will ensure consistency and quality in the Planning Area 1 homes.
- Full-time, on-site technical support for 3rd party inspections and tests of building to ensure quality, program compliance, energy savings, and measurement and verification.

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- Sales training
- Timeline of completion
 - The program will roughly be scheduled through the end of 2014, but the master development and results will continue for up to 20 years, or 2034.
- Timeline of results
 - Some results will be available annually; a more comprehensive study will be completed at the end of the program cycle.
- The Statewide IDSM program is tasked with developing an appropriate cost effectiveness methodology for integrated projects/pilots. The methodology will be used for this pilot as it becomes available.

The Green Energy Systems (GES) program (see Statewide New Construction PIP, Savings By Design for an example) will explore the potential for utility ownership of major energy efficiency equipment to facilitate the installation of the highest efficiency HVAC systems in commercial buildings. The program recognizes that building owner financing is constrained and without utility ownership, the system design will not maximize energy savings. The objective of GES is to capture energy efficiency opportunities that would otherwise be lost for the 20 to 30 year life of the HVAC equipment. This pilot will build on the success of the Sustainable Communities program that incorporates utility ownership of clean energy generation systems on customer facilities.

Under GES, SoCalGas will seek to identify projects with the following characteristics:

- The project is of sufficient size to warrant the effort (>\$2,000,000 investment)
- The building is intended to be owner occupied or owner managed
- The HVAC system is a central plant configuration

If an appropriate project is identified, with an owner willing to enter into a contractual agreement with the utility to own and operate the building's HVAC central plant, then the utility will file an advice letter for approval of incremental capital and maintenance costs and will demonstrate that the project meets the following criteria of the project is cost effective as a stand-alone energy-efficiency project and delivers incremental energy savings beyond what the building owner would otherwise have installed.

If approved, the utility will sub-contract out the design, construction, and operation of the facility but will serve as project manager to ensure it is constructed and operated at the design efficiency levels.

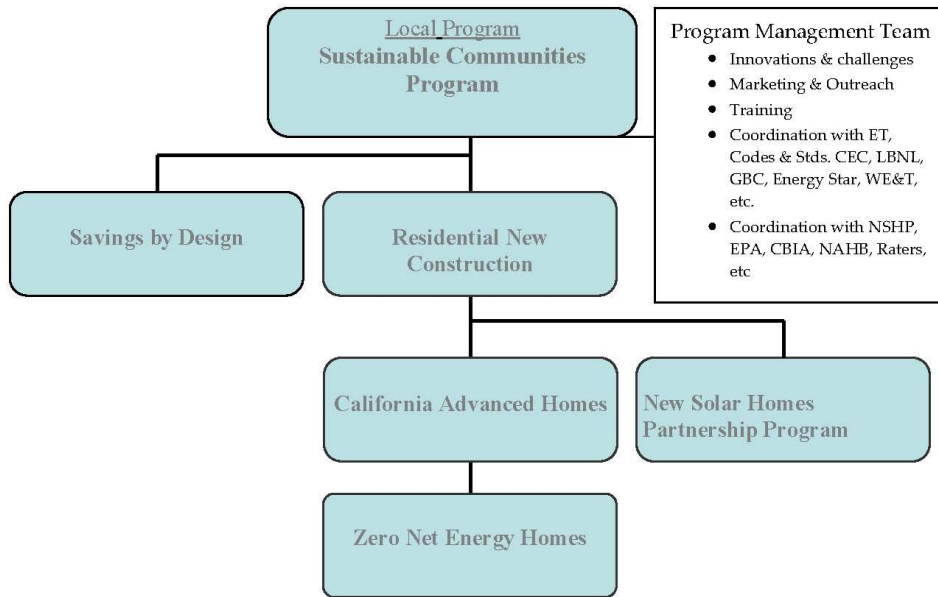
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Savings By Design: Neighborhood Retail, Business Park, and Offices, Fire/Police Stations, churches and Civic.

California Advanced Homes: Single family detached, single family attached, multi-family apartments and Assisted Living Community.

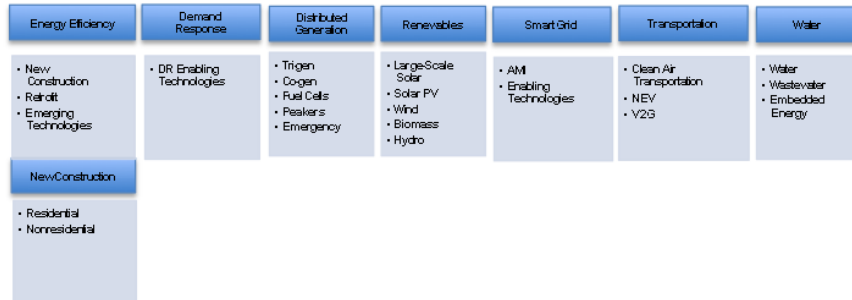
New Solar Homes Partnership Program:
Single family detached, single family attached, multi-family apartments.

Zero Net Energy Homes: Single family detached, single family attached, multi-family apartments.



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Figure 2: Sustainable Communities Program Linkages



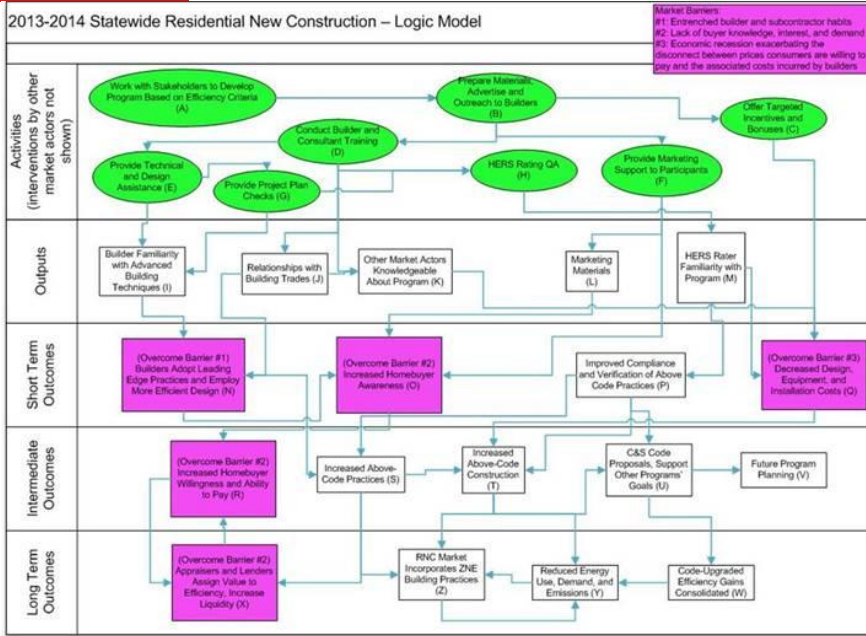
Master Developer	
OPPORTUNITIES	CHALLENGES
Integrated community-based approach	Funding format and prescriptive incentives not conducive
Reduce energy consumption and increase renewables	Added costs viewed as too high vs. return
Influence multiple stakeholders	Current incentive programming focused only on homeowner and builder
Implement research and pilot programs	Master Developer not included in existing incentive structure
Stimulate market transformation	Funding cycles too short for Master Developer timeframes

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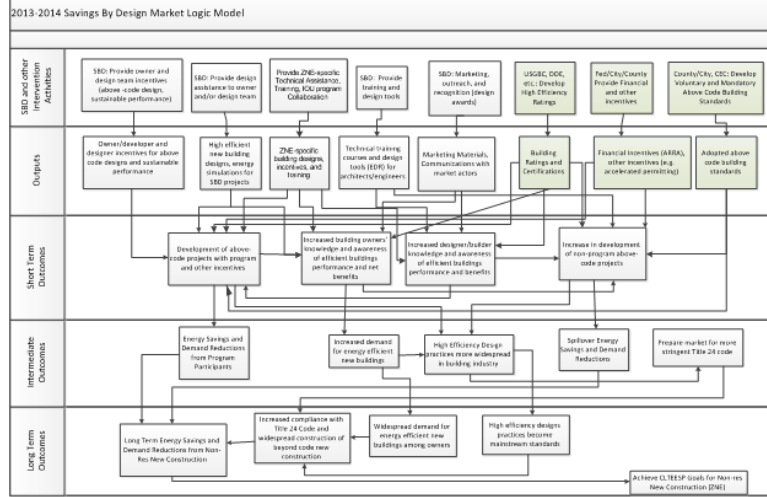
8. Program Logic Models

CAHP Logic Model



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Savings by Design Logic Model



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