

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-01

SOCALGAS EXHIBIT

SoCalGas Response to ORA Data Request ORA-A1701013-SCG004

**SOUTHERN CALIFORNIA GAS COMPANY
ADOPTION OF ITS ENERGY EFFICIENCY ROLLING PORTFOLIO
BUSINESS PLAN AND RELATED RELIEF
(A.17-01-016)
(DATA REQUEST ORA-A1701013-SCG004)**

Department of Energy (DOE) Request for Information (RFI) on Executive Order 13771

QUESTION 1:

Provide all documents (draft and final) and all emails relating to DOE Rulemaking DOE_FRDOC_0001-3375, DOE's RFI pertaining to its implementation of Executive Order 13771 Reducing Regulation and Controlling Regulatory Costs.

RESPONSE 1:

SoCalGas objects on the basis that this question is vague, overbroad, and unduly burdensome. SoCalGas further objects to the production of the requested information to the extent and on the grounds it is confidential and protected from disclosure by the attorney-client privilege, the attorney work product doctrine, and other applicable privileges and protections. Subject to and without waiving these objections, SoCalGas responds as follows:

Please see attachments for all documents and emails relating to the DOE's RFI pertaining to its implementation of Executive Order 13771 Reducing Regulation and Controlling Regulatory Costs attached in Response_1.zip. This attachment is compiled in the following folders:

- Response_1_Docs: Draft and Final Documents
 - PGE_Provided_DraftFinalLetters: Draft Joint IOU letter led by PG&E
 - SCG_Draft_Final_Docs: SoCalGas draft and final letters
- Response_1_Emails: emails regarding rulemaking comments filed documents
- [CONFIDENTIAL] Response_1_Protected Information.zip, provided pursuant to Pub. Util. Code §583 and all applicable protections, and accompanied by Declaration.

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QUESTION 2:

Provide the date that the final letters were docketed to DOE and the docketed comment letters.

RESPONSE 2:

The final comment letter was docketed on July 14th, 2017 to the DOE, DOE_FRDOC_0001-3375, regarding the RFI on Executive Order 13771.

Please see FR-2017-05-30 DOE RFI SoCalGas Response.pdf within Response_2.zip as the copy of SoCalGas' final comment letter.

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DOE Residential Furnace Rulemaking

QUESTION 3:

Provide all documents (draft and final) and emails regarding DOE's Residential Furnace rulemaking since January 1, 2014 in any phase of the rulemaking.

RESPONSE 3:

SoCalGas objects on the basis that this question is vague, overbroad, and unduly burdensome. SoCalGas further objects to the production of the requested information to the extent and on the grounds it is confidential and protected from disclosure by the attorney-client privilege, the attorney work product doctrine, and other applicable privileges and protections. Subject to and without waiving these objections, SoCalGas responds as follows:

Please see attachments for all documents and emails relating to the DOE's Residential Furnace rulemaking, EERE-2014-BT-STD-0031, attached in Response_3.zip. This attachment is broken down into the following folders:

- 010917_R3: Documents (Draft and Final) for comments filed 01/09/17
- 051215_R3: Documents (Draft and Final) for comments filed 05/12/15
- 071415_R3: Documents (Draft and Final) for comments filed 07/14/15
- 101615_R3: Documents (Draft and Final) for comments filed 10/16/15

- Response_3_Emails: emails regarding rulemaking comments filed Documents

- [CONFIDENTIAL] Response_3_Protected Information.zip, provided pursuant to Pub. Util. Code §583 and all applicable protections, and accompanied by Declaration.

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QUESTION 4:

Provide any analysis completed in response to these rulemakings.

RESPONSE 4:

SoCalGas objects on the basis that this question is vague and overbroad. Subject to and without waiving these objections, SoCalGas responds as follows:

Please see attachments for the analysis completed in response to the DOE Residential Furnace rulemaking attached in Response_4.zip and Response_4_071415_R4_LCC calcs.zip. Analysis documents have been grouped based on the date comments were docketed as indicated in Response 3.

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QUESTION 5:

Provide the dates of all comment letters submitted to DOE and all docketed comment letters or data.

RESPONSE 5:

The following table provides dates for all comment letters submitted to DOE. These final docketed comments and documents are provided in Response_5.zip filed corresponding to the date the comments have been posted.

Date Posted	Link & Attachment Names
01/09/2017	Link: https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0304 Attachment Names: <ul style="list-style-type: none"> • "SoCalGas Attch 02_GTI Analysis" • "SoCalGas Attch 01_Negawatt DOE Furnace SNOPR updated report 20161220" • "DOE Residential Furnace SNOPR - SoCalGas Comments 20160106"
10/16/2015	Link: https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0177 Attachment Names: <ul style="list-style-type: none"> • "DOE Furnace NODA Cover Letter" • "DOE Furnace NOPR Comments" • "GTI Analysis - 21779 Furnace NOPR Analysis Final Report 2015-07-15" • "Negawatt Analysis"
07/14/2015	Link: https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0132 Attachment Names: <ul style="list-style-type: none"> • "DOE Furnace NOPR Cover Letter" • "DOE Furnace NOPR Comments" • "GTI Analysis (includes privately owned rights disclaimer)" [see 10/16/15] • "CA LCC Tables" [two files] • "CA Switching Table" [two files]

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	<ul style="list-style-type: none">• "Negawatt Analysis"• "21779 Furnace NOPR Analysis Final Report 2015-07-15"
05/12/2015	<p>Link: https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0051</p> <p>Attachment Names:</p> <ul style="list-style-type: none">• "SoCalGas Request for Extension to Comment Deadline for Furnace Rule"

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DOE Rulemaking Non-Response or Non-Support

QUESTION 6:

Provide a list of all DOE rulemakings where you either did not comment on the proposed efficiency level or did not support DOE's proposed efficiency level (Trial Standard Level or TSL) or a higher efficiency level (TSL).

RESPONSE 6:

SoCalGas objects on the basis that this question is vague, overbroad, and unduly burdensome. Subject to and without waiving these objections, SoCalGas responds as follows:

Below please find the DOE rulemakings where SoCalGas did not support the proposed efficiency level:

- Energy Conservation Standards for Commercial Packaged Boilers - EERE-2013-BT-STD-0030
- Energy Conservation Standards for Residential Furnaces - EERE-2014-BT-STD-0031
- Energy Conservation Standards for Residential Conventional Cooking Products - EERE-2014-BT-STD-0005

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QUESTION 7:

Describe your rationale for not commenting on or for not supporting DOE's proposed efficiency level (TSL) for all rulemakings responsive to Question 6.

RESPONSE 7:

SoCalGas submitted comments to each of the rulemakings listed in question six. The following rationales have been provided below for each of the rulemakings.

SoCalGas provided comments in the DOE Rulemaking for the Energy Conservation Standards for Commercial Packaged Boilers proposing TSL 2, EERE-2013-BT-STD-0030. SoCalGas' provided rationale that supported TSL 1 instead of the proposed TSL given the concern that the DOE may be inadvertently disqualifying a significant amount of non-condensing equipment. Due to the upcoming changes to the commercial packaged boiler test procedure some cases may be forcing a shift to condensing equipment. Additionally, SoCalGas was concerned that the proposed ruling places an undue burden on California customers in particular. Final comments are docketed in <https://www.regulations.gov/document?D=EERE-2013-BT-STD-0030-0077>. [A copy of these comments](#). A copy of these comments (SoCalGas_Response_to_Com_Pkg_Boilers_Std_2016-06-22k.pdf) are provided in Response_7.zip.

In DOE Rulemaking for the Energy Conservation Standards for Residential Furnaces, EERE-2014-BT-STD-0031, SoCalGas did not support the DOE's proposed TSL 6. The analysis that was conducted showed that even with the split standard, it continues to be an economic hardship on Southern California customers. SoCalGas submitted two sets of analyses to the original NOPR that provided a comprehensive evaluation of the underlying inputs, assumptions and methods of DOE's life cycle cost (LCC) analysis and data filtered by region (California and Southern California). SoCalGas had also conducted a second analysis based on the updated LCC calculations and associated technical support document (TSD) released with the SNOPR. SoCalGas requested the DOE to review the summary of our findings and address all concerns with the TSD and LCC prior to issuing a final rulemaking. Final comments/documents are docketed in <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0304>. These comments are provided in Repsonse_5.zip in folder 010917_R5.

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In DOE Rulemaking for the Energy Conservation Standards for Residential Conventional Cooking Products, EERE-2014-BT-STD-0005, the Southern California IOUs (SoCalGas, San Diego Gas & Electric and Southern California Edison) did not support the DOE's proposed TSL 2. The SoCal IOUs reviewed all product classes within the DOE proposed trial standard level TSL 2 and found all calculations and rationale for each to be reasonable, with the exception of Product Class 3 (gas cooking tops). To resolve this while maintaining the viability of commercial-style features, we supported TSL 2 but with efficiency level (EL) 0 for Product Class 3. Final comments are docketed in <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0005-0067>. A copy of these comments (SoCal_IOU_Res_Cooking_Products_Std_Comment_Letter_20161102.pdf) are provided in Response_7.zip.

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SCG-02

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG004
(March 1, 2015 Email between SoCalGas and PG&E)**

Exhibit 02 - ORA-A1701013-SCG004
<RE_LCC Considerations DOE Furnace Proceedings>

From: [Kristiansson, Sue](#)
To: [Hunt, Marshall](#)
Cc: [Filer, Patrick J](#)
Subject: Re: LCC Considerations DOE Furnace Proceedings
Date: Sunday, March 01, 2015 5:55:00 PM

Hi Marshall,

I just sent you a note regarding the working group. I'm looking forward to it.

I do feel the need to address one concern about the meeting held last Friday. Being new I wasn't aware that it was even happening and I'm not sure what stakeholders were present but I was a little surprised to learn that you were presenting on behalf of all of the IOU's on the agenda. I'm sure this was a simple oversight on the part of NRDC when they developed the agenda but we (SoCalGas) haven't finalized our assessment of the furnace rule and all of the technical elements yet. As we discussed on the phone, there is probably no negative impact to our customers here in California and I'm sure fuel switching is a non-issue for us but we really want to do our own analysis first to determine that. You may have mentioned this at a Statewide meeting that I, of course, was not at but if you could do me a favor in the future and let me know if you're asked to speak on behalf of all of the IOU's? I think it is important to have consensus prior to discussing with outside stakeholders.

Also, do you happen to have a list of who was all in the room or on the call for this meeting? The information I received did not have an attendee list.

Thanks!

Sue

Sent from my iPad

On Feb 20, 2015, at 10:05 AM, "Hunt, Marshall" <MBH9@pge.com> wrote:

> This is what I sent to the NRDC sponsored, informal stakeholders meeting held in DC today at 6:30 am our time. I wanted to have people give the DOE LCC analysis the attention it deserves.

>

> I recommend that we use this issue to demonstrate how the Statewide Team works together to fully explore the issues. Thus I request that we form a working group to explore in depth the LCC. It is set up to allow the analysis of different scenarios so that the impacts can be assessed. I have Yanda Zhang and Bitik Kundu supporting the effort so that we get the technical analysis we need to fully assess the impact on California. We are 10.5% of the national market and unlike other areas gas furnace heating is the overwhelming choice of consumers. This rule making will not take effect until 2021 at the earliest so that I believe that impacts on voluntary Products and Programs are not the issue. The issue is cost effective energy conservation for the benefit of California rate payers. This is what the CPUC funds us to do.

>

> There is already outside pressure from the AGA and AHRI against the DOE proposal which is of course fine but we need to advocate for our customers. California does not have some the issues such as fuel switching and basement installations that are of concern elsewhere in the USA.

>

> I look forward to working diligently on the issue.

>

>

> Marshall B. Hunt
> Professional Mechanical Engineer
> Codes & Standards
> Pacific Gas & Electric Company
> 415-260-7624

> mbh9@pge.com
>
>
>
> _____
> From: Eilert, Patrick L
> Sent: Thursday, February 19, 2015 4:49 PM
> To: 'Craig Tyler (craigtyler@comcast.net)'; Fernstrom, Gary; Anderson, Mary; Caudle, Sylvester Ron; Eilert, Patrick L; Elliott, Ed; Evans, Matthew; Goff, Chris (Industrial Mkts) (CGoff@semprautilities.com); Iiga, Randall; Hunt, Marshall; Kim, Charles; Kristjansson, Sue; Mariscal, Javier; Marver, Jill; Salas, Adrian; Shushnar, Gary; Tartaglia, Stuart; Willmore, Lovell
> Subject: Statewide IOU C&S Conference Call : February 20
>
>
> Tomorrow's Starting Point...Please add.
>
>
> PGE – Pat
> SCG –
> SCE –
> SDGE –
>
> Coordination
> - EM&V
> Response to Recommendations from 2010-12 Impact Evaluation
>
> - Data Requests
> Missing information from Data Requests 1 (EEStats 17542/EMV 40) and 2 (EEStats 17546/EMV 41)
> - Attribution values for standards compiling the 2013-2014 estimates.
> - Updated parameters for CASE studies to support the 2013-2014 savings estimates.
>
> - Communications with Paula
>
> - PPMs
> Status of Updates
>
> -Request from DOE on ZE buildings
>
> - Recent meetings
> Water topics (CALGreen, February 5)
> AHRI meeting to discuss RTU (DC, February 5)
> DOE meeting to discuss commercial HVAC and water heating (DC, February 6)
> Building Codes and Reach Codes Planning (SF, February 9)
> Appliance Standards Planning (SF, February 10)
> WO 32 related lab testing (Irwindale, February 10)
> Small Motors meeting (NEMA Negotiation, February 24)
> HERS (RESNET Building Perf Conference) – February 16, 17, and 18th (San Diego)
>
> - Upcoming Meetings
> CALBO business meeting (Monterey, March 2-5)
> Computers Workshop (March 9)
> CEC RFI for HERS Program (Staff Webinar, March 10)
> Q1 Statewide Meeting (Irwindale, March 9-11)
> Continuation of Subprogram Planning (March 9)
> Business Meeting (March 10)
> Paula Meeting (March 11)
> Appliance Standards Public Hearing (CEC, March 17)
>

> AB 213 –
>
> Contracts
> Federal Standards Contract
>
> Building Codes
> - 45-day language
> - Lighting retrofits loophole
> - Gas availability
> - Battery charger trade-offs when combined with PV.
> - CALGreen ZNE tier, and gaps with T-24 part 6 for lighting.
> - Flex ducts controversy
> - ACM issues and a good algorithm for modeling ductless systems.
>
> Appliance Standards
> - Title 20
> 45-day language (water topics, labeling, etc.) under review
> Faucets (1.5 gpm versus 1.0) (wait time, legionella)
> How to respond to CEC language generally, e.g., federal alignment
> MII added – staff recommends adopt federal levels, or risk missing deadline
> Computers and displays staff report next week
> Assessment on Monday
>
> -Federal
> ESI Process and number of activities (placeholders upon notice?)
> Furnaces
>
> Compliance Improvement
> -
>
> Reach Code
> -
>
>
>
>
>
>
> Thank you.
> Pat Eilert
>
> PG&E | Principal | Codes and Standards
> Office: 530.757.5261 | Mobile: 530.400.6825
>
>
>
>
>
>
>
> _____
> PG&E is committed to protecting our customers' privacy.
> To learn more, please visit <http://www.pge.com/about/company/privacy/customer/>
>
> _____
>
> This email originated outside of Sempra Energy. Be cautious of attachments, web links, or requests for information.
> <Furnace LCC Considerations.pptx>

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SCG-03

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG004
(March 12, 2015 Email between SoCalGas and GTI)**

Exhibit 03 - ORA-A1701013-SCG004
<031215_A>

Gallarzo, Wednesday R

From: Neil Leslie <Neil.Leslie@GASTECHNOLOGY.ORG>
Sent: Thursday, March 12, 2015 9:05 AM
To: Kristjansson, Sue
Subject: RE: CA Fuel Switching Information

How about 11 AM PDT? I am on a 189.1 call right now.

Neil Leslie
R&D Director, Building Energy Efficiency Gas Technology Institute
1700 South Mount Prospect Road
Des Plaines, IL 60018
neil.leslie@gastechnology.org
847-768-0926 (office)
847-630-0256 (mobile)
847-768-0916 (fax)

-----Original Message-----

From: Kristjansson, Sue [mailto:SKristjansson@semprautilities.com]
Sent: Thursday, March 12, 2015 10:32 AM
To: Neil Leslie
Subject: Re: CA Fuel Switching Information

Hey Neil, sorry to just be getting back to you by I've been sick with the flu the past week.

Do you have time to chat at about 10 am PST today? If so, what number can I call?

Thanks!

Sent from my iPhone

> On Mar 10, 2015, at 1:10 PM, "Neil Leslie" <Neil.Leslie@GASTECHNOLOGY.ORG> wrote:

>

> Sue,

>

> Rather than leaving voice messages, I wanted to see when is a good time to talk with you on answers to your question.

> I am here today and through the rest of this week.

>

> Neil Leslie

> R&D Director, Building Energy Efficiency Gas Technology Institute

> 1700 South Mount Prospect Road

> Des Plaines, IL 60018

> neil.leslie@gastechnology.org

> 847-768-0926 (office)

> 847-630-0256 (mobile)

> 847-768-0916 (fax)

>

> -----Original Message-----

> From: Kristjansson, Sue [mailto:SKristjansson@semprautilities.com]

> Sent: Thursday, March 05, 2015 3:58 PM
> To: Neil Leslie
> Subject: RE: South Carolina
>
> K. Cool, thanks.
>
> Sue Kristjansson
> Codes and Standards and ZNE Manager
> Southern California Gas Co.
> Telephone: (213) 244-5535
> Fax: (213) 226-4317
> Cell: (424) 744-0361
>
> Follow us on Twitter Like us on Facebook
>
>
> -----Original Message-----
> From: Neil Leslie [mailto:Neil.Leslie@GASTECHNOLOGY.ORG]
> Sent: Thursday, March 05, 2015 12:42 PM
> To: Kristjansson, Sue
> Subject: RE: South Carolina
>
> We have an analyst from Laclede working on it, and he is still working his way through the software. I don't know what the outcome will be, or exactly when he will be done, but as soon as I find out, I will let you know. It is a priority, so I am hopeful we will get something by next week.
>
> Neil Leslie
> R&D Director, Building Energy Efficiency Gas Technology Institute
> 1700 South Mount Prospect Road
> Des Plaines, IL 60018
> neil.leslie@gastechnology.org
> 847-768-0926 (office)
> 847-630-0256 (mobile)
> 847-768-0916 (fax)
>
> -----Original Message-----
> From: Kristjansson, Sue [mailto:SKristjansson@semprautilities.com]
> Sent: Thursday, March 05, 2015 1:21 PM
> To: Neil Leslie
> Subject: RE: South Carolina
>
> Hello my friend.
>
> Any news on this?
>
> Thanks!
>
> Sue Kristjansson
> Codes and Standards and ZNE Manager
> Southern California Gas Co.
> Telephone: (213) 244-5535
> Fax: (213) 226-4317

> Cell: (424) 744-0361
>
> Follow us on Twitter Like us on Facebook
>
>
> -----Original Message-----
> From: Neil Leslie [mailto:Neil.Leslie@GASTECHNOLOGY.ORG]
> Sent: Monday, March 02, 2015 5:49 AM
> To: Kristjansson, Sue
> Subject: RE: South Carolina
>
> I enjoyed our visit as well. I have asked our analysts to get this information if it can be pulled from the model. I will let you know what is available today or tomorrow.
>
> Neil Leslie
> R&D Director, Building Energy Efficiency Gas Technology Institute
> 1700 South Mount Prospect Road
> Des Plaines, IL 60018
> neil.leslie@gastechnology.org
> 847-768-0926 (office)
> 847-630-0256 (mobile)
> 847-768-0916 (fax)
>
> -----Original Message-----
> From: Kristjansson, Sue [mailto:SKristjansson@semprautilities.com]
> Sent: Sunday, March 01, 2015 8:11 PM
> To: Neil Leslie
> Subject: South Carolina
>
> Hey Neil,
>
> It was great seeing you in SC!
>
> As a follow-up....do you happen to have any deeper dive data regarding the potential for fuel-switching in California? Of course I would love it if you had information as granular as to our service territory or even to Southern California but will take what you've got.
>
> I've convened an internal group to assess the furnace NOPR over the next couple of weeks to determine whether this is good, bad or indifferent to our customers and I sure don't want to make that determination/recommendation without all of the info.
>
> I know you're in high demand on this issue right now so let me know what kind of timing we're looking at for some SoCal specific data.
>
> Thanks!
>
> Sent from my iPad
>
> _____
>
> This communication is for the use of the intended recipient only. It may contain information that is privileged and confidential. If you are not the intended recipient of this communication, the disclosure, copying, distribution or use

hereof is prohibited. If you have received this communication in error, please advise me by return e-mail or by telephone and then delete it immediately.

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>

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SCG-04

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG004
(March 27, 2015 Internal email of SoCalGas)**

Exhibit 04 - ORA-A1701013-SCG004
<032715_A>

Gallarzo, Wednesday R

From: Mackay, Sean C
Sent: Friday, March 27, 2015 11:49 AM
To: Kristjansson, Sue
Subject: RE: Closing Comments?

I don't think it's that big of deal if you've gotta go. You never know how long it is going to take to get to Dulles at rush hour.

If we want to ask for an extension for comments, we should ask for it in writing and put it in the docket. Also should ask AGA to make the request too.

-----Original Message-----

From: Kristjansson, Sue
Sent: Friday, March 27, 2015 2:26 PM
To: Mackay, Sean C
Subject: Closing Comments?

I'm leaving at about 3:30 so I will absolutely miss the closing statements. Here is what I would say if I was here - if you want to comment go for it, if not, no big deal.

Closing comments if you feel like it:

-First want to say that SoCalGas has and will continue to not only support but actively pursue higher efficiency levels in natural gas appliances and equipment. We have contributed significantly to the efficiency advancements in California through our rebate and incentive programs and are always looking for new and innovative ways to move the needle even more.

-We have not yet made a determination of the pending rule and are currently conducting a detailed assessment/analysis of the DOE LCC analysis and all other information and data surrounding this rule.

-Having said all of that, our first priority is to assess the impact to our customer and proceed accordingly and we will do that responsibly in such a way that we have comprehensive and validated data to make that call.

-The one thing that seems abundantly clear today, evidenced first by the significant participation of interested stakeholders but even more so by the number of uncertainties and questions raised today. Our conclusion at this point is simply that there should be some sort of delay or extension provided for providing comments. It would be irresponsible for SoCalGas to attempt to make a determination with all of these questions pending and we respectfully assert that more time for deeper evaluation would be prudent.

Sent from my iPad

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(July 28, 2015 Internal email of SoCalGas)**

Exhibit 05 - ORA-A1701013-SCG004
<072815_A>

Manke, Adam P

From: Kristjansson, Sue
Sent: Tuesday, July 28, 2015 10:47 AM
To: Rendler, Daniel
Subject: FW: AGA Executive Committee Meeting Briefing Memo & Materials
Attachments: DOE Furnace NOPR Cover Letter.pdf; DOE Furnace NOPR Comments.pdf; GTI Analysis.pdf; Negawatt Analysis.pdf

How's this?

Jan,

A little background on our SW team conversations on the DOE furnace rule. This furnace rule was discussed first at the planning session held in February in San Francisco. The SW team discussed the upcoming rulemaking and the managers agreed that this may be an occasion in which the utilities may not necessarily be on the same page. At that time Sue let the group know that SoCalGas would be doing an independent assessment of the planned rule to determine the impact on our customer. In mid-June at the C&S quarterly meeting Sue notified the C&S team that our preliminary analysis was reflecting a negative situation for our customers and that we would likely be opposing the rulemaking. We first received notification of PG&E's intent to file support documents on Tuesday, July 7th – just prior to the filing deadline of July 10th. We were actually unaware that PG&E was conducting an independent analysis until that point.

SoCalGas became engaged in the DOE proposed rulemaking earlier this year. We did some research into the background behind this rule and found that it has a long history including successful litigation filed by APGA in 2011, that validated the fact that the DOE's issuance of a direct final rule (DFR) was inappropriate and outside their scope of authority. By the time we took up the issue, the AGA had already been working with GTI for several years on assessing the DOE's analysis to determine if this was of true benefit to natural gas consumers across the country. SoCalGas decided not to rely solely on the GTI analysis so we commissioned an independent analysis using the DOE's own inputs as our basis first and then corrected with SoCalGas specific data. The outcome of our independent analysis was similar to the GTI analysis in that moving to a 92% AFUE furnace in Southern California is not cost effective for any of our customers with either the DOE's own data or the data we found to be true in our service territory. I've attached the letter and report we submitted to the DOE for your reference.

The AGA is opposed to this rulemaking and has been trying to introduce legislation that would suspend the rulemaking and instruct the DOE to form an exploratory committee to do a much deeper dive on the topic.

SoCalGas is opposing this rulemaking on behalf of our customers for a number of reasons – all of which are included in our report.

From: Kristjansson, Sue
Sent: Monday, July 27, 2015 3:13 PM
To: Rendler, Daniel
Subject: RE: AGA Executive Committee Meeting Briefing Memo & Materials

Here is a proposed response to Jan:

Jan,

SoCalGas became engaged in the DOE proposed rulemaking earlier this year. We did some research into the background behind this rule and found that it has a long history including successful litigation filed by APGA in 2011, that validated the fact that the DOE's issuance of a direct final rule (DFR) was inappropriate and outside their scope of authority. By the time we took up the issue, the AGA had already been working with GTI for several years on assessing the DOE's analysis to determine if this was of true benefit to natural gas consumers across the country. SoCalGas decided not to rely solely on the GTI analysis so we commissioned an independent analysis using the DOE's own inputs as our basis first and then corrected with SoCalGas specific data. The outcome of our independent analysis was similar to the GTI analysis in that moving to a 92% AFUE furnace in Southern California is not cost effective for any of our customers with either the DOE's own data or the data we found to be true in our service territory. I've attached the letter and report we submitted to the DOE for your reference.

The AGA is opposed to this rulemaking and has been trying to introduce legislation that would suspend the rulemaking and instruct the DOE to form an exploratory committee to do a much deeper dive on the topic.

SoCalGas opposes this rulemaking on behalf of our customers for a number of reasons – all of which are included in our report.

I hope this helps – let me know if you have any additional questions.

Sue Kristjansson
Codes and Standards and ZNE Manager
Southern California Gas Co.
Telephone: (213) 244-5535
Fax: (213) 226-4317
Cell: (424) 744-0361



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From: Rendler, Daniel
Sent: Monday, July 27, 2015 1:31 PM
To: Kristjansson, Sue
Subject: FW: AGA Executive Committee Meeting Briefing Memo & Materials

Your suggested response (which I presume will include the letter Rodger sent?)
Dan

Daniel J. Rendler
Director, Customer Programs & Assistance
Southern California Gas Company
Tel: (213) 244-3480
Cell (951) 830-6360
E-mail: drendler@semprautilities.com

From: Berman, Janice S [<mailto:JSBa@pge.com>]
Sent: Monday, July 27, 2015 1:01 PM
To: Rendler, Daniel
Subject: FW: AGA Executive Committee Meeting Briefing Memo & Materials

Dan,
My Gas VP has asked for a briefing on this issue, as PG&E is a bit of an outlier relative to other AGA Utilities. Where is SoCal on this?
--Jan

From: Eilert, Patrick L
Sent: Monday, July 27, 2015 11:34 AM
To: Johnson, Aaron; Berman, Janice S; Hunt, Marshall; Zelmar, Karen; Davis, Vincent
Cc: Alegre, Roenna B.; Washington, Dana; Hunt, Marshall
Subject: RE: AGA Executive Committee Meeting Briefing Memo & Materials

All:

The DOE furnace letter is attached. As you will see, the letter is based on substantial research and analysis.
Pat

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<http://www.pge.com/en/about/company/privacy/customer/index.page>

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**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
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R.13-11-005**

SCG-06

SOCALGAS EXHIBIT

SoCalGas Response to ORA Data Request ORA-A1701013-SCG006

Exhibit 06 - ORA-A1701013-SCG006
<ORA-A1701013-SCG006>

**SOUTHERN CALIFORNIA GAS COMPANY
ADOPTION OF ITS ENERGY EFFICIENCY ROLLING PORTFOLIO
BUSINESS PLAN AND RELATED RELIEF
(A.17-01-016)
(DATA REQUEST ORA-A1701013-SCG006)
Date Received: 8/9/2017
Date Submitted: 8/23/2017**

CEC Tub Spout Diverter Rulemakings (Q.1-Q.4)

QUESTION 1:

Provide all documents (draft and final) and all emails relating to the CEC docket 17-AAER-09 and related dockets on tub spout diverter efficiency standards since January 1, 2016.

RESPONSE 1:

SoCalGas objects on the basis that this question is vague, overbroad, and unduly burdensome. Subject to and without waiving these objections, SoCalGas responds as follows:

Please see attached documents and emails in reference to CEC docket 17-AAER-09 provided in response 1.zip.

**SOUTHERN CALIFORNIA GAS COMPANY
ADOPTION OF ITS ENERGY EFFICIENCY ROLLING PORTFOLIO
BUSINESS PLAN AND RELATED RELIEF**

(A.17-01-016)

(DATA REQUEST ORA-A1701013-SCG006)

Date Received: 8/9/2017

Date Submitted: 8/23/2017

QUESTION 2:

Provide any analysis completed in response to this rulemaking.

RESPONSE 2:

SoCalGas objects on the basis that this question is vague and overbroad. Subject to and without waiving these objections, SoCalGas responds as follows:

SoCalGas' analysis in response to this rulemaking is currently on-going and not currently available. SoCalGas expects to complete its analysis prior to the September 18th Phase 2 Appliance Efficiency Regulations and Roadmaps request for proposals submission due date.

**SOUTHERN CALIFORNIA GAS COMPANY
ADOPTION OF ITS ENERGY EFFICIENCY ROLLING PORTFOLIO
BUSINESS PLAN AND RELATED RELIEF
(A.17-01-016)**

**(DATA REQUEST ORA-A1701013-SCG006)
Date Received: 8/9/2017
Date Submitted: 8/23/2017**

QUESTION 3:

Provide any analysis planned in response to this rulemaking and all documents (draft and final) showing planned analysis.

RESPONSE 3:

SoCalGas objects on the basis that this question is vague and overbroad. Subject to and without waiving these objections, SoCalGas responds as follows:

Project and test plans for analysis are in development. The project plan and test plan are "living documents" that are subject to change during the duration of the project. Current versions of the project plan and test plan have been provided in this response as Tub Spout Diverters High Level Project Plan 20170627a.docx and Tub Spout Diverter Draft Test Plan 20170809.docx, respectively.

Drafts of these documents can be found as part of the documents provided in Response 1.zip.

**SOUTHERN CALIFORNIA GAS COMPANY
ADOPTION OF ITS ENERGY EFFICIENCY ROLLING PORTFOLIO
BUSINESS PLAN AND RELATED RELIEF**

(A.17-01-016)

(DATA REQUEST ORA-A1701013-SCG006)

Date Received: 8/9/2017

Date Submitted: 8/23/2017

QUESTION 4:

Provide the date that the final letters were docketed to CEC and the docketed comment letters.

RESPONSE 4:

SoCalGas has not docketed any comment letters in regards to CEC docket 17-AAER-09.

**SOUTHERN CALIFORNIA GAS COMPANY
ADOPTION OF ITS ENERGY EFFICIENCY ROLLING PORTFOLIO
BUSINESS PLAN AND RELATED RELIEF**

(A.17-01-016)

(DATA REQUEST ORA-A1701013-SCG006)

Date Received: 8/9/2017

Date Submitted: 8/23/2017

CEC Rulemaking Non-Response or Non-Support (Q.5-Q.6)

QUESTION 5:

Provide a list of all CEC Title 20 pre-rulemakings or rulemakings since 2014 where you either did not comment on the proposed efficiency level or did not support CEC proposed efficiency level.

RESPONSE 5:

SoCalGas objects on the basis that this question is vague, overbroad, and unduly burdensome. Subject to and without waiving these objections, SoCalGas responds as follows:

SoCalGas provides the following list of CEC Title 20 pre-rulemakings or rulemakings since 2014 where SoCalGas did not comment or support CEC proposed efficiency level:

- Tub Spout Diverters docket 17-AAER-09

**SOUTHERN CALIFORNIA GAS COMPANY
ADOPTION OF ITS ENERGY EFFICIENCY ROLLING PORTFOLIO
BUSINESS PLAN AND RELATED RELIEF
(A.17-01-016)**

**(DATA REQUEST ORA-A1701013-SCG006)
Date Received: 8/9/2017
Date Submitted: 8/23/2017**

QUESTION 6:

Describe your rationale for not commenting on or for not supporting CEC's proposed efficiency level for all pre-rulemakings or rulemakings responsive to Question 6.

RESPONSE 6:

At the time of the Invitation to Participate (ITP), the first open comment period in CEC docket 17-AAER-09, research, testing and analysis had not taken place. Although SoCalGas is supportive of exploring Tub Spout Diverters for inclusion in future code, without any specific validation for the measure it seemed prudent to gather scientific data that would allow for future support that would be considered informed and indisputable. SoCalGas agreed that conducting research and considering tighter standards was sensible due to savings potential, but the CEC had already made that case very well. As a result, SoCalGas decided to not comment at that time. It is important to note that this was shared on a Statewide call with the CEC on June 22nd (Please see email in response 1.zip; 062217_S.pdf) and no objection was voiced.

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
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R.13-11-005**

SCG-07

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(April 12, 2017 Email between SoCalGas and PG&E)**

Exhibit 07 - ORA-A1701013-SCG006
<041217_A>

Garcia, Daniela

From: Anderson, Mary <M3AK@pge.com>
Sent: Wednesday, April 12, 2017 3:41 PM
To: Garcia, Daniela
Subject: [EXTERNAL] RE: Title 20 Priorities and funding dicussion Notes

I apologize for the delay. Energy Solutions has completed/begun the following items:

- Began talks with EPA Energy Star to understand their methodology, data gaps and manufacturer support
- Analyzed products in the CEC data base
- Created a draft research plan

Let me know if you have any questions.

From: Garcia, Daniela [mailto:DGarcia3@semprautilities.com]
Sent: Monday, April 10, 2017 8:10 AM
To: Anderson, Mary
Subject: FW: Title 20 Priorities and funding dicussion Notes

This is an EXTERNAL EMAIL. Stop and think before clicking links or opening attachments.

Good Morning Mary,

I wanted to follow up in regards to the tub spout diverters work that has been completed to date. We are interested in taking the measure on but I will seek approval once I can use the work that's been completed to explain the measure to our internal team.

Thank You,

Daniela Garcia

SoCalGas Customer Programs
Project Manager – Building Codes and Appliance Standards
555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6
Office: 213-244-4361 | Mobile: 951-847-1022
DGarcia3@semprautilities.com

From: Anderson, Mary [mailto:M3AK@pge.com]
Sent: Thursday, March 30, 2017 9:06 AM
To: Barbour, John L <JBarbour@semprautilities.com>; Reefer, Jeremy <JMReefe@semprautilities.com>; Garcia, Daniela <DGarcia3@semprautilities.com>; Sim, Michelle M <MSim@semprautilities.com>; Charles Kim <Charles.Kim@sce.com>; 'randall Higa' <randall.higa@sce.com>; Elliott, Ed <ESE1@pge.com>
Cc: Michelle Thomas (Michelle.Thomas@sce.com) <Michelle.Thomas@sce.com>; Eilert, Patrick <PLE2@pge.com>; Kristjansson, Sue <SKristjansson@semprautilities.com>
Subject: [EXTERNAL] RE: Title 20 Priorities and funding dicussion Notes

Attendees
SDG&E – John,
SCG - Michelle

SCE – Charles, Randall
 PG&E – Mary

- Phase 1 Topics – Current Leads and funding continue
- C&I Fans – SCE fans with co-funding, SDG&E is also interested in supporting – SCE funds 2017
- GSL – CEC will get back to the IOUs, waiting and seeing.
- Sprinkler Spray bodies – PG&E leads and funds
- Tub Spout Diverters – PG&E has worked with NRDC will work with NRDC, SCG is a tentative lead, PG&E will get a ballpark estimate, Ballpark estimate \$150k-\$200k, SCG leads tentative
- Irrigation Controllers – PG&E leads and funds, SDG&E can support
- Set top boxes roadmap – SCE may lead, co-funding might be helpful, PG&E has close relationships with CTA through RPP that might be able to support our effort, SCE will lead in 2017,
- Standby Power – PG&E lead and fund, SCE may collaborate on the Imaging equipment
- Solar Inverters – Co-funding, SCE as SME, SDG&E can strongly support where possible, need further clarification on definitions
- PG&E needs to know in the next 2-3 weeks if other IOUs need funds for upcoming CASE study.
- SCE would like to ask the CEC to include the IOUs in the planning process.
-

Appliance	Approach	Track	CEC Staff	Current Lead	F
Pool Pump Motors	Efficiency standards	Phase 1	?	SCE	S
Portable Spas	Efficiency standards	Phase 1	?	SCE	S
Com. Clothes Dryers	Test Procedure	Phase 1	Sean Steffensen	PG&E	S PG
Fans & blowers	Efficiency standards	Extended	Alex Galdamez & Ryan Nelson		
General service lamps	Efficiency standards	Regular	Pat Saxton	PG&E	F
Sprinkler spray bodies	Efficiency standards	Regular	Sean Steffensen	PG&E	F
Tub-spout diverters	Efficiency standards	Regular	Jessica Lopez		

Irrigation controllers	Energy efficiency standards; water efficiency test and list	Regular	Ryan Nelson	PG&E	F
Set-top boxes	Roadmap to replace Vol. Agmt.	Roadmap	Pat Saxton & Soheila Pasha	SCE	S
Standby mode	Data gathering to identify 10 products	Roadmap	Soheila Pasha	PG&E	F
Solar inverters	Data gathering	Roadmap	Pat Saxton		

Agenda

- Review of Last week’s conversation
- Lead discussion/decision making
- Next Steps

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R.13-11-005**

SCG-08

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(April 24, 2017 Email between SoCalGas and Negawatt)**

Exhibit 08 - ORA-A1701013-SCG006
<042417_A>

Garcia, Daniela

From: Marc Esser <marc@negawattconsult.com>
Sent: Monday, April 24, 2017 11:58 AM
To: Garcia, Daniela
Cc: Bo White
Subject: [EXTERNAL] Re: Title 20 Tub Spout Diverters

Thank you Daniela,

Always happy to take on new work, this is much appreciated.

We'll review shortly and will get back to you with questions and comments. Please keep us posted with any relevant meetings or materials that you know of.

Marc

--

Marc Esser
NegaWatt Consulting, Inc.
(619) 309-4191
www.negawattconsult.com

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On Apr 24, 2017 11:34 AM, "Garcia, Daniela" <DGarcia3@semprautilities.com> wrote:

Marc,

As you know we have been looking to take on another measure, this time for T20. Below please find the T20 priorities from the CEC (also attached memo with further details on "Track definitions"). SoCalGas has committed to leading the Tub- Spout Diverters. Our CEC contact will be Jessica Lopez, I have not met her and she may be new to the CEC Appliance team as they have a few new members.

Appliance	Approach	Track	CEC Staff	Current Lead
Pool Pump Motors	Efficiency standards	Phase 1	?	SCE
Portable Spas	Efficiency standards	Phase 1	?	SCE
Com. Clothes Dryers	Test Procedure	Phase 1	Sean Steffensen	PG&E

Fans & blowers	Efficiency standards	Extended	Alex Galdamez & Ryan Nelson	
General service lamps	Efficiency standards	Regular	Pat Saxton	PG&E
Sprinkler spray bodies	Efficiency standards	Regular	Sean Steffensen	PG&E
Tub-spout diverters	Efficiency standards	Regular	Jessica Lopez	
Irrigation controllers	Energy efficiency standards; water efficiency test and list	Regular	Ryan Nelson	PG&E
Set-top boxes	Roadmap to replace Vol. Agmt.	Roadmap	Pat Saxton & Soheila Pasha	SCE
Standby mode	Data gathering to identify 10 products	Roadmap	Soheila Pasha	PG&E
Solar inverters	Data gathering	Roadmap	Pat Saxton	

PGE has begun some work on this measure so Mary provided some bullets as to what Energy Solutions has worked on. I am working on getting write ups for these items listed below: (will forward as soon as I receive)

- Began talks with EPA Energy Star to understand their methodology, data gaps and manufacturer support
- Analyzed products in the CEC data base
- Created a draft research plan

Attached please find SoCalGas' work paper for your references and review as well.

At this time we don't have any deliverables, rather just review of the measure and if we can begin to put together a budget and timeline similar to DWHR.

Please let me know should you have any questions and are up for another CASE Report!

Thank You,

Daniela Garcia

SoCalGas Customer Programs

Project Manager – Building Codes and Appliance Standards

555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6

Office: 213-244-4361 | Mobile: 951-847-1022

DGarcia3@semprautilities.com

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SCG-09

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(May 4, 2017 Email between SoCalGas and Negawatt)**

Exhibit 09 - ORA-A1701013-SCG006
<050417_A>

Garcia, Daniela

From: Marc Esser <marc@negawattconsult.com>
Sent: Thursday, May 4, 2017 5:58 PM
To: Garcia, Daniela
Cc: Bo White
Subject: [EXTERNAL] Re: Title 20 Tub Spout Diverters

Hi Daniela,

I haven't had a chance to look at this yet, but will shortly. Did you receive any other materials from PG&E? You said in your original email that you were hoping to get write-ups on the following

- Began talks with EPA Energy Star to understand their methodology, data gaps and manufacturer support
- Analyzed products in the CEC data base
- Created a draft research plan

Thank you

On Mon, Apr 24, 2017 at 11:57 AM, Marc Esser <marc@negawattconsult.com> wrote:

Thank you Daniela,

Always happy to take on new work, this is much appreciated.

We'll review shortly and will get back to you with questions and comments. Please keep us posted with any relevant meetings or materials that you know of.

Marc

--

Marc Esser
NegaWatt Consulting, Inc.
(619) 309-4191
www.negawattconsult.com

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Thank You,

Daniela Garcia

SoCalGas Customer Programs

Project Manager – Building Codes and Appliance Standards

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Office: 213-244-4361 | Mobile: 951-847-1022

DGarcia3@semprautilities.com

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Marc Esser
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SCG-10

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(May 17, 2017 Email between SoCalGas and PG&E)**

Exhibit 10 - ORA-A1701013-SCG006
<051517_17>

Garcia, Daniela

From: Garcia, Daniela
Sent: Monday, May 15, 2017 7:58 AM
To: 'Anderson, Mary'
Subject: RE: Title 20 Priorities and funding dicussion Notes

Mary,

Did you have an update on the status of sharing the documents or information regarding the tub spout diverters?

Daniela Garcia

SoCalGas Customer Programs
Project Manager – Building Codes and Appliance Standards
555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6
Office: 213-244-4361 | Mobile: 951-847-1022
DGarcia3@semprautilities.com

From: Anderson, Mary [mailto:M3AK@pge.com]
Sent: Wednesday, April 12, 2017 3:41 PM
To: Garcia, Daniela <DGarcia3@semprautilities.com>
Subject: [EXTERNAL] RE: Title 20 Priorities and funding dicussion Notes

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Let me know if you have any questions.

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Sent: Monday, April 10, 2017 8:10 AM
To: Anderson, Mary
Subject: FW: Title 20 Priorities and funding dicussion Notes

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Good Morning Mary,

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Thank You,

Daniela Garcia

SoCalGas Customer Programs

Project Manager – Building Codes and Appliance Standards
555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6
Office: 213-244-4361 | Mobile: 951-847-1022
DGarcia3@semprautilities.com

From: Anderson, Mary [<mailto:M3AK@pge.com>]
Sent: Thursday, March 30, 2017 9:06 AM
To: Barbour, John L <JBarbour@semprautilities.com>; Reefe, Jeremy <JMReefe@semprautilities.com>; Garcia, Daniela <DGarcia3@semprautilities.com>; Sim, Michelle M <MSim@semprautilities.com>; Charles Kim <Charles.Kim@sce.com>; 'randall Higa' <randall.higa@sce.com>; Elliott, Ed <ESE1@pge.com>
Cc: Michelle Thomas (Michelle.Thomas@sce.com) <Michelle.Thomas@sce.com>; Eilert, Patrick <PLE2@pge.com>; Kristjansson, Sue <SKristjansson@semprautilities.com>
Subject: [EXTERNAL] RE: Title 20 Priorities and funding discussion Notes

Attendees
SDG&E – John,
SCG - Michelle
SCE – Charles, Randall
PG&E – Mary

- Phase 1 Topics – Current Leads and funding continue
- C&I Fans – SCE fans with co-funding, SDG&E is also interested in supporting – SCE funds 2017
- GSL – CEC will get back to the IOUs, waiting and seeing.
- Sprinkler Spray bodies – PG&E leads and funds
- Tub Spout Diverters – PG&E has worked with NRDC will work with NRDC, SCG is a tentative lead, PG&E will get a ballpark estimate, Ballpark estimate \$150k-\$200k, SCG leads tentative
- Irrigation Controllers – PG&E leads and funds, SDG&E can support
- Set top boxes roadmap – SCE may lead, co-funding might be helpful, PG&E has close relationships with CTA through RPP that might be able to support our effort, SCE will lead in 2017,
- Standby Power – PG&E lead and fund, SCE may collaborate on the Imaging equipment
- Solar Inverters – Co-funding, SCE as SME, SDG&E can strongly support where possible, need further clarification on definitions
- PG&E needs to know in the next 2-3 weeks if other IOUs need funds for upcoming CASE study.
- SCE would like to ask the CEC to include the IOUs in the planning process.
-

Appliance	Approach	Track	CEC Staff	Current Lead	F
Pool Pump Motors	Efficiency standards	Phase 1	?	SCE	S
Portable Spas	Efficiency standards	Phase 1	?	SCE	S
Com. Clothes Dryers	Test Procedure	Phase 1	Sean Steffensen	PG&E	S PG
Fans & blowers	Efficiency standards	Extended	Alex Galdamez & Ryan Nelson		
General service lamps	Efficiency standards	Regular	Pat Saxton	PG&E	F
Sprinkler spray bodies	Efficiency standards	Regular	Sean Steffensen	PG&E	F
Tub-spout diverters	Efficiency standards	Regular	Jessica Lopez		
Irrigation controllers	Energy efficiency standards; water efficiency test and list	Regular	Ryan Nelson	PG&E	F
Set-top boxes	Roadmap to replace Vol. Agmt.	Roadmap	Pat Saxton & Soheila Pasha	SCE	S
Standby mode	Data gathering to identify 10 products	Roadmap	Soheila Pasha	PG&E	F
Solar inverters	Data gathering	Roadmap	Pat Saxton		

Agenda

- Review of Last week's conversation
- Lead discussion/decision making
- Next Steps

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SCG-11

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(May 16, 2017 Email between Negawatt and SoCalGas)**

Exhibit 11 - ORA-A1701013-SCG006
<051617_A>

Garcia, Daniela

From: Marc Esser <marc@negawattconsult.com>
Sent: Tuesday, May 16, 2017 2:35 PM
To: Garcia, Daniela
Subject: [EXTERNAL] Re: Re: Re: CALIFORNIA ENERGY COMMISSION - Notice of Invitation to Participate and Staff Webinar

Hi Daniela,

I gave this presentation another good look. The CEC is basically asking a number of research questions that could and should be answered as part of the study, and that's all well done.

The only things that come to my mind are

- 1) they don't justify the merit of the project with a water & therm savings (gu)estimate, and
- 2) there is no rudimentary assessment of technical feasibility. It may be prohibitively hard or expensive to go from the present 0.01/0.05gpm to something better.

The study would of course answer both questions. It's just that if the answers were somewhat "negative" or unimpressive, going through with the full study regardless could be construed as somewhat of a waste of ratepayer money. Let me know if you feel this is a concern that we should comment on; I am thinking probably not.

Oh also, do you mind if I buy a copy of the testing standard for these? I'll look on the internet as well, but I doubt I'll find it for free. It's a CSA standard again, like for DWHR. it's \$138.

Thanks
Marc

On Mon, May 15, 2017 at 8:12 AM, Garcia, Daniela <DGarcia3@semprautilities.com> wrote:

Thanks Marc, I went ahead and forwarded to engineering and the authors of the work paper internally for their review. I am still pending the documents from Mary but followed up with her this morning.

Please let me know if we need to set up any time to discuss next steps or if comments will be necessary by June 16th.

Thank You,

Daniela Garcia

SoCalGas Customer Programs

Project Manager – Building Codes and Appliance Standards

555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6

Office: 213 244 4361 | Mobile: 951 847 1022

DGarcia3@semprautilities.com

From: Marc Esser [mailto:marc@negawattconsult.com]

Sent: Thursday, May 11, 2017 11:24 AM

To: Garcia, Daniela <DGarcia3@semprautilities.com>

Subject: [EXTERNAL] Re: Re: CALIFORNIA ENERGY COMMISSION - Notice of Invitation to Participate and Staff Webinar

here they are, in case you need them. I deleted the rest of the presentation

On Thu, May 11, 2017 at 11:13 AM, Garcia, Daniela <DGarcia3@semprautilities.com> wrote:

I was just sending you a note, I think they are way ahead of schedule. Sounds good, thanks!

From: Marc Esser [mailto:marc@negawattconsult.com]

Sent: Thursday, May 11, 2017 11:12 AM

To: Garcia, Daniela <DGarcia3@semprautilities.com>

Subject: [EXTERNAL] Re: CALIFORNIA ENERGY COMMISSION - Notice of Invitation to Participate and Staff Webinar

I joined around 11:08 but never saw them pull up any Tub spout slides; heard them ask for related questions, and then move on to afternoon topics. I'll get off the call and will download the slides for future reference

On Thu, May 11, 2017 at 8:34 AM, Garcia, Daniela <DGarcia3@semprautilities.com> wrote:

Marc,

I planned to call in but just in case you are free from 11:15-11:30 Tub Spout sis on the agenda.

Daniela García

SoCalGas Customer Programs

Project Manager – Building Codes and Appliance Standards

555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6

Office: 213-244-4361 | Mobile: 951-847-1022

DGarcia3@semprautilities.com

Thursday, May 11, 2017 10 a.m. CALIFORNIA ENERGY COMMISSION Remote Access Available by Computer or Phone via WebEx™ (Instructions below)

Participation will be by computer or phone via WebEx

Presentations and audio from the meeting will be broadcast via our WebEx web meeting service. For additional details on how to participate via WebEx, please see the notice & agenda at:
<https://efiling.energy.ca.gov/getdocument.aspx?tn=217220>

10:00 AM to 10:45 AM PDT	Introduction
11:00 AM to 11:15 AM PDT	Commercial and Industrial Fans and Blowers
11:15 AM to 11:30 AM PDT	Tub Spout Diverters
11:30 AM to 11:45 AM PDT	Sprinkler Spray Bodies
11:45 AM to 12:45 PM PDT	Lunch
12:45 PM to 1:00 PM PDT	Afternoon Introduction
1:00 PM to 1:15 PM PDT	Irrigation Controllers
1:15 PM to 1:30 PM PDT	Low-Power Modes (Roadmap)
1:30 PM to 1:45 PM PDT	Power Factor (Roadmap)
1:45 PM to 2:00 PM PDT	Set-Top Boxes(Roadmap)
2:00 PM to 2:15 PM PDT	Solar Inverters(Roadmap)
2:15 PM to 2:30 PM PDT	General Service Lamps (Expanded Scope)
2:30 PM to 3:30 PM PDT	Questions & Conclusion

--

Marc Esser
NegaWatt Consulting, Inc.
(619) 309-4191
www.negawattconsult.com

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Marc Esser
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SCG-12

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(May 18, 2017 Email between PG&E and SoCalGas)**

**Exhibit 12 - ORA-A1701013-SCG006
<051817_A>**

Garcia, Daniela

From: Anderson, Mary <M3AK@pge.com>
Sent: Thursday, May 18, 2017 11:23 PM
To: Garcia, Daniela
Subject: [EXTERNAL] FW: WS Bath & Shower Diverter Next Steps
Attachments: WS Tub Spout Diverter - NOI Summary.docx

Daniela,
 I just debriefed with ES. They haven't completed the analysis on the tub spout diverters. Water Sense has issued a Notice of Intent (attached) and we need to respond to the questions outlined in the NOI. Here are the ideas on how to respond to the NOI. We can have Negawatt respond or I can have Energy Solutions respond. It is up to you. Let me know if you have questions. Thanks!

Mary
Next Steps

- We will conduct more research to answer EPA's questions they outlined in the NOI, including outreach to industry experts (e.g., test labs, NRDC, manufacturers, water utilities) who may provide input on scope, testing, labeling, marketing etc.
- We will reach out to test labs (see below table) to inquire about conducting a series of tests to determine:
 1. the appropriate savings factor(s) across a range of real-world scenarios, as requested by EPA,
 2. if the life-cycle test should be increased from 15,000 cycles to perhaps 20,000 or 25,000 cycles to better reflect product durability and lifetime, and
 3. how various factors (e.g., water hardness, water pH) could potentially cause a bath and shower diverter to leak in real-world applications, as requested by EPA.

The amount of time and cost it will take to conduct testing may pose a challenge in submitting data to EPA in a timely manner. As such, we will try to obtain information on test time and cost from the test labs as soon as possible.

- We will work in collaboration with NRDC, as they have been involved in the WaterSense diverter process and they are well-connected in the industry. We have already been in preliminary discussions with Ed Osann of NRDC with respect to the potential Title 20 update for tub spout diverters. Also, Mr. Osann previously spoke with Gauley Associates to conduct life-cycle testing of diverters, and so we plan on contacting them about potential testing.

Plumbing Fittings Test Labs

Company	Location	Notes
Gauley Associates	Canada	Recommended by NRDC. Works closely with John Koeller of MaP Testing
BR Laboratories, Inc.	Huntington Beach, CA	CEC-Approved Test Lab
IAPMO R&T Laboratory	Ontario, California	CEC-Approved Test Lab
Pfister - Spectrum Brands Hardware and Home Improvement	Lake Forest, CA	CEC-Approved Test Lab
U.S. Analytical Laboratories	Fullerton, CA	CEC Approved Test Lab

Thank you,

Sarah

Sarah Yuko Schneider | Project Manager II | sschneider@energy-solution.com | (510) 482-4420 x202 | [449 15th Street, Oakland CA 94612](#)



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SCG-13

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(May 22, 2017 Email between SoCalGas and Negawatt)**

Exhibit 13 - ORA-A1701013-SCG006
<052217_C>

Garcia, Daniela

From: Marc Esser <marc@negawattconsult.com>
Sent: Monday, May 22, 2017 12:55 PM
To: Garcia, Daniela
Cc: Bo White
Subject: [EXTERNAL] Re: Re: FW: WS Bath & Shower Diverter Next Steps

Thanks Daniela, that all sounds good.

Let me get organized a bit, and when Bo is back next week we'll work on a plan of action for both the NOI and the T20 project. Does it make sense to try and be semi-ready with that by 6/1 in case any side conversations with the CEC develop? Or is that a different group at the CEC altogether? The analyst in charge per the slides was Jessica Lopez; I don't know her, do you?

Re budget & tracking, does it make sense to keep the NOI / Watersense under Advocacy, or do you feel it's so closely related to T20 that we should bundle it? Bundling is easier to track for us, but that doesn't have to be the determining factor.

Marc

On Mon, May 22, 2017 at 12:23 PM, Garcia, Daniela <DGarcia3@semprautilities.com> wrote:

Hi Marc,

Thank you for your quick reply! I agree, I think taking this on now will be very beneficial to our work for the CASE Report. As far as the timeframe I think we can work with Stephanie Tanner at Water Sense. Mary stated she is the contact and if we are friendly with our approach she is very good to work with and we can work out the details for the dates with her. The product is already in the CEC database so that may help with whether we need lab work etc.

So I think it's good to say I will let Mary know Negawatt/SoCalGas will take the lead on the NOI.

Please let know if you have any questions or concerns and we can check on a status update when you have made some progress. I will set a reminder to check in with you but please feel free to reach out if you need to touch base.

Thank You,

Daniela Garcia

SoCalGas Customer Programs

Project Manager – Building Codes and Appliance Standards

555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6

Office: 213-244-4361 | Mobile: 951-847-1022

DGarcia3@semprautilities.com

From: Marc Esser [mailto:marc@negawattconsult.com]
Sent: Monday, May 22, 2017 11:39 AM
To: Garcia, Daniela <DGarcia3@semprautilities.com>
Cc: Bo White <bo@negawattconsult.com>
Subject: [EXTERNAL] Re: FW: WS Bath & Shower Diverter Next Steps

Hi Daniela,

Sarah's document is good executive summary & high level action plan of the issue. The next steps proposed in Mary's email are verbatim from that document.

if you'd like for us to take over the project and the response to the NOI, I think we might as well do it now. If we let Energy Solutions respond, IMHO there will be some unnecessary overhead.

- anyone wanting to have a dialogue about the response will reach out to them first, while we'll be in charge at some point.
- we'll be in a better position to have that dialogue, if we write the response and do the research ourselves.
- we may have other/more comments than they have drafted so far.

I agree with Sarah's next steps and proposed comments at a high level; in particular, there is a critical path item of figuring out whether lab work is needed. If that's the case, there will not be enough time to produce all the answers by "June/July". We could have a research plan for those questions ready, that would align with the Title 20 work for the CEC.

Marc

On Mon, May 22, 2017 at 8:33 AM, Garcia, Daniela <DGarcia3@semprautilities.com> wrote:

Marc,

Mary passed this along regarding where Energy Solutions is at with Tub Spout Diverters. Can you please review the attachment and her email. There is NOI that was issued by Water Sense that is pending a response. The NOI is an open process so there isn't a defined comment period. See email in attachment (pg.8) from March stating they had a few months.

Based on the timing I can have Mary let Energy Solutions respond to this NOI or we can take it from here. Please let me know your thoughts at the earliest.

Daniela Garcia

SoCalGas Customer Programs

Project Manager – Building Codes and Appliance Standards

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Office: 213-244-4361 | Mobile: 951-847-1022

DGarcia3@semprautilities.com

From: Anderson, Mary [mailto:M3AK@pge.com]
Sent: Thursday, May 18, 2017 11:23 PM
To: Garcia, Daniela <DGarcia3@semprautilities.com>
Subject: [EXTERNAL] FW: WS Bath & Shower Diverter Next Steps

Daniela,

I just debriefed with ES. They haven't completed the analysis on the tub spout diverters. Water Sense has issued a Notice of Intent (attached) and we need to respond to the questions outlined in the NOI. Here are the Ideas on how to respond to the NOI. We can have Megawatt respond or I can have Energy Solutions respond. It is up to you. Let me know if you have questions. Thanks!

Mary

Next Steps

- We will conduct more research to answer EPA's questions they outlined in the NOI, including outreach to industry experts (e.g., test labs, NRDC, manufacturers, water utilities) who may provide input on scope, testing, labeling, marketing etc.

- We will reach out to test labs (see below table) to inquire about conducting a series of tests to determine:
 1. the appropriate savings factor(s) across a range of real-world scenarios, as requested by EPA,
 2. if the life-cycle test should be increased from 15,000 cycles to perhaps 20,000 or 25,000 cycles to better reflect product durability and lifetime, and
 3. how various factors (e.g., water hardness, water pH) could potentially cause a bath and shower diverter to leak in real-world applications, as requested by EPA.

The amount of time and cost it will take to conduct testing may pose a challenge in submitting data to EPA in a timely manner. As such, we will try to obtain information on test time and cost from the test labs as soon as possible.

- We will work in collaboration with NRDC, as they have been involved in the WaterSense diverter process and they are well-connected in the industry. We have already been in preliminary discussions with Ed Osann of NRDC with respect to the potential Title 20 update for tub spout diverters. Also, Mr. Osann previously spoke with Gauley Associates to conduct life-cycle testing of diverters, and so we plan on contacting them about potential testing.

Plumbing Fittings Test Labs

Company	Location	Notes
Gauley Associates	Canada	Recommended by NRDC. Works closely with John Koeller of MaP Testing
BR Laboratories, Inc.	Huntington Beach, CA	CEC-Approved Test Lab
IAPMO R&T Laboratory	Ontario, California	CEC-Approved Test Lab
Pfister - Spectrum Brands Hardware and Home Improvement	Lake Forest, CA	CEC-Approved Test Lab
U.S. Analytical Laboratories	Fullerton, CA	CEC-Approved Test Lab

Thank you,

Sarah

Sarah Yuko Schneider | Project Manager II | sschneider@energy-solution.com | (510) 482-4420 x202 | 449 15th Street, Oakland CA 94612



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SCG-14

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(May 23, 2017 Email between PG&E and SoCalGas)**

Exhibit 14 - ORA-A1701013-SCG006
<052317_B>

Garcia, Daniela

From: Anderson, Mary <M3AK@pge.com>
Sent: Tuesday, May 23, 2017 1:14 PM
To: Garcia, Daniela
Subject: [EXTERNAL] RE: Appliance Standards Subprogram Swimlane Meeting Notes

I am comfortable with you reaching out to the CEC and think it is the right thing to do. According to the SW team norms we need to inform the team after having a discussion with the CEC or other decision makers.

From: Garcia, Daniela [mailto:DGarcia3@semprautilities.com]
Sent: Tuesday, May 23, 2017 1:06 PM
To: Anderson, Mary
Subject: RE: Appliance Standards Subprogram Swimlane Meeting Notes

This is an EXTERNAL EMAIL. Stop and think before clicking links or opening attachments.

Mary,

With our work starting on the Tub Spouts I wanted to see if there was any protocol on contacting the CEC assigned person for our measure. Jessica Lopez, I believe is our analyst. At some point in the next few weeks I was thinking of reaching out and introducing ourselves and letting her know we would be leading the measure.

Please let me know if this works or if we are waiting for any introductions or kick off meeting.

Thanks!

Daniela Garcia

SoCalGas Customer Programs
Project Manager – Building Codes and Appliance Standards
555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6
Office: 213-244-4361 | Mobile: 951-847-1022
DGarcia3@semprautilities.com

From: Anderson, Mary [mailto:M3AK@pge.com]
Sent: Monday, May 22, 2017 2:25 PM
To: Barbour, John L <JBarbour@semprautilities.com>; Reefe, Jeremy <JMReefe@semprautilities.com>; Garcia, Daniela <DGarcia3@semprautilities.com>; Charles Kim <Charles.Kim@sce.com>
Cc: Eilert, Patrick <PLE2@pge.com>
Subject: [EXTERNAL] Appliance Standards Subprogram Swimlane Meeting Notes

Here are my notes from today. Please look and let me know if there are any edits that need to be made. Thanks!
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SCG-15

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(June 15, 2017 Internal email of SoCalGas)**

Exhibit 15 - ORA-A1701013-SCG006
<061517_A>

Garcia, Daniela

From: Garcia, Daniela
Sent: Thursday, June 15, 2017 2:58 PM
To: Kristjansson, Sue
Subject: RE: Check In on Diverters (Title 20)/ NRDC Call

Hey Sue,

The call went well, NRDC is very interested in the Tub Spouts so they want to make sure that we work in collaboration with them as they have conducted life-cycle testing of diverters. PGE started these conversations with them prior to us taking this measure so they had discussed potential testing. So I will just work to keep them in the discussions.

Daniela Garcia

SoCalGas Customer Programs
Project Manager – Building Codes and Appliance Standards
555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6
Office: 213-244-4361 | Mobile: 951-847-1022
DGarcia3@semprautilities.com

From: Kristjansson, Sue
Sent: Thursday, June 15, 2017 2:04 PM
To: Garcia, Daniela <DGarcia3@semprautilities.com>
Subject: Re: Check In on Diverters (Title 20)/ NRDC Call

Okay. Let me know how it goes.

Sent from my iPhone

On Jun 15, 2017, at 9:41 AM, Garcia, Daniela <DGarcia3@semprautilities.com> wrote:

Hi Sue,

I just wanted to keep you in the loop. We have taken on the Tub Spout T20 measure and NRDC has reached out asking for a meeting. I will be having a quick call with them today 2-2:15 and have included Marc and Bo.

From what Mary has previously stated PGE had already been in preliminary discussions with Ed Osann, Policy Analyst, of NRDC with respect to the potential Title 20 update for tub spout diverters about potential testing.

Thank You,

Daniela Garcia

SoCalGas Customer Programs
Project Manager – Building Codes and Appliance Standards
555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6
Office: 213-244-4361 | Mobile: 951-847-1022
DGarcia3@semprautilities.com

From: Garcia, Daniela
Sent: Thursday, June 15, 2017 8:07 AM
To: 'Lee, Susan' <slee@nrdc.org>
Subject: RE: Check In on Diverters (Title 20)

Hi Susan,

Yes, we just took the lead for that measure. With that being said we don't have anything to share yet but we can set something up if there's something you would to share. We will have a draft project plan early to mid-July so we could always set something up then as well since Ed will be back by then.

Thanks!

Daniela Garcia

SoCalGas Customer Programs
Project Manager – Building Codes and Appliance Standards
555 W. 5th Street, Los Angeles, CA 90013 | ML: GT19A6
Office: 213-244-4361 | Mobile: 951-847-1022
DGarcia3@semprautilities.com

From: Lee, Susan [<mailto:slee@nrdc.org>]
Sent: Thursday, June 15, 2017 7:14 AM
To: Garcia, Daniela <DGarcia3@semprautilities.com>
Subject: [EXTERNAL] RE: Check In on Diverters (Title 20)

Hi Daniela,

My name is Susan Lee and I support Ed Osann at NRDC. I am following up on the email Ed sent yesterday. Will you be available for a call today?

Thank you,

SUSAN LEE

Program Assistant- Water & Corporate Counsel

**NATURAL RESOURCES
DEFENSE COUNCIL**
1152 15TH STREET NW, SUITE 300
WASHINGTON, DC 20005
T 202.289.2369
SLEE@NRDC.ORG
NRDC.ORG

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From: Osann, Ed
Sent: Wednesday, June 14, 2017 1:32 PM
To: DGarcia3@semprautilities.com
Cc: Lee, Susan <slee@nrdc.org>
Subject: Check In on Diverters (Title 20)

Hi Daniela –

I understand that you have the lead for the CA utilities team on CEC rulemaking for tub spout diverters. We also have an interest in supporting revised Title 20 standards for these products, as they offer a cost effective opportunity to save both energy and water. Any chance we can compare notes with you and/or your technical consultant? I'm around today and tomorrow, but after that I'll be out of the country for the rest of June.

Ed

Edward R. Osann | Senior Policy Analyst

Natural Resources Defense Council | 1152 15th Street, NW | Washington, DC 20005

Phone: (202) 289-6868 | email: EOsann@nrdc.org | www.NRDC.org

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**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-16

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(June 23, 2017 Email between SoCalGas and PG&E)**

Exhibit 16 - ORA-A1701013-SCG006
<062317_C>

Garcia, Daniela

From: Anderson, Mary <M3AK@pge.com>
Sent: Friday, June 23, 2017 11:07 AM
To: Eilert, Patrick; Kristjansson, Sue; Thomas, Michelle; Zeng, Kate
Cc: Garcia, Daniela; Reefe, Jeremy; Kim, Charles
Subject: [EXTERNAL] RE: Tub-Spout Diverters

For background for folks who haven't been involved in this process before here are some important items to keep in mind.

- The CEC released an Invitation to Participate(ITP) and the IOUs responded to all of the measures except tub spout diverters. While it isn't required for the IOUs to participate we have historically responded to all (that I am aware of) of the opportunities with some form of a response and public support.
- On the other measures we had been in communication with the CEC regarding our responses and didn't let the CEC know that weren't responding to the ITP for tub spout diverters.
- Daniela let the team know a few days before the ITP response deadline that she didn't believe we had sufficient information to respond to the ITP. None of the other IOUs expressed concern. It appears that wasn't communicated to the CEC.
- In the last meeting with the CEC they asked the IOUs about our lack of response and if we planned on submitting a response and we stated that we were not.
- In situations where there is little to no pushback (although the vast majority of rulemakings have some pushback) it could be okay not to respond, in my opinion.
- The CEC requested a meeting with the IOUs and the CASE authors (they stated it is a high priority for them)regarding the research plan on tub spout diverters.
- The draft standards proposal for all Phase 2 topics, including tub spout diverters is due middle to end of August.

From: Eilert, Patrick
Sent: Friday, June 23, 2017 10:11 AM
To: Kristjansson, Sue; Thomas, Michelle; Zeng, Kate
Cc: Anderson, Mary; Garcia, Daniela; Reefe, Jeremy; Kim, Charles
Subject: FW: Tub-Spout Diverters

Sue/Michelle/Kate-
I have asked Mary to send an Outlook invitation to discuss.
Thank you.
Pat

From: Driskell, Kristen@Energy [<mailto:Kristen.Driskell@energy.ca.gov>]
Sent: Thursday, June 22, 2017 4:45 PM
To: Eilert, Patrick
Cc: Anderson, Mary
Subject: Tub-Spout Diverters

*******CAUTION:** This email was sent from an EXTERNAL source. Think before clicking links or opening attachments.*****

Hi Pat,

Hope you're doing well.

I was surprised not to receive comments from the IOUs on tub-spout diverters. We got a lot of opposition to the idea of lowering the leakage rate, and no support (EPA was neutral). It would be nice to know earlier rather than later whether IOU's will be supporting this effort or not. Let me know if you'd like to talk by phone.

Thanks,
Kristen

Kristen M. Driskell
Appliances & Outreach & Education Office
Efficiency Division
California Energy Commission
(916) 654-3957
Kristen.Driskell@energy.ca.gov

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<http://www.pge.com/en/about/company/privacy/customer/index.page>

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SCG-17

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(February 2, 2016 email regarding other IOUs' collaboration with organizations and consultants)**

Exhibit 17 - A1701013-PGE006

<020215>

https://docs.wixstatic.com/ugd/0c9650_e2ca6ea1850145b69836cd6a700c6bfd.pdf

From: [Andrew.deLaski](#)
To: [Bijit Kundu](#); [Bryan Boyce](#); [Harvey Sachs](#); [Hunt, Marshall](#); [Jennifer Amann](#); [Joanna Mauer](#); [Lis, David J.](#); [Longstreth, Ben](#); [Louis Starr](#); [Marianne DiMascio](#); [Meg Waltner](#); [Rodney Sobin](#); [Steve Nadel](#); [Timothy Balla](#)
Subject: prep for Thurs AHRI meeting - URGENT
Date: Monday, February 02, 2015 3:31:27 PM
Attachments: [Agenda - Negotiations ULE Products 02-05-15.docx](#)

Hi all: As decided at the end of our Jan 8 meeting with AHRI, we are slated to meet with AHRI again this Thursday at their offices to continue our talks about roof top units.

Our group really should talk before we get together with AHRI and time is short, so please respond as soon as you get this message to the doodle poll at

<http://doodle.com/b35rwtup4cdd2fyf>

I'll pick a time for tomorrow or Wednesday and send out a meeting invite as soon as a critical mass has filled out the poll.

I have attached here the draft agenda for the Thursday meeting. Feedback welcome by email and we can discuss on our call.

Also, please let me know whether you intend to participate by phone or in person.
Thanks

Andrew

--

Andrew deLaski
Appliance Standards Awareness Project
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SCG-18

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(February 12, 2018 email regarding IOUs' collaboration with organizations and consultants)**

Exhibit 18 - ORA-A1701013-PGE006
<021215>

https://docs.wixstatic.com/ugd/0c9650_6aaf51bf95ee4b9097b7490cb33718b9.pdf

From: [Andrew deLaski](#)
To: [Mike Murza](#); [Hunt, Marshall](#); [Bijit Kundu](#); [Charlie Stephens](#)
Subject: Fwd: Furnace Stakeholder Planning Meeting
Date: Thursday, February 12, 2015 9:46:23 AM

Mike, Marshall, Charlic and Bijit: NRDC is pulling together a meeting of our team tomorrow and with industry next week concerning the furnace standards. In the past you all have been only a little involved in the furnace standards work, but I wanted to check again to see if you want to participate in these upcoming meetings in which we are working to find a way forward in this contentious docket. Do you want to participate in the call tomorrow and the meeting next Friday (presumably by phone)? Let me know and I'll ask NRDC to add you to the invite lists.

Andrew

----- Forwarded message -----

From: **Noll, Elizabeth** <enoll@nrdc.org>
Date: Thu, Feb 12, 2015 at 11:42 AM
Subject: Furnace Stakeholder Planning Meeting
To: "Roy, Robin" <rroy@nrdc.org>, "Longstreth, Ben" <blongstreth@nrdc.org>, "Kennedy, Kit" <kkennedy@nrdc.org>, Andrew deLaski <adelaski@standardsasap.org>, "jmayer@standardsasap.org" <jmayer@standardsasap.org>, "Lis, David J." <djlis@neep.org>, Timothy Ballo <tballo@earthjustice.org>, Harvey Sachs <hsachs@accce.org>, Steve Nadcl <snadcl@accce.org>, Rodney Sobin <RSobin@asc.org>, Mel Hall-Crawford <melhc@consumerfed.org>, Charlie Harak <charak@nclc.org>

Discuss and prepare for broad stakeholder call on Feb. 20th.

Call: [2127274600](tel:2127274600)

Participant code: [9866115](#)

Discuss:

- Initial thoughts on NOPR
 - Strengths and weaknesses
- Agenda for Feb. 20th (in development)
- Other?

For those unable to participate tomorrow, please send me your thoughts so we can be sure to integrate them into the discussion and reflect them in the agenda for the 20th. And again please forward to anyone I may have missed.

Thanks
Elizabeth

~~~~~

A ShoreTel conference call has been created for this meeting.

Use either of the following to join the call:

Call 4600 (Extension)

[+12127274600](tel:+12127274600) (Local dial in)

and enter the access code below followed by the # key.

Participant code: 9866115

Or, click the link below:

Participant: <https://conf.nrdc.org/conference/9866115>

Test link: <https://conf.nrdc.org/test>

Mobile Auto Dial:

VoIP: voip://+12127274600;9866115#

iOS devices: [+12127274600](tel:+12127274600),9866115 and press #

Other devices: [+12127274600x9866115](tel:+12127274600x9866115)#

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Andrew deLaski

Appliance Standards Awareness Project

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SCG-19

SOCALGAS EXHIBIT

**Excerpt from SoCalGas Response to ORA Data Request ORA-A1701013-SCG006
(June 19, 2015 email regarding other IOUs' collaboration with organizations and consultants)**

Exhibit 19 - ORA-A1701013-PGE006

<061915>

https://docs.wixstatic.com/ugd/0c9650_b8a2f7bd75f140938b40f06ab4e1b2dc.pdf

From: [Andrew deLaski](#)
To: [Marianne DiMascio](#)
Cc: [Ben Longstreth](#); [Brad Penney](#); [Charlie Harak](#); [David Goldstein](#); [David J. Lis](#); [Elizabeth Noll](#); [Harvey Sachs](#); [Jeff Harris](#); [Joanna Maurer](#); [Kit Kennedy](#); [Kristen@Energy Driskel](#); [Marshall Hunt](#); [Hunt, Marshall](#); [Mel Hall-Crawford](#); [Mike Murza](#); [Patrick@Energy Saxton](#); [Robin Roy](#); [Steve Nadal](#); [Suzanne Watson](#); [Timothy Ballo](#); [Chris Grandia](#)
Subject: draft agenda for today's furnace call
Date: Friday, June 19, 2015 11:04:56 AM
Attachments: [Furnace NOPR LCC & NIA Results \(1\).xlsx](#)

Hello ASAP furnacc TAG:

The purpose of our call this afternoon

(206-402-0821 9660261)

is to coordinate on written comments for the furnace docket, which are due on July 10.

Draft call agenda

1. Any updates on talks with industry? (I distributed notes on last week's meeting earlier this week.)
2. How do our talks with industry affect written comments?
3. Who plans to submit written comments?
4. Topics
 - a. What level to support:
 - 92 v. 95
 - regional v. national
 - do we recommend a low btu class at 80AFUE? if so, regional or national? up to what btu/h input?
 - b. DOE cost estimates
 - what information can we offer to support cost estimates equal or lower than DOE's?
 - * equipment
 - * venting
 - c. impacts on low income consumers
 - d. what else?

For everyone's convenience, I've attached here the summary of impacts at 92 and 95 national which Joanna put together and which we've circulated previously.

- Andrew

Andrew deLaski
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On Wed, Jun 17, 2015 at 4:13 PM, Marianne DiMascio <mdimascio@standardsasap.org> wrote:
Thanks for completing the doodle poll. Could you all tentatively hold Friday from 3-4:30 EST (12-1:30 PST) for the furnace call and we'll confirm in the morning?

Marianne

On Tue, Jun 16, 2015 at 9:56 PM, Marianne DiMascio <mdimascio@standardsasap.org> wrote:

Hi all,

Here's the doodle poll for the call to coordinate July 10th comments to DOE. We are trying for this Friday, next Monday or Tuesday. Thanks for responding quickly.

<http://doodle.com/d6csxkawwk2x9rzs>

Marianne

On Tue, Jun 16, 2015 at 8:49 PM, Andrew deLaski <adelaski@standardsasap.org> wrote:

CONFIDENTIAL: Here's a report on last week's meeting with industry stakeholders and us. Key next step is to prepare our written comments for the DOE docket, due July 10. I know some of you have already commenced work on yours. I'm traveling tomorrow so have asked Marianne to get a poll around to find a call time. Please be on the lookout for that and respond as soon as you can. Thx.

Report on 6/11 furnace meeting

At the meeting last week, AGA proposed the following: 80% AFUE standard below 5000 HDD; 92% above. Furnaces at or below 80kbtu/h input would need to meet an 80% standard, regardless of region.

AHRI seconded the proposal for the 5000 HDD line, with 92% in the North and 80% in the south. AHRI also wants to allow 80% furnaces below a certain input capacity anywhere, but they did not have a position on the input capacity break point (previously, they also had said 80 kbtu/h)

On the other elements of our previous proposal, AHRI said:

- #1. they are pulling the furnace fan efficiency proposal off the table (we estimated small savings potential, given the 2019 fan rule).
- #2. they cannot support 81% AFUE for non-condensing furnaces.
- #3. they did not mention the AC standards (separately, they've requested a formal reg neg on the next round of AC standards, which is likely to be approved tomorrow).
- #4. they remain open to a provision related to learning thermostats, but have a lot of questions about how it would be done.
- #5. they did not respond on the building code, saying they viewed it as a secondary issue to be worked out after the main issues (Note: FWIW - when the codes option came up, Craig Drumheller said that NAHB while not favoring it would not object if it were part of the package.)
- #6. In response to our suggestion that we get more info on savings from modulating furnaces, several manufacturers in private said the energy savings are very small – the advantage of such units is comfort from more even heating.

The manufacturers expressed a strong preference for an approach that is simple.

AGA justified their position, in part, with an argument that they don't believe the DOE analysis has withstood the scrutiny of AGA's consultant (GTI) and that therefore the DOE proposal and any national standard in the condensing range is not cost-effective. They'll release that GTI critique of the DOE analysis as part of their written comments to the docket in early July. We need to be prepared to review, understand and critique it.

We responded to say that the AGA proposal was considerably short of what makes sense for consumers and energy savings. We said that there is some combination of north/south border, kbtu/h cut off for non-condensing products and condensing AFUE level (92 v 95), and ways to get additional savings from 80% furnaces that will allow for some non-condensing furnaces where they make economic sense and still deliver the large savings potential for this rule, but the AGA proposal does not come close to capturing it. All of these issues need to be further considered.

Steve shared his draft language on performance based approach for T-stats. This element achieves some of the savings lost by allowing some 80% furnaces.

The gas and furnace industries are going to review the performance based concept for T-stats.

We agreed to form a small technical working group on data issues that can help inform the kbtu/h cutoff, N-S line and 92 vs 95 AFUE issues, Harvey is our designee to that group and will convene that group.

AHRI asked if there was a quad target we had in mind for this rule. We said our goal is maximum cost effective savings, but would think about if we can reduce it to a quad number.

All sides said they'd like to continue working to see if a consensus can be reached. We also recognized that everyone would be focusing on their written comments to the docket in the near term now.

My sense is that our team needs to shift our full attention to preparing our written comments, which are due on July 10. To that end, please fill out the doodle poll Marianne will send around so we coordinate our written comments.

- Andrew

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SCG-20

SOCALGAS EXHIBIT

UAFCB Energy Efficiency Audit, Southern California Gas Company Program Year 2014

Memorandum



Date: June 30, 2016

To: Timothy J. Sullivan
Executive Director, Public Utilities Commission

From: Public Utilities Commission—
San Francisco

Kayode Kajopaiye, Branch Chief
Division of Water and Audits

Subject: Financial, Management, Regulatory, and Compliance Examination Report on Southern California Gas Company's (SCG's) Energy Efficiency (EE) Program For the Period January 1, 2014 through December 31, 2014

The Utility Audit, Finance and Compliance Branch (UAFCB) examined Southern California Gas Company's (SCG) financial, management, regulatory, and compliance areas of the Energy Efficiency (EE) program for program year (PY) 2014. Except for the matters discussed in Observations (Obs.) 7, 8, 11, 16 and 19 below, SCG demonstrated compliance with Commission directives respecting the areas of its 2014 EE program examined. However, UAFCB found that SCG overstated the EE expenditures used for calculating its 2014 Resource Program Savings Incentive by \$123,346 as specified in Obs. 16 and 19. The Energy Division should not include these amounts in the calculations of the incentive awards. The details of these and other observations are provided in the memo and Appendix A.

UAFCB conducted this examination pursuant to Ordering Paragraph (OP) 17 of Decision (D.) 13-09-023.¹ This examination was limited to: (1) Reconciliation of Total EE Portfolio Costs to Reported Amounts; (2) Codes and Standards Program; (3) Non-Resource Program; (4) EE Program Administrative Costs of SCG and Non-SCG; (5) EE Balancing Accounts; (6) Statewide Commercial Calculated Incentive Program; (7) Statewide Industrial Calculated Incentive Program; (8) Fund Shifting; and (9) Follow-up on Prior UAFCB's Examination Observations and Recommendations and SCG's Internal Audit Recommendations.

SCG's management is responsible for ensuring accurate reporting of energy efficiency program data and information to the Commission in compliance with applicable laws and administrative requirements.

A. Summary of Examination Observations and Recommendations

The following is a brief summary of UAFCB's observations and recommendations resulting from its examination. A detailed description of UAFCB's analysis and observations is included in Appendix A.

¹ In D.13-09-023, on pages 78 and 82, the Commission discussed that it anticipates relying on public versions of UAFCB's examination reports when determining the amount of each utility's incentives. In Ordering Paragraph (OP) 17, the Commission ordered that "In order to verify Codes and Standards and Non-Resource program expenditures for the purposes of awarding these management fees, we will rely upon public versions of the Commission's Utility, Audit, Finance and Compliance Branch reports. Upon completion, the Commission's Utility, Audit, Finance and Compliance Branch shall serve on the service list in this proceeding (or its successor) a notice of availability of the public copy of its audit report detailing its review of annual expenditures for the 2013 and 2014 Energy Efficiency programmatic activity."

Reconciliation of Total EE Portfolio Costs to Reported Amounts

Observation 1: SCE demonstrated compliance with Public Utility (PU) code §§ 581, 582 and 584 respecting the total EE portfolio program costs.² The total EE portfolio program expenditures recorded and reported in PY 2014, excluding Evaluation, Measurement and Verification (EM&V) costs, amounted to \$66,070,226. A reconciliation of the total EE portfolio program expenditures reported in EEStats,³ including the Annual Report (Table 3), Quarterly reports and Monthly reports, to SCG's accounting records disclosed no exceptions.

Of the total portfolio amount indicated above, SCG reported total resource program costs of \$55,108,981 for PY 2014, of which \$4,846,321 was for administrative costs.

Recommendation: None.

Observation 2: SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the required report filings. SCG filed its Monthly, Quarterly, and Annual reports timely as required by the Commission. However, the Energy Division (ED) reporting templates in EEStats do not provide for annual figures of EE expenditures.

Recommendation: ED should modify the Monthly, Quarterly, and Annual report templates to facilitate annual reconciliation of EE program costs. UAFCB has made the same recommendation in its prior examination reports on EE Program.

Codes and Standards (C&S) Program

Observation 3: SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported C&S program costs. The \$680,457 reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records.

Recommendation: None.

Observation 4: SCG demonstrated compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. UAFCB previously indicated that SCG incorrectly included \$9,910 in PY 2014 with the recorded Codes and Standards (C&S) program expenditures incurred in PY 2013. The amount was charged to the Direct Implementation cost category of the program.

UAFCB agrees with SCG that the \$9,910 is below its accrual policy threshold. However, UAFCB will exercise its judgment if the aggregate amount not accrued timely is in excess of the accrual threshold.

Recommendation: None

Observation 5: SCG's internal policy and procedures for implementing the C&S Program were adequately designed to meet Commission directives in PY 2014. SCG was in compliance with the internal C&S Program Procedures Manual V2.0.

Recommendation: None.

² All statutory references are to the Public Utility Code unless stated otherwise.

³ The California Energy Efficiency Statistics (EEStats) – a repository of utility-submitted reports to the CPUC.

Non-Resource (NR) Program

Observation 6: Except for Observations 7 and 8 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported NR program costs. The \$6,005,691 reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records.

Recommendation: None.

Observation 7: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including its established accrual policy and procedures. SCG incorrectly included \$35,238 in PY 2014 the NR program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category (\$23,500) and Administrative cost category (\$11,738), respectively.

Recommendation: SCG has since filed AL 4826-G to claim the NR Programs Management Fee incentive award for PY 2014. The management fee associated with this incorrect amount is insignificant in UAFCB's judgment but the occurrence is an internal control weakness. Therefore, UAFCB proposes no audit adjustment. However, to minimize the occurrence of these errors in the future, SCG should adhere to the accrual basis of accounting in recording and reporting EE expenditures while also continuing to strengthen its oversight over its internal controls.

Observation 8: SCG failed to demonstrate compliance with General Order (GO) 28 and the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts (USOA) respecting the NR programs. The documentation provided by SCG to substantiate recorded transactions with one of its vendors did not reconcile with the amounts contained in the signed Purchase Order (PO) agreement. The overstatement is insignificant but the occurrence is an indication of lack of sufficient oversight.

Recommendation: SCG should ensure that the provisions in signed agreements are accurately recorded in order to reduce the risk of any types of errors. SCG should strengthen its oversight over the existing contracting process.

Observation 9: The criteria used by SCG for designating EE programs as Resource and Non-Resource were in conformance with Commission directives. SCG applied the definition contained in the Energy Efficiency Policy Manual, Version 5, dated July 2013, when determining whether an EE program is classified as Resource or NR.

Recommendation: None.

EE Administrative Program Costs of SCG and Non-SCG

Observation 10: Except for Observation 11 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting its own reported EE Administrative costs for PYs 2013 and 2014. The \$6,615,214 for PY 2013 and \$6,221,390 for PY 2014 included in the Quarterly and Annual Reports for PYs 2013 and 2014, respectively, reconciled to SCG's accounting records.

Recommendation: None.

Observation 11: SCG failed to demonstrate compliance PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly recorded \$26,461 in PY 2014 that should have been recorded in PY 2013.

Recommendation: SCG should adhere to its own accrual basis of accounting by recording and reporting its EE expenditures in the appropriate PY.

Observation 12: SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported Non-SCG EE Administrative costs for PY's 2013 and 2014. The \$1,298,767 for PY 2013 and \$752,966 for PY 2014 included in the Quarterly and Annual Reports for PY's 2013 and 2014, respectively, reconciled to SCG's accounting records.

Recommendation: None.

EE Balancing Accounts

Observation 13: SCG demonstrated compliance with PU code §§ 381, and 399.8 (b) 1 and other applicable Commission directives respecting the authorized EE balancing accounts. A review of SCG's approved Preliminary Statement for the Demand-Side Management Balancing Account (DSMBA) and the internal controls in place for recording entries in the balancing account for PY 2014 disclosed no exceptions.

Recommendation: None.

Observation 14: SCG's internal policy and procedures for the billing and collection of Public Purpose Program (PPP) revenues were adequately designed to meet the Commission's approved tariff requirements. SCG's policies and procedures in place to control and monitor its accounting practices for the recording and reporting of PPP revenues to the applicable EE balancing account in accordance with Commission approved tariff requirements seemed adequate.

Recommendation: None.

Statewide Commercial Calculated Incentive (CCI) Program

Observation 15: Except for Observation 16 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported CCI Program costs. The \$4,093,436 reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records.

Recommendation: None.

Observation 16: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$110,226 in PY 2014 the CCI program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category of the program.

Recommendation: Energy Division should exclude \$110,226 from the reported 2014 CCI Program total expenditures before calculating SCG's PY 2014 Resource Program Savings Incentive award.

Observation 17: SCG's internal policy and procedures to implement the CCI Program were adequately designed to meet Commission directives. SCG was in compliance with its internal policy and procedure manuals for implementing the CCI Program.

Recommendation: None.

Statewide Industrial Calculated Incentive (ICI) Program

Observation 18: Except for Observation 19 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported ICI Program costs. The \$6,796,291 reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records.

Recommendation: None.

Observation 19: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$13,120 in PY 2014 the ICI program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category of the program.

Recommendation: Energy Division should exclude \$13,120 from the reported 2014 ICI Program total expenditures before calculating SCG's Resource Program Savings Incentive award.

Observation 20: SCG's internal policy and procedures to implement the ICI Program were adequately designed to meet Commission directives. SCG was in compliance with its internal policy and procedure manuals for implementing the ICI Program.

Recommendation: None.

Fund Shifting

Observation 21: SCG demonstrated compliance with PU code §§ 581, 582, and 584, and the EE Policy Manual, and its internal policy and procedures respecting the fund shifting activities in PY 2014. SCG's EE program fund shifting in PY 2014 did not exceed the annual thresholds specified in Appendix C of the EE Policy Manual (Version 5), dated July 2013. Therefore, SCG was not required to file ALs with the Commission about fund shifting. SCG was in compliance with the Commission's fund shifting requirements in PY 2014.

Recommendation: None.

Follow-up on Prior UAFCB's Observations and Recommendations and SCG's Internal Audit Recommendations

Observation 22: SCG addressed and implemented most of UAFCB's audit recommendations specified in UAFCB's Audit Memo Report for the 2013 EE Program examination, except for two (2) outstanding issues:

- In Observation 4, UAFCB noted that SCG incorrectly recorded program costs in 2013 amounting to \$43,853 that belonged to PY 2012. UAFCB recommended that the incentive award associated with the \$43,853 amounting to \$5,262 should be reduced when SCG files it PY 2014 incentive award advice-letter. SCG complied but contested UAFB's assertion to

remove the amount from the reported number because it believes that these are legitimate expenses. Upon additional review of the matter, UAFCB agrees.

- In Observations 7, UAFCB noted that SCG incorrectly included \$250,000 belonging to the NR program administrative costs in 2013 based on the results of its verification process. UAFCB recommended the \$250,000 should be excluded from the reported 2013 EE expenditures. SCG contested UAFB's assertion to remove the amount from the reported number because it believes that these are legitimate expenses. Upon additional review of the matter, UAFCB agrees

Recommendation: None.

Observation 23: SCG identified internal audit report #15-226 - Energy Efficiency Calculated Incentive Program (EECIP) that related to EE program activities for the PY 2014 audit period. In this internal audit report dated October 13, 2015 SCG's Audit Services conducted a review of the design and operating effectiveness of controls that support the EECIP, for the period from January 1, 2014 to June 30, 2015.

Recommendation: SCG management addressed and corrected the issues raised by Audit Services in internal audit report #15-226 by or before October 30, 2015.

UAFCB appreciates SCG's efforts in strengthening its internal controls for its EE program and recommends that SCG continue to monitor and improve its internal controls in order to prevent any future deficiencies.

B. Examination Process

UAFCB focused its examination on the areas mentioned above, based on consultation with the Energy Division, UAFCB's prior experience in examining SCG's EE Program, and the results of UAFCB's risk assessment,. Pertinent information about SCG's EE Program is found in Appendix B.

UAFCB conducted its examination in accordance with attestations standards established by the American Institute of Certified Public Accountants (AICPA), and, accordingly, included examining on a test basis, evidence concerning SCE's compliance with the requirements of the energy efficiency programs, directives of the Commission pertaining to the programs, SCG's internal policies and procedures, and generally accepted accounting principles and practices.

On May 27, 2016, UAFCB provided a draft of its analysis, observations and recommendations to SCG for comment. On June 9, 2016, SCG provided its comments. UAFCB summarized those comments, including UAFCB's rebuttal to those comments, in Appendix A. Where appropriate, UAFCB has modified its observations and recommendations. SCG's response in its entirety is provided in Appendix C.

C. Conclusion

Except for the items the UAFCB took exceptions to above, SCG demonstrated compliance with Commission directives respecting its EE Program.

If you have any questions on UAFCB's examination, please contact Kayode Kajopaiye.

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Appendix A Analysis and Findings

A.1 Introduction

The Utility Audit, Finance and Compliance Branch (UAFCB) examined Southern California Gas Company's (SCG) financial, management, regulatory, and compliance areas of the Energy Efficiency (EE) program for Program year (PY) 2014. Except for Observations (Obs.) 7, 8, 11, 16, and 19 below, SCG demonstrated compliance with Commission directives respecting the areas of its EE Program examined by the UAFCB.

This examination memo report addresses the financial, management, regulatory, and compliance aspects of EE Program for PY 2014. UAFCB's examination covered the following areas:

1. Total EE portfolio cost reconciliation to reported amounts
2. Codes and Standards Program
3. Non-Resource Program
4. EE Program Administrative Costs of SCG and Non-SCG
5. EE Balancing Accounts
6. Statewide Commercial Calculated Incentive Program
7. Statewide Industrial Calculated Incentive Program
8. Fund Shifting
9. Follow-up on Prior UAFCB's Examination Observations and Recommendations and SCG's Internal Audit Recommendations

On May 27, 2016, UAFCB provided a draft of its analysis, observations, and recommendations to SCG for comments. On June 9, 2016, SCG provided its comments to UAFCB and it summarized them, including its rebuttal to those comments, in Appendix A. Where appropriate, UAFCB has modified its observations and recommendations. SCG's response in its entirety is provided in Appendix C.

A.2 Reconciliation of Total EE Portfolio Costs to Reported Amounts

Observation 1: SCG demonstrated compliance with Public Utility (PU) code §§ 581, 582 and 584 respecting the total reported EE portfolio program costs. The total EE portfolio program expenditures recorded and reported in PY 2014, excluding Evaluation, Measurement and Verification (EM&V) costs, amounted to of \$66,070,226. A reconciliation of the total EE portfolio program expenditures reported in EEStats¹, including the Annual Report (Table 3), Quarterly reports and Monthly reports, to SCG's accounting records disclosed no exceptions.

Of the total portfolio amount indicated above, SCG reported total resource program costs of \$55,108,981 for PY 2014, of which \$4,846,321 was for administrative costs.

Criteria: Sections 581,582 and 584 require that the utility provide complete and accurate data to the Commission.

¹ The California Energy Efficiency Statistics (EEStats) – a repository of utility-submitted reports to the CPUC.

Condition: The \$66,070,226 total EE Program portfolio expenditures reported in EEStats for PY 2014 reconciled to SCG's accounting records.

Recommendation: None.

Observation 2: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the required report filings. SCG filed its Monthly, Quarterly, and Annual reports as required by the Commission. However, the Energy Division (ED) reporting templates in EEStats do not provide for annual figures of EE expenditures.

Criteria: The EE Policy Manual (R.09-11-014), Version 5, dated July 2013, Appendix D (1) (b) provides, in part, that the due date for monthly reports is the first day of the month 30 days following the month of the report, and the due date for quarterly reports is the first day of the month 60 days following the quarter of the report.² Energy Division also developed reporting templates for the use of utilities filings Monthly, Quarterly, and Annual reports.

Condition: SCG filed the required reports timely with the Commission. SCG and the other utilities continued to report cumulative expenses by the budget cycle instead of annual expenses in addition to the year-to-date numbers.

Cause: ED has not changed the reporting templates to reflect the yearly numbers.

Effect: The lack of annual figures poses reconciliation problems for the UAFCB.

Recommendation: ED should modify the Monthly, Quarterly, and Annual report templates to facilitate annual reconciliation of EE Program costs. UAFCB has made the same recommendation in its prior examination reports on EE Program.

A.3 Codes and Standards (C&S) Programs

Observation 3: SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported C&S program costs. The \$680,457 reported in the December 2014 year-to-date Monthly EEStats Report reconciled to SCG's accounting records.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$680,457 program expenditures reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records. The \$680,457 breakdown is as follows:

² On July 29, 2013, Energy Division issued a Memorandum to the IOUs in regards to the "2013-2014 Energy Efficiency Program Reporting Timeline and Guidance – Version 2." In essence, the Memo sets forth the report filing requirements for program years 2013-2014.

Cost Category	Amount
Administrative	\$ 68,637
Marketing	1,911
Direct Implementation	<u>609,909</u>
Total	<u>\$680,457</u>

UAFCB's review and judgmental sample testing of these numbers disclosed no exceptions.

Recommendation: None.

Observation 4: SCG demonstrated compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. UAFCB previously indicated that SCG incorrectly included \$9,910 in PY 2014 with the recorded Codes and Standards (C&S) program expenditures incurred in PY 2013. The amount was charged to the Direct Implementation cost category of the program.

UAFCB agrees with SCG that the \$9,910 is below its accrual policy threshold with the exception noted below.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed two December 2013 invoices for \$9,910 for services provided in PY 2013 but incorrectly reported and charged to PY 2014.

Cause: When internal controls are not adequately enforced in combination with lack of proper training and supervision of employees, recording and reporting errors can occur.

Effect: SCG over-reported the C&S Program costs by \$9,910.

SCG Comments: SCG disagrees with UAFCB's recommendation that it incorrectly included \$9,910 in PY 2014 recorded C&S program expenditures incurred in PY 2013. SCG asserts that the invoices amounting to \$9,910 did not exceed the \$10,000 threshold identified in its accrual policy. As a result, SCG contends that it complied with its accrual policy and UAFCB's recommendation should be removed.

Rebuttal: UAFCB will exercise its judgment if the aggregate amount not accrued timely is in excess of the accrual threshold.

Recommendation: None.

Observation 5: SCG's internal policy and procedures for implementing the C&S Program were adequately designed to meet Commission directives in PY 2014. SCG was in compliance with the internal C&S Program Procedures Manual V2.0 for its C&S Program.

Criteria: SCG's internal C&S Program Procedures Manual V2.0 specifies policies and procedures for implementing SCG's C&S programs in PY 2014.

Condition: SCG's C&S Program Procedures Manual V2.0 was reasonably adequate for implementing its C&S programs in accordance with Commission directives.

Recommendation: None.

A.4 Non-Resource (NR) Programs

Observation 6: Except for Observations 7 and 8 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported NR Program costs. The \$6,005,691 reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$6,005,691 reported in its December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records. The \$6,005,691 breakdown is as follows:

Cost Category	Amount
Administrative	\$1,708,818
Marketing	187,073
Direct Implementation	<u>4,109,800</u>
Total	<u>\$6,005,691</u>

UAFCB's review and sample testing of these numbers disclosed no exceptions.

Recommendation: None.

Observation 7: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$35,238 in PY 2014 the NR program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category (\$23,500) and Administrative cost category (\$11,738), respectively.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed that some invoices for consulting services of \$27,738 and another invoice of \$7,500 for professional dues was provided in PY 2013 but incorrectly reported and charged to PY 2014.

Cause: When internal controls are not adequately enforced in combination with lack of proper training and supervision of employees, recording and reporting errors can occur.

Effect: SCG over-reported its NR costs by \$35,238.

SCG Comments: SCG partially agrees with UAFCB's recommendation that \$35,238 was incorrectly included in PY 2014 recorded NR program expenditures that it incurred in PY 2013. SCG acknowledged that \$23,500 charged to the Direct Implementation cost category was incorrectly included in PY 2014 recorded NR program expenditures incurred in PY 2013. However, SCG asserts that the \$11,738 charged to the Administrative cost category be removed from UAFCB's recommendation since the individual invoices pertaining to the charges amounting to \$6,263 and \$5,475 did not meet SCG's accrual policy minimum accrual threshold of \$10,000.

Rebuttal: The UAFCB acknowledges that SCG has an established accrual policy of \$10,000 which it applied to the accounting and recording of EE expenditures during the program year. However, UAFCB takes issue with the application of the accrual threshold which it applied strictly on transaction by transaction basis without its consideration of the number of transactions and the cumulative amount relative to the program budget and the total expenses of the program.

Recommendation: SCG has since filed AL 4826-G to claim the NR Programs Management Fee incentive award for PY 2014. The management fee associated with this incorrect amount is insignificant in UAFCB's judgment but the occurrence is an internal control weakness. Therefore, UAFCB proposes no audit adjustment. However, to minimize the occurrence of these errors in the future, SCG should adhere to the accrual basis of accounting in recording and reporting EE expenditures while also continuing to strengthen its oversight over its internal controls.

Observation 8: SCG failed to demonstrate compliance with General Order (GO) 28 and the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts (USOA) respecting the NR programs. The documentation provided by SCG to substantiate recorded transactions with one of its vendors did not reconcile with the amounts contained in the signed Purchase Order (PO) agreement. The overstatement is insignificant but the occurrence is an indication of lack of sufficient oversight.

Criteria: The FERC USOA and GO 28 require that the utility preserve all records, memoranda, and papers supporting each and every entry so that this Commission may readily examine the same at its convenience.

Condition: SCG failed to maintain updated contract provisions to a signed agreement with one of its vendors resulting in the overstatement of the total signed contract amount.

Cause: SCG incorrectly recorded the agreement value in Amendment No.2 of Purchase Order (PO) which caused the ensuing Amendments to the PO to be inaccurately stated.

Effect: The agreement value of a PO was overstated by an insignificant amount but the occurrence could have been prevented if there was sufficient oversight in place. .

SCG Comments: SCG acknowledged the overstatement of the contract value and stated that on May 11, 2016, it executed a change order and contract amendment with the vendor to reduce the total contract value by \$7,500. On May 26, 2016, SCG provided a copy of Amendment No.7 of the PO, reducing the total agreement value from \$2,282,218 to \$2,274,718.

In its comments, SCG also agreed to review its existing contracting process in order to reinforce the importance of and ensure the proper oversight of contract agreements.

Rebuttal: None.

Recommendation: SCG should ensure that the provisions in signed agreements are accurately recorded in order to reduce the risk of any types of errors. SCG should strengthen its oversight over the existing contracting process.

Observation 9: The criteria used by SCG for designating EE programs as Resource and Non-Resource were in conformance with Commission directives. SCG applied the definition contained in the Energy Efficiency Policy Manual, Version 5, dated July 2013, when determining whether an EE program is classified as Resource or NR.

Criteria: The Energy Efficiency Policy Manual, Version 5, dated July 2013, defines NR programs as "Energy efficiency programs that do not directly procure energy resources that can be counted, such as marketing, outreach and education, workforce education and training, and emerging technologies."

Condition: SCG classified its EE programs as NR per the definition in the Commission's Energy Efficiency Policy Manual.

Recommendation: None.

A.5 EE Administrative Program Costs of SCG and Non-SCG

Observation 10: Except for Observation 11 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting its own reported EE Administrative costs for PYs 2013 and 2014. The \$6,615,214 for PY 2013 and \$6,221,390 for PY 2014 included in the Quarterly and Annual Reports for PYs 2013 and 2014, respectively, reconciled to SCG's accounting records.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The totals of \$6,615,214 for PY 2013 and \$6,221,390 for PY 2014 of SCG EE Administrative costs included in the Quarterly and Annual Reports reconciled to the recorded amounts in SCG's accounting records. The breakdown of \$6,615,214 for PY 2013 and \$6,221,390 for PY 2014 is as follows:

Cost Type	PY 2013	PY 2014	Total
IOU Administrative	\$6,107,998	\$5,237,498	\$11,345,496
IOU Admin Supporting TP	312,788	327,706	640,494
IOU Admin Supporting LGP	194,428	656,186	850,614
Totals	<u>\$6,615,214</u>	<u>\$6,221,390</u>	<u>\$12,836,604</u>

UAFCB's review and judgmental sample testing of these numbers disclosed no exceptions.

Recommendation: None.

Observation 11: SCG failed to demonstrate compliance with §§ 581, 582 and 584, including SCG's established accrual policy and procedures. SCG incorrectly recorded \$26,461 in PY 2014 that should have been recorded in PY 2013.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed three invoices for \$26,461 of SCG EE administrative costs for services provided in PY 2013 but incorrectly reported and charged to PY 2014.

Cause: When internal controls are not adequately enforced in combination with lack of proper training and supervision of employees, recording and reporting errors can occur.

Effect: SCE over-reported its own EE Administrative costs by \$26,461.

SCG Comments: SCG acknowledged UAFCB's recommendation and asserts that it will continue to strengthen its internal processes to ensure that program expenditures are appropriately recorded. In addition, SCG indicated that it provided training to staff on its enhanced internal accrual policy on November 13, 2015.

Rebuttal: None.

Recommendation: SCG should adhere to its own accrual basis of accounting by recording and reporting its EE expenditures.

Observation 12: SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported Non-SCG EE Administrative costs for PYs 2013 and 2014. The Non-SCG EE Administrative costs of \$1,298,767 for PY 2013 and \$752,966 for PY 2014 included in the 4th Quarter and Annual Reports for PYs 2013 and 2014, respectively, reconciled to SCG's accounting records.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The totals of \$1,298,767 for PY 2013 and \$752,966 for PY 2014 of Non-SCG Administrative costs included in the 4th Quarter and Annual Reports reconciled to recorded amounts in SCG's accounting records. The breakdown of \$1,298,767 for PY 2013 and \$752,966 for PY 2014 is as follows:

Cost Type	PY 2013	PY 2014	Total
Third Party Administrative	\$853,190	\$613,865	\$1,467,055
Local Government Partnership Admin	445,577	139,101	584,678
Totals	<u>\$1,298,767</u>	<u>\$752,966</u>	<u>\$2,051,733</u>

UAFCB's review and judgmental sample testing of these numbers disclosed no exceptions.

Recommendation: None.

A.6 EE Balancing Accounts

Observation 13: SCG demonstrated compliance with PU code §§ 381, and 399.8 (b) 1 and applicable Commission directives respecting the authorized EE balancing accounts. A review of SCG's approved Preliminary Statement for the Demand-Side Management Balancing Account (DSMBA) and the internal controls in place for recording entries in the balancing account for PY 2014 disclosed no exceptions.

Criteria: Section 381 and 399.8 (b) 1 require that the utility establish a separate rate component to collect funds that must be spent to deliver EE benefits to ratepayers in the service territory. The funds are to be collected and recorded in approved balancing accounts.

Condition: SCG collected and recorded the authorized funding amounts in the EE balancing account in a manner to reflect the program authorized budgets and projected revenue requirements for PY 2014 in accordance with Commission approved Preliminary Statements and other Commission directives.

Recommendation: None.

Observation 14: SCG's internal policy and procedures for the billing and collecting of Public Purpose Program (PPP) revenues were adequately designed to meet the Commission's approved tariff requirements. SCG's policies and procedures in place to control and monitor its accounting practices for recording and reporting of PPP revenues to the applicable EE balancing account in accordance with its Commission approved tariff requirements seem adequate.

Criteria: The Commission approved AL 4552-G, which among other things, approved the PPP surcharge rates applicable to PY 2014 and authorized budgets for 2013/2014 and EE programs.

Condition: UAFCB performed a limited review and testing of PPP revenues collected and recorded in the EE balancing account and found no material exceptions.

Recommendation: None.

A.7 Statewide Commercial Calculated Incentive (CCI) Program

Observation 15: Except for Observation 16 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported CCI Program costs. The \$4,093,436 reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$4,093,436 program expenditures in its December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records. The \$4,093,436 breakdown is as follows:

Cost Category	Amount
Administrative	\$ 377,633
Marketing	174,070
Direct Implementation	<u>3,541,733</u>
Total	<u>\$4,093,436</u>

UAFCB's review and judgmental sample testing of these numbers disclosed no exceptions.

Recommendation: None.

Observation 16: SCG failed to demonstrated compliance with PU code §§ 581, 582 and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$110,226 in PY 2014 the CCI program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category of the program.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed an invoice for \$92,287 for incentives and another invoice for \$17,939 for advertising/marketing services that should have been charged to PY 2013 but were incorrectly reported and charged to PY 2014.

Cause: When internal controls are not adequately enforced combined with lack of proper training and supervision of employees, recording and reporting errors can occur.

Effect: SCE over-reported its CCI Program costs by \$110,226.

SCG Comments: SCG acknowledged UAFCB's recommendation and asserts that it will continue to strengthen its internal processes to ensure that program expenditures are appropriately recorded. In addition, SCG indicated that it provided training to staff on its enhanced internal accrual policy on November 13, 2015.

Rebuttal: None.

Recommendation: Energy Division should exclude \$110,226 from the reported 2014 CCI program total expenditures before calculating SCG's PY 2014 Resource Program Savings Incentive award.

Observation 17: SCG's internal policy and procedures to implement its CCI Program were adequately designed to meet Commission directives. SCG was in compliance with its internal policy and procedure manuals for implementing the CCI program.

Criteria: SCG's internal policies and procedures for implementing SCG's CCI Program for years 2013-2014.

Condition: SCG's internal policies and procedures were reasonably adequate for implementing its CCI Program in accordance with Commission directives.

Recommendation: None.

A.8 Statewide Industrial Calculated Incentive (ICI) Program

Observation 18: Except for Observation 19 below, SCG demonstrated compliance with PU code §§ 581, 582 and 584 respecting the reported ICI Program costs. The \$6,796,291 reported in the December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$6,796,291 program expenditures in its December 2014 year-to-date Monthly EEStats report reconciled to SCG's accounting records. The \$6,796,291 breakdown is as follows:

Cost Category	Amount
Administrative	\$ 481,867
Marketing	153,166
Direct Implementation	<u>6,161,258</u>
Total	<u>\$6,796,291</u>

UAFCB's review and judgmental sample testing of these numbers disclosed no exceptions.

Recommendation: None.

Observation 19: SCG failed to demonstrate compliance with PU code §§ 581, 582 and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$13,120 in PY 2014 the ICI program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category of the program.

Criteria: Section 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed an invoice of \$13,120 for consulting services that should have been charged to PY 2013 was incorrectly reported and charged to PY 2014.

Cause: When internal controls are not adequately enforced combined with lack of proper training and supervision of employees, recording and reporting errors can occur.

Effect: SCE over-reported its ICI Program costs by \$13,120.

SCG Comments: SCG agreed with UAFCB's recommendation that \$13,120 charged to the Direct Implementation cost category was incorrectly included in PY 2014 recorded ICI program expenditures incurred in PY 2013.

In addition, SCG asserts that it will continue to strengthen its internal processes to ensure that program expenditures are appropriately recorded. SCG also indicated that it provided training to staff on its enhanced internal accrual policy on November 13, 2015.

Rebuttal: None.

Recommendation: Energy Division should exclude the \$13,120 from the reported 2014 ICI Program total expenditures before calculating SCG's PY 2014 Resource Program Savings Incentives award.

Observation 20: SCG's internal policy and procedures to implement its ICI Program were adequately designed to meet Commission directives. SCG was in compliance with its internal policy and procedure manuals for implementing the ICI Program.

Criteria: SCG's internal policies and procedures manuals for implementing SCG's ICI Program.

Condition: SCG's internal policies and procedural manuals for the ICI Program were reasonably adequate for implementing the program in accordance with Commission directives.

Recommendation: None.

A.9 Fund Shifting

Observation 21: SCG demonstrated compliance with PU code §§ 581, 582, and 584, the EE Policy Manual, and its internal policies on procedures respecting the fund shifting activities in PY 2014. SCG's EE program fund shifting activities in PY 2014 did not exceed the annual thresholds specified in Appendix C of the EE Policy Manual. Therefore, SCG was not required to file ALs with the Commission about fund shifting. SCG was in compliance with the Commission's funding shifting requirements in PY 2014.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission. Appendix C of the EE Policy Manual specifies the Commission's adopted fund shifting rules.

Condition: SCG complied with the fund shifting rules concerning EE program categories and annual thresholds specified in the EE Policy Manual. Therefore, SCG was not required to file ALs with the Commission about its fund shifting activities.

Recommendation: None.

A.10 Follow-up on Prior UAFCB's Examination Observations and Recommendations and SCG's Internal Audit Recommendations

Observation 22: SCG addressed and implemented UAFCB's audit recommendations specified in UAFCB's Audit Memo Report for the 2013 EE Program examination, except for the following:

- In Observation 4, UAFCB noted that SCG incorrectly recorded program costs in 2013 amounting to \$43,853 that belonged to PY 2012. UAFCB recommended that the incentive award associated with the \$43,853 amounting to \$5,262 should be reduced when SCG files its PY 2014 incentive award advice-letter. SCG complied but contested UAFCB's assertion to remove the amount from the reported number because it believes that these are legitimate expenses. Upon additional review of the matter, UAFCB agrees.
- In Observations 7, UAFCB noted that SCG incorrectly included \$250,000 belonging to the NR program administrative costs in 2013 based on the results of its verification process. UAFCB recommended the \$250,000 should be excluded from the reported 2013 EE expenditures. SCG contested UAFCB's assertion to remove the amount from the reported number because it believes that these are legitimate expenses. Upon additional review of the matter, UAFCB agrees.

Recommendation: None.

Observation 23: SCG identified internal audit report #15-226 - Energy Efficiency Calculated Incentive Program (EECIP) that related to EE program activities for the PY 2014 audit period. In this internal audit report dated October 13, 2015 SCG's Audit Services conducted a review of the design and operating effectiveness of controls that support the EECIP, for the period from January 1, 2014 to June 30, 2015.

Criteria: In internal audit report #15-226, SCG's Audit Services concluded the following:

- Management does not consistently document the monthly review of reports used to monitor budget to actual expenditures related to EE programs.

- The accrual method used for EECIP incentive payments to customers is not formalized or documented to ensure consistency and compliance with applicable Sempra Energy policies.
- Shared employee labor expenses allocated to the EECIP are not consistently reviewed. In addition, the process to manage and allocated shared employee cell phone costs to EECIP is not documented.
- IT management does not periodically recertify appropriateness of users with privileged access to the servers supporting the SAP Customer Relationship Management (CRM) system.

Condition: SCG provided the UAFCB with a status update and supporting documentation on management's corrective actions in implementing the findings and recommendations in internal audit report #15-226 during the 2014 audit period.

Recommendation: SCG management addressed and corrected the issues raised by Audit Services in internal audit report #15-226 by or before October 30, 2015.

UAFCB appreciates SCG's efforts in strengthening its internal controls for its EE program and recommends that SCG continue to monitor and improve its internal controls in order to prevent any future deficiencies.

Appendix B Program Compendium

B.1 Introduction

On November 8, 2012, the California Public Utilities Commission (Commission) issued Decision (D.) 12-11-015 which, among other things, authorized Southern California Gas Company (SCG) a total budget of \$178.7 million in ratepayer funds to administer and implement its Energy Efficiency (EE) programs for the years 2013-2014. This amount represents about 9% of the total \$1.9 billion EE program budget for the four major Investor-Owned Utilities (IOUs) for the 2013 - 2014 EE budget cycle. In addition, this decision also approved programs and budgets for two regional energy networks (RENs) and one community choice aggregator (CCA). D.12-11-015 also sets energy savings goals, established cost-effectiveness requirements, and required the IOUs to allocate unspent funds from previous program cycles towards their 2013-2014 budgets.

On October 16, 2014, the Commission issued D.14-10-046 which, among other things, extended the 2013-2014 EE program cycle for an additional year to 2013-2015. The decision authorized SCG a total budget of \$83.6 million, including \$3.2 million in EM&V, in ratepayer funds to administer and implement the EE program for PY 2015. This represents about 9% of the approximate total \$962 million in EE program budget for all four IOUs for the same period.

B.2 EE Funding Components

Of the \$182.7 million total authorized portfolio budget for program cycle 2013-2014, \$175.4 million of the funds is to administer and implement SCG's EE programs and the remaining \$7.3 million is dedicated to fund the Evaluation, Measurement and Verification (EM&V) portion of the program portfolio. Excluding EM&V, SCG spent a combined \$118.1 million or \$64.6 million less than its authorized budget for the same period. A summary detailing SCG's ratepayer funded total authorized EE portfolio budget against actual expenditures for program years (PY) 2013 and 2014 by major program area is provided in Table B-1 below.

Table B-1
Summary of Ratepayer Funded EE Programs
For the Period Ending: January 1, 2013 – December 31, 2014

Program Area	Authorized Budget	Actual Expenditures			%
		2013	2014	Total	
Resource Programs	\$108,234,758	\$28,837,741	\$41,573,701	\$ 70,411,442	
Other Resource Programs	43,323,983	16,196,771	14,215,736	30,412,507	
Non-Resource Programs	10,819,091	5,514,127	6,005,692	11,519,819	
Regional Energy Networks	<u>9,052,166</u>	<u>1,244,787</u>	<u>2,689,196</u>	<u>3,933,983</u>	
Subtotal	\$171,429,998	\$51,793,426	\$64,484,325	\$116,277,751	
Statewide ME&O	<u>4,004,068</u>	<u>273,118</u>	<u>1,585,901</u>	<u>1,859,019</u>	
Total All Programs	\$175,434,066	\$52,066,544	\$66,070,226	\$118,136,770	67.3%
EM&V	<u>7,301,624</u>	<u>407,221</u>	<u>719,976</u>	<u>1,127,197</u>	
Grand Total	<u>\$182,735,690</u>	<u>\$52,473,765</u>	<u>\$66,790,202</u>	<u>\$119,263,967</u>	65.3%

UAFCB provides background information of the areas it examined from sections B-3 to B-10. Section B-11 contains prior examination report follow-up responses, including SCG internal audit findings related to the EE programs during the examination period.

B.3 Reconciliation of Total EE Portfolio Costs to Reported Amounts

SCG uses the System Application and Products (SAP) software as its accounting system of record. All financial transactions are recorded in SAP and EE related financial data is extracted from SAP for CPUC reporting purposes. Starting in 2013, SCG enhanced its accounting procedures to track EE costs associated with the three major cost categories – Administrative, Marketing/Advertising/Outreach, and Direct Implementation. In 2013, SCG began using specific internal orders (IOs) for each EE budget category, resulting in a minimum of three IOs for each program or sub-program. Costs applicable solely to a specific EE program are directly charged to that EE program. Other costs applicable to EE programs include overhead costs allocated among EE programs using the internal ordering system.

SCG reported all portfolio expenses in Table 3 of the Annual Report filed with the Commission. The Annual Report includes EE portfolio costs by three cost categories – Administrative, Marketing/Advertising/Outreach, and Direct Implementation. A summary of EE portfolio expenditures, excluding EM&V, by major cost category and the proportion to total expenses for PYs 2013 and 2014 is provided in Table B-2 below.

Table B-2
Summary of EE Portfolio Expenditures by Cost Category – 2013 and 2014
(Excluding EM&V)

Cost Category	2013	2014	Total	%
Administrative	\$ 7,753,354	\$ 6,914,666	\$ 14,668,020	12%
Marketing/Advertising/Outreach	4,008,300	6,621,718	10,630,018	9%
Direct Implementation	<u>40,304,890</u>	<u>52,533,842</u>	<u>92,838,732</u>	<u>79%</u>
Total	<u>\$52,066,544</u>	<u>\$66,070,226</u>	<u>\$118,136,770</u>	100%

B.4 Codes and Standards Program

The Statewide Codes and Standards (C&S) Program saves energy by: 1) Influencing standards and code-setting bodies (such as the California Energy Commission) to strengthen energy efficiency regulations, 2) Improving compliance with existing codes and standards, 3) Assisting local governments to develop ordinances that exceed statewide minimum requirements, and 4) Coordinating with other programs and entities to support the state's ambitious policy goals.¹

The primary mission of the C&S program is on advocacy and compliance improvement activities that extend to virtually all buildings and potentially any appliance in California. These C&S activities mainly focus on California Title 20 and Title 24, Section 5 enhancements. The C&S program requires 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. The C&S program also seeks to influence the United States Department of Energy (DOE) in setting national energy policy that impacts California. At SCG, the C&S program consists of five subprograms: 1) Building Codes and Compliance Advocacy, 2) Appliance Standards Advocacy, 3) Compliance Improvement, 4) Reach Codes, and 5) Planning and Coordination.

The total C&S program budget for the 2013-2014 EE program cycle is \$1,674,228 approved by the Commission's Energy Division on June 30, 2015 in Compliance Filing Advice Letter 4826-G. A summary of the approved C&S program budget for the 2013-2014 EE program cycle by subprogram and the proportion to total budget is provided in the table that follows.

Table B-3
SCG 2013-2014 C&S Program Budget

C&S Program Name	2013-2014 Approved Budget	% to Total C&S Budget
Building Codes and Compliance Advocacy	\$ 417,252	25%
Appliance Standards Advocacy	332,773	20%
Compliance Improvement	499,128	30%
Reach Codes	169,652	10%
Planning and Coordination	<u>255,423</u>	<u>15%</u>
Total 2013-2014 C&S Budget	<u>\$1,674,228</u>	<u>100%</u>

In PY 2014, SCG spent \$680,457, or 41% of its approved C&S program budget for the 2013-2014 EE program cycle. A detailed summary of the C&S program charges recorded by subprogram, cost category and the proportion to total expenses for PY 2014 is provided in the table below.

¹ Fact Sheet, "Statewide Codes and Standards Program (2013-2014)," March 2013, p. 1, Codes and Standards Support at <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/>

Table B-4
Actual SCG C&S Program Expenditures - 2014

Program Name	Admin.	Mktg.	DI	Total	%
Building Codes and Compliance Advocacy	\$22,977		\$224,119	\$247,096	36%
Appliance Standards Advocacy	8,242		40,514	48,756	7%
Compliance Improvement	23,034		307,186	330,220	49%
Reach Codes	1,254	1,911	11,400	14,565	2%
Planning and Coordination	<u>13,130</u>		<u>26,690</u>	<u>39,820</u>	<u>6%</u>
Total	<u>\$68,637</u>	<u>\$1,911</u>	<u>\$609,909</u>	<u>\$680,457</u>	<u>100%</u>

Pursuant to D.13-09-023, OP 4, SCG filed Advice Letter (AL) 4826-G on June 30, 2015 for requesting C&S programs incentive award for program year 2014 in the form of a management fee equal to 12% of approved C&S program expenditures, not to exceed authorized expenditures, and excluding administrative costs. SCG requested \$73,418. A summary detailing SCG's calculation of its C&S Management Fee is provided in the table below.

Table B-5
C&S Management Fee Calculation - 2014

Description	Amount
Total C&S Program Expenditures	\$680,457
Less: C&S Administrative Costs	<u>68,637</u>
Subtotal	\$611,820
Multiplied by 12%	<u>12%</u>
C&S Management Fee – PY2014	<u>\$ 73,418</u>

B.5 Non-Resource Program

Non-Resource programs represent energy efficiency (EE) activities that do not focus on displacement of supply-side resources at the time they are implemented, but may lead to displacement over a longer-term, or may enhance program participation overall. Non-Resource programs in themselves do not provide direct energy savings and only have costs, making them not cost-effective on their own.²

To date, there are no specific criteria for determining whether a particular EE program is to be classified as Resource or NR EE program for each IOU. SCG classified its EE programs as NR based on the definition contained in the Energy Efficiency Policy Manual, Version 5, dated July 2013. This defines Non-Resource Program as “Energy efficiency programs that do not directly procure energy resources that can be counted, such as marketing, outreach and education, workforce education and training, and emerging technologies.”

In 2014, SCG identified eight (8) EE programs as Non-Resource with recorded charges totaling \$6,005,691. A detailed summary of Non-Resource EE program charges recorded by program and cost category for PY 2014 is provided in the table below.

² D.13-19-023, Findings of Fact 10, p. 88

Table B-6
Actual SCG Non-Resource Program Expenditures - 2014

Program Name	Admin.	Mktg.	DI	Total
Technology Development Support	\$ 8,271	\$ 1,745	\$ 147,689	\$ 157,705
Technology Assessments	233,846		590,596	824,442
Technology Introduction Support	82,702		328,102	410,804
WE&T Centergies	196,409	168,137	2,361,855	2,726,401
WE&T Connections	19,261		377,729	396,990
WE&T Strategic Plan	3,504		55,345	58,849
IDS&M Inte. Demand-Side Mgmt.	3,047	17,191	257,986	278,224
Customer Relationship Mgmt. (CRM)	<u>1,161,778</u>		<u>-9,502</u>	<u>1,152,276</u>
Total Non-Resource Programs	<u>\$1,708,818</u>	<u>\$187,073</u>	<u>\$4,109,800</u>	<u>\$6,005,691</u>

Pursuant to D.13-09-023, OP 4, SCG filed Advice Letter (AL) 4826-G on June 30, 2015 requesting Non-Resource programs incentive award for PY 2014 equal to 3% of approved Non-Resource program expenditures, not to exceed authorized expenditures, and excluding administrative costs. SCG requested \$128,906. A summary detailing SCG's calculation of its Non-Resource Management Fee is provided in the table below.

Table B-7
Non-Resource Management Fee Calculation - 2014

Description	Amount
Total Non-Resource Program Expenditures	\$6,005,691
Less: Non-Resource Program Administrative Costs	<u>1,708,818</u>
Subtotal	\$4,296,874
Multiplied by 3%	<u>3%</u>
Non-Resource Management Fee – PY2014	<u>\$ 128,906</u>

B.6 EE Administrative Program Costs of SCG and Non-SCG

Administrative costs incurred by SCG for the direct implementation of the EE programs are classified as investor owned utilities (IOU) and Non-IOU Administrative costs. IOU Administrative costs include labor (management, clerical/technical and agency), employee travel, consulting services and other services provided by contractors, materials, vacation and sick leaves, payroll taxes and allocated overhead. Also included in SCG's administrative costs are charges for services cross-billed by San Diego Gas & Electric (SDG&E). These include labor, payroll taxes, leaves, pension and benefits. Non-IOU administrative costs are incurred by Third Party (TP) contractors as well as government agencies participating in Local Government Partnership (LGP) programs. These entities are the major implementers of the programs beside SCG.

The Commission placed a cap of 10% on utility administrative costs. D.09-09-047, Ordering Paragraph 13.a, states that "*Administrative costs for utility energy efficiency programs (excluding third party and/or local government partnership budgets) are limited to 10% of total energy efficiency budgets...*" And according to D.09-09-047, p 63, *the Commission directs the utilities to seek to achieve a 10% administrative cost target for third party and local government partnership direct costs (i.e., separate from utility costs to administer these programs).*

At this time, the UAFCB did not determine whether SCG complied with the 10% administrative cost cap and target for PY's 2013-2014 due to D.14-10-046, dated October 16, 2014. In D.14-10-046, Finding of Fact (FOF) 29, page 152, the Commission stated that program year 2015 should be treated as a third year or 2013-2015 program cycle. Furthermore, in D.14-10-046, Ordering Paragraph (OP) 21, page 167, the Commission ordered that the existing EE program funding shall be extended annually through 2015 at the levels approved in this decision.

For PYs 2013 and 2014, SCG spent a cumulative total of \$14.9 million in EE Administrative expenses for its IOU, TP and Local Government programs. A summary detailing SCG's IOU, TP, and LGP administrative costs for PYs 2013-2014, and the proportion to total administrative costs is provided in the table below.

Table B-8
SCG EE Administrative Cost Expenditures
Examination Period: January 1, 2013 - December 31, 2014
(Excluding EM&V)

Admin. Cost Type	2013	2014	Total	%
SCG Admin. Exp.	\$6,615,214	\$6,221,390	\$12,836,604	86%
TP Admin. Exp.	853,190	616,865	1,470,055	10%
Local Admin. Exp.	<u>445,577</u>	<u>139,101</u>	<u>584,678</u>	<u>4%</u>
Totals	<u>\$7,913,981</u>	<u>\$6,977,356</u>	<u>\$14,891,337</u>	<u>100%</u>

A detailed summary of SCG's IOU Administrative costs for PYs 2013 and 2014 by cost type and their proportion to total expenses is provided in tables B-9 and B-10 below.

Table B-9
IOU Admin Expenses – Program Year 2013

Cost Category	Amount	%
IOU Admin	\$6,107,998	92%
IOU Admin Supporting TP	312,788	5%
IOU Admin Supporting LGP	<u>194,428</u>	<u>3%</u>
Total 2013 IOU Admin Expenditures	<u>\$6,615,214</u>	<u>100%</u>

Table B-10
IOU Admin Expenses – Program Year 2014

Cost Category	Amount	%
IOU Admin	\$5,237,498	84%
IOU Admin Supporting TP	327,706	5%
IOU Admin Supporting LGP	<u>656,186</u>	<u>11%</u>
Total 2013 IOU Admin Expenditures	<u>\$6,221,390</u>	<u>100%</u>

A detailed summary of SCG's Non-IOU Administrative costs for PYs 2013 and 2014 by cost type and their proportion to total expenses is provided in the tables B-11 and B-12 below.

Table B-11
Non-SCG Admin Expenses – Program Year 2013

Cost Category	Amount	%
Third Party Admin	\$ 853,190	66%
Local Government Partnership Admin	<u>445,577</u>	<u>34%</u>
Total 2013 Non-IOU Admin Expenditures	<u>\$1,298,767</u>	<u>100%</u>

Table B-12
Non-SCG Admin Expenses – Program Year 2014

Cost Category	Amount	%
Third Party Admin	\$613,865	82%
Local Government Partnership Admin	<u>139,101</u>	<u>18%</u>
Total 2013 Non-IOU Admin Expenditures	<u>\$752,966</u>	<u>100%</u>

B.7 EE Balancing Accounts

Regulatory accounts such as balancing accounts authorized by the Commission are where authorized rate revenues are recorded against expenses. The resulting balance could be under or over collection. The balances in these accounts collect interest monthly. Balances in balancing accounts are amortized in rates.³

Assembly Bill (AB) 1002 directs the Commission to establish a gas surcharge annually to fund the following gas related public purpose programs (PPP): Energy Efficiency, low-income assistance program such as California Alternate Rates for Energy (CARE) and Energy Savings Assistance (ESA), and research and development (R&D). Revenues collected from the surcharge are remitted to the State Board of Equalization (BOE), and are ultimately appropriated back to SCG.

SCG maintains the Demand Side Management Balancing Account (DSMBA) for the Energy Efficiency program funded by the above-described PPP surcharge. The DSMBA is an interest-bearing balancing account that records actual EE and On-Bill Financing program costs and actual program revenues billed, including the quarterly remittances to and reimbursements of program revenues to the State Board of Equalization (BOE).

SCG's PPP surcharges are applicable to all gas sales and transportation services rendered under all tariff rate schedules authorized by the Commission. Customers in SCG's service territory are issued a gas PPP surcharge as a separate line item on their bills unless they are identified as exempt.

In Advice Letter (AL) 4552-G, the Commission approved SCG's PPP Surcharge rates applicable to PY 2014. A summary of SCG's Commission-approved PPP Surcharge rates applicable to PY 2014 are provided in the table below.

³ Data response to DR-001, Questions 27 and 28 (Description of SCG's Balancing Accounts)

Table B-13
SCG's PPP Surcharge for all service, per meter, per month

Customer Class	CARE Customer (cent/therm)	Non-CARE Customer (cent/therm)
Core - Residential	6.098	8.504
Core - Commercial/Industrial	3.102	5.508
Core - Air Conditioning	3.286	5.692
Core - Gas Engine	N/A	5.366
Core - Natural Gas Vehicle	N/A	2.406
Non-Core Commercial/Industrial	N/A	2.734

Generally, SCG's service is provided to two classes of customers, Core and non-core.

1. Core customers are primarily (1) residential and (2) small commercial and industrial customers, without alternate fuel capability.
2. Non-core customers are primarily (1) large commercial and industrial customers with alternate fuel capability, (2) utility electric generation, (3) cogeneration, (4) enhanced oil recovery, and (5) wholesale customers.⁴

Billed PPP Surcharge revenues are coded with the charge types PPP and PPC (PPPCARE) in SCG's billing system in order to track the revenues collected from CARE and non-CARE customers separately. SCG's Regulatory Accounts Department maintains a PPP Surcharge Revenue Allocation spreadsheet which categorizes billed PPP revenues, net of bad debt, by customer class and CARE versus non-CARE. The revenues are further allocated among the other PPP programs using allocation factors derived from the proportion of each program's authorized revenue requirement for each customer class.⁵

B.8 Statewide Calculated Incentive Program

The statewide Commercial Calculated Incentive (CCI) program provides customers technical and calculation assistance, and incentives based on calculated savings, to influence the design and installation of energy efficiency equipment and systems in both retrofit and added load applications.

The CCI Program is utilized for projects where a rebate is not available through the Statewide Deemed Program and where project conditions require customized calculations to provide most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling.⁶

In 2014, SCG incurred charges totaling \$4,093,436 for its CCI Program. A detailed summary of charges by cost category and the proportion to total expenses for PY 2014 is provided in the table below

⁴ SCG's AL-4061 Preliminary Statement Part 1 General Service Information – Description of Service

⁵ Data response to DR-001, Q32 (Description of SCG's process and procedures for distributing the monthly billed gas revenue to PPPs)

⁶ Data response to DR-001, Q37 (Description of SCG's CCI program)

Table B-14
SCG Commercial Calculated Incentive Program Expenditures - 2014

Cost Category	Amount	%
Administration	\$ 377,633	9%
Marketing	174,070	4%
Direct Implementation	<u>3,541,733</u>	<u>87%</u>
Total CCI Program Expenditures	<u>\$4,093,436</u>	<u>100%</u>

B.9 Statewide Industrial Calculated Incentive Program

The purpose of the Statewide Industrial Calculated Incentive (ICI) Program is to provide services to improve 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 retro-commissioning.

The ICI Program is a subprogram within the Statewide Industrial Energy Efficiency Programs. The ICI Program is utilized for projects where a rebate is not available through the Statewide Deemed program, where project conditions require customized calculations to provide most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling.⁷

In PY 2014, SCG incurred charges totaling \$6,796,291 for its ICI Program. A detailed summary of charges by cost category and the proportion to total is provided in the table below.

Table B-15
SCG Industrial Calculated Incentive Program Expenditures – 2014

Cost Category	Amount	%
Administration	\$ 481,867	7%
Marketing	153,166	2%
Direct Implementation	<u>6,161,258</u>	<u>91%</u>
Total ICI Program Expenditures	<u>\$6,796,291</u>	<u>100%</u>

B.10 Fund Shifting

Per Decision (D.) 12-11-015, Opinion Paragraph (OP) 10, the existing fund shifting rules⁸ are to be applied to the following categories of programs for the IOUs:⁹

- a. Statewide residential
- b. Statewide commercial
- c. Statewide agricultural
- d. Statewide industrial

⁷ Data response to DR-001, Q47 (Description of SCG's ICI program)

⁸ This is made in reference to fund shifting rules in D.09-09-047, OP 43(b) and Ruling (R.) 09-11-014, "Assigned Commissioner's Ruling Clarifying Fund Shifting Rules and Reporting Requirements," dated December 22, 2011.

⁹ D.12-11-015, OP 20, pp. 135-136

- e. Statewide lighting
- f. Statewide codes and standards
- g. Statewide emerging technologies
- h. Statewide workforce, education, and training
- i. Statewide marketing, education, and outreach
- j. Statewide integrated demand-side management
- k. Statewide financing
- l. Third party programs (competitively bid)
- m. Local government partnerships
- n. Other

Generally, fund shifts among the fourteen program categories exceeding 15% require a filing of an AL with the Commission. However, there are a few exceptions in that filing of an AL is required when fund shifts would reduce the following statewide programs by more than 1% of their respective budget levels:

- 1) Codes & Standards (C&S) program;
- 2) Emerging Technology (ET) program; and
- 3) Marketing Education & Outreach (ME&O) program

SCG executed a total of 18 fund shifts totaling \$4,483,872 in PY 2014 that included shifts among program categories and within the same program categories.

B.11 Follow-up on UAFCB's Prior Examination Observations and Recommendations and SCG's Internal Audit Recommendations

UAFCB performed a follow-up examination on each observation and recommendation included in its prior report entitled, *Financial, Management, Regulatory, and Compliance Examination Report on Southern California Gas Company's (SCG's) Energy Efficiency (EE) Program for the Period January 1, 2013 through December 31, 2013*, issued on June 30, 2015.¹⁰

UAFCB reviewed prior observations and recommendations pending corrective action by SCG which included the following:

- **Observation 4: SCG failed to demonstrate compliance Public Utility (PU) code §§ 581, 582 and 584, including SCG's established accrual policy and procedures.** SCG incorrectly recorded in program year 2013 the direct implementation costs of \$43,853 or 19% of the total C&S program expenditures that belonged to program year 2012.

Recommendation: The Energy Division should reduce the C&S incentive award by \$5,262 when the true-up filing and 2014 awards are processed. Also, SCG should strengthen its oversight over the existing accrual system as indicated in its response date June 15, 2015 to the draft memo report.

¹⁰ Refer to Southern California Gas Company's 2013 Energy Efficiency Program Examination Report that is available in its entirety at the following link:
<http://www.cpuc.ca.gov/General.aspx?id=1414>

- **Observation 7: SCG failed to demonstrate compliance with PU code §§ 581, 582 and 584 and its established accrual policies and procedures.** SCG incorrectly reported in program year 2013 the administrative costs of \$250,000, or 4.3% of total NR program costs of \$5,764,129, that belonged to program year 2012.

Recommendation: The \$250,000 should be excluded from the reported 2013 EE expenditures. SCG should provide the evidence of the correction to the Director of DWA 30 days after the date of this memo report. Also, SCG should strengthen the oversight over the existing accrual system as indicated in its response dated June 15, 2015 to the draft report.

UAFCB Follow-Up: In a letter dated July 30, 2015, SCG specifically addressed this Observation 7 and provided a copy of Advice Letter (AL) 4826-G as evidence of corrective action to this observation and recommendation. In AL 4826-G, page 8, it stated the following:

“As a result, SoCal Gas removes \$250, 00 in administrative expenditures from the Non-Resource Program Management Fee. Since the ESPI does not provide a management fee incentive on administrative costs, there is no earnings adjustment.”

By email, on August 12, 2015, the UAFCB communicated to SCG that the steps necessary for a complete corrective action is for SCG to remove the costs associated with Observations 4 and 7 from (1) the 2013 EEStats report and (2) applicable EE balancing account.

On October 8, 2015, SCG also provided a letter to the Director of the Division of Water and Audits indicating that SCG has conducted a further review of UAFCB's findings regarding to Observations 4 & 7 and determined that the costs are appropriate EE program expenses and therefore should remain in the applicable balancing account.

For Observation 4, SCG reduced its PY 2014 C&S incentive award amount by \$5,262 in accordance with UAFCB's recommendation in AL 4826-G filed on June 30, 2015. In addition, SCG provided the UAFCB with its revised accrual policy effective October 2015 and evidence that it provided training on its revised accrual policy on November 13, 2015.

For Observation 7, the UAFCB requested that SCG explain (1) how it removed the \$250,000 in Non-Resource program administrative expenditures from PY 2013, and (2) how SCG corrected the reporting of the \$250,000 in PY's 2012 and 2013 for regulatory reporting purposes. In its response on April 20, 2016, SCG stated the following:

“For the purposes of the Non-Resource Management Fee component for the ESPI, SoCal Gas manually removed the \$250,000 in administrative costs. Given that the administrative costs are not included in the ESPI Non-Resource Program Management Fee calculation, there was no impact to SoCal Gas' EE incentive award.”

SCG's Internal Audit Recommendations

In addition, the UAFCB requested that SCG provide a copy of any internal audit reports that were issued affecting the utilities EE program activities for the 2014 audit period and related management responses.

In response, SCG identified internal audit report 15-226 Southern California Gas Company - Energy Efficiency Calculated Incentive Program (EECIP) that affected its EE program activities for the 2014 audit period. In this internal audit report dated October 13, 2015 SCG's Audit Services Department concluded the following:

- Management does not consistently document the monthly review of reports utilized to monitor actual expenditures related to EE programs.
- The accrual method used for EECIP incentive payments to customers is not formalized or documented to ensure consistency and compliance with Sempra Energy policies.
- Shared employee labor expenses allocated to the EECIP are not consistently reviewed.
- IT management does not periodically recertify the appropriateness of users with privileged access to servers supporting the SAP Customer Resource Management (CRM) system.

SCG provided the UAFCB with updates on management's corrective actions on the findings and recommendations contained in the internal audit report identified above and all corrective actions were completed by or before October 30, 2015.

Appendix C SCG Comments



Daniel J. Rendler
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June 9, 2016

Mr. Kayode Kajopaiye
CPUC Utility Audit, Finance & Compliance Branch
505 Van Ness Avenue
San Francisco, CA 94102

Re: SoCalGas Comments on Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency Programs For the Period January 1, 2014 through December 31, 2014

Dear Mr. Kajopaiye,

Southern California Gas Company (SoCalGas) has reviewed the Draft Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency (EE) Programs For the Period January 1, 2014 through December 31, 2014 (Report) prepared by the Utility Audit, Finance and Compliance Branch (UAFCB). SoCalGas hereby provides the following comments.

UAFCB Observation 4

SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included in the 2014 recorded C&S program expenditures \$9,910 incurred in 2013. The amount was charged to the 2014 C&S program expenditures as part of the Direct Implementation cost category.

SoCalGas Response to Observation 4

The Codes & Standards (C&S) invoice in the amount of \$9,910 did not exceed \$10,000, which is the threshold identified by SoCalGas' accrual policy as the amount whereby all work performed need be accrued. As a result, SoCalGas complied with its accrual policy and the recommendation should be removed.

UAFCB Observation 7

SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly

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June 10, 2016
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included in the 2014 recorded NR program expenditures \$35,500 incurred in 2013. The amount was charged to the 2014 recorded NR program expenditures as part of the Direct Implementation cost category (\$23,500) and Administrative cost category (\$11,738), respectively.

SoCalGas Response to Observation 7

Of the invoices identified in the recommendation, SoCalGas acknowledges that \$23,500 related to the Direct Implementation cost category should have been accrued in 2013. However, the \$11,738 in expenditures related to the Administrative cost category (Invoice #1 - \$6,262.50 and Invoice #2 - \$5,475.00) were not required to be accrued since each invoice did not meet the established SoCalGas accrual policy's minimal accrual threshold of \$10,000 per transaction. As a result, the \$11,738 in expenditures should be removed from the recommendation.

UAFCB Observation 8

SCG failed to demonstrate compliance with General Order (GO) 28 and the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts (USOA) respecting the NR programs. The documentation provided by SCG to substantiate recorded transactions with one of its vendors did not reconcile with the amounts contained in the signed Purchase Order (PO) agreement #5660026643. The recorded agreement amount in PO #5660026643 was overstated by \$7,500.

SoCalGas Response to Observation 8

SoCalGas acknowledges the overstatement of the contract value for PO#5660026643 by \$7,500. On May 11, 2016, SoCalGas executed a change order and contract amendment to reduce the contract value by \$7,500. SoCalGas will review the existing contracting process and reinforce the importance of and ensure the proper oversight of contract agreements.

UAFCB Observation 11

SCG failed to demonstrate compliance PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included in 2014 recorded EE Administrative program expenditures \$26,461 that incurred in 2013. The amount was charged to the 2014 recorded administrative expenditures as part of the Administrative cost category.

SoCalGas Response to Observation 11

SoCalGas acknowledges the recommendation and continuously seeks to strengthen its internal processes to ensure that program expenditures are appropriately recorded. On November 13, 2015, SoCalGas provided training to staff on an enhanced internal accrual policy.

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UAFCB Observation 16

SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included in the 2014 recorded CCI program expenditures \$110,266 that incurred in 2013. The amount was charged to the 2014 recorded CCI program expenditures as part of the Direct Implementation cost category.

SoCalGas Response to Observation 16

SoCalGas acknowledges the recommendation and continuously seeks to strengthen its internal processes to ensure that program expenditures are appropriately recorded. On November 13, 2015, SoCalGas provided training to staff on an enhanced internal accrual policy.

UAFCB Observation 19

SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included in the 2014 recorded ICI program expenditures \$13,120 that incurred in 2013. The amount was charged to the 2014 recorded ICI Program expenditures as part of the Direct Implementation cost category.

SoCalGas Response to Observation 19

SoCalGas acknowledges that \$13,120 ICI Program related to Direct Implementation cost category should have been accrued in 2013 as it met SoCalGas' minimal accrual threshold of \$10,000 per transaction. See comment in response to Observation 11 regarding strengthening training on accrual practices.

If you have any questions or require additional information regarding these comments, please do not hesitate to contact me.

Sincerely,

/s/ Daniel J. Rendler

Daniel J. Rendler
Director, Customer Programs and Assistance

Cc: S.Patrick
J. Pong
E.Baires
D.Hanway
Central Files
B.Ayanruoh
K.Nakamura
K.Du

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-21

SOCALGAS EXHIBIT

UAFCB Energy Efficiency Audit, Southern California Gas Company Program Year 2015



Memorandum

Date: July 31, 2017

To: Timothy J. Sullivan
Executive Director

From: Public Utilities Commission—
San Francisco

Kayode Kajopaiye, Chief
Utility Audit, Finance and Compliance
Branch

A handwritten signature in black ink, appearing to read "Kajopaiye".

Subject: Financial, Management, Regulatory, and Compliance Examination Report on Southern California Gas Company's (SCG's) Energy Efficiency (EE) Program For the period January 1, 2015 through December 31, 2015

The Utility Audit, Finance and Compliance Branch (UAFCB) examined Southern California Gas Company's (SCG's) financial, management, regulatory, and compliance areas of the Energy Efficiency (EE) program for program year (PY) 2015. Except for matters discussed in Observations (Obs.) 4, 6, 14, 17, and 33 below, SCG demonstrated compliance with Commission directives respecting the areas examined. However, UAFCB found that SCG overstated its 2015 recorded expenditures used for calculating the Management Fee Incentive awards for Codes & Standards (C&S) and Non-Resource Programs by a total of \$177,411 (\$45,360 and \$132,051, respectively) as indicated in Obs. 14 and 17. The Energy Division (ED) should not include \$177,411 in the calculation of the incentive awards for these programs in PY 2015. UAFCB is concerned that there is no clear guidance from the Commission for the calculation of the administrative cost cap requirement based on the EE program portfolio budget. There are different interpretations and applications of its decision in practice by the utilities. The details of these and other observations are provided in Appendix A.

UAFCB conducted this examination pursuant to Ordering Paragraph (OP) 17 of Decision (D.) 13-09-023.¹ The scope of the EE examination includes: (1) Total EE Program Year (PY) 2015 Cost Reconciliation; (2) 2013-2015 EE Program Cycle Investor Owned Utility (IOU) Administrative Costs; (3) 2013-2015 EE Program Cycle Non-IOU Administrative Costs; (4) 2013-2015 Amounts Spent, Committed, Unspent and Uncommitted ; (5) Codes and Standards (C&S) Program and Subprograms – 2015; (6) Non-Resource (NR) Program and Subprograms - 2015; (7) Energy Upgrade California (EUC) Home Upgrade Program – 2015; (8) Commercial Deemed Incentive – Commercial Rebate (CDIR) Program – 2015; (9) Industrial EE Program and Subprograms – 2015; (10) Agricultural EE Program and Subprograms – 2015; (11) Local Government Partnership (LGP) Program and

¹ D.13-09-023, OP No. 17, p. 98, provides "In order to verify Codes and Standards and Non-Resource program expenditures for the purposes of awarding these management fees, we will rely upon public versions of the Commission's Utility Audit, Finance and Compliance Branch reports. Upon completion, the Commission's Utility, Audit, Finance and Compliance Branch shall serve on the service list in this proceeding (or its successor) a notice of availability of the public copy of its audit report detailing its review of annual expenditures for 2013 and 2014 Energy Efficiency programmatic activity." D.14-10-046, Findings of Fact No. 29, p. 152, provides that "The "budgets" we approve here reflect each PA's authorized expenditures for 2015 programs (including funds PAs may "commit" in 2015, to be paid out in subsequent years). Since we are generally treating 2015 as a third year 2013-2015 cycle, it is as if 2015 amounts were added to the budgets we authorized in D.12-11-015."

Subprograms – 2015; and (12) Follow-up on Prior UAFCB's Observations and Recommendations and SCG's Internal Audit (IA) Recommendations.

SCG's management is responsible for ensuring accurate reporting of EE program data and information to the Commission in compliance with applicable laws and administrative requirements.

A. Summary of Examination, Observations, and Recommendations

The following is a brief summary of UAFCB's observations and recommendations resulting from its examination. A detailed description of UAFCB's analysis and observations is included in Appendix A.

Total EE Program Year (PY) 2015 Cost Reconciliation

Observation 1: SCG demonstrated compliance with Public Utility (PU) code §§ 581, 582, and 584 respecting the total reported EE portfolio program costs in PY 2015.² The total expenditures recorded and reported in PY 2015, excluding Evaluation, Measurement and Verification (EM&V) and Statewide Marketing, Education and Outreach (ME&O) costs, amounted to \$65,705,547.³ A reconciliation of this amount reported in the California Energy Efficiency Statistics (EESStats)⁴ web portal, including the Annual Report (Table 3), Quarterly reports and Monthly reports, to SCG's accounting records disclosed no material exceptions.

Recommendation: None.

Observation 2: SCG's compliance with PU code §§ 581, 582, and 584 respecting the timely filing of required EE program reports could not be ascertained in this examination. SCG filed its Monthly, Quarterly and Annual reports as required by the Commission. However, UAFCB was unable to validate the timeliness of these filings due to Energy Division's (ED's) practice of informally granting extension requests to file or re-file reports (Monthly Report, Quarterly Report, and/or Annual Report) without maintaining any form of documentation and/or records.

Recommendation: ED should approve extension requests by a letter to the utility so that the reporting requirements can be verified by the UAFCB when it conducts its examination. A standard approval letter can be the solution instead of approval by email or telephone.

2013-2015 EE Program Cycle IOU Administrative Costs

Observation 3: Except for Observation 4 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the total reported EE Program administrative costs for the 2013-2015 program cycle. SCG's total administrative expenditures recorded and reported amounted to \$19,634,397. A reconciliation of this amount reported in EESStats, including the Annual Reports (Table 3) and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

² All statutory references are to the Public Utilities Code unless stated otherwise.

³ Refer to Appendix B, Table B-2 for a detailed breakdown of SCG's total EE portfolio program costs in PY 2015.

⁴ The California Energy Efficiency Statistics (EESStats) is a repository of utility-submitted reports to the Commission.

Recommendation: None.

Observation 4: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 administrative cost amounts sampled for verification. SCG incorrectly included \$428,771 in 2015 PY administrative expenditures (Regional Energy Network and Evaluation Measurement Verification) belonging to 2014 PY.

Recommendation: SCG should adhere to accrual basis of accounting when recording and reporting its EE Program expenditures. The costs not accrued in the proper period would not impact the incentive award calculation because they are not subject to it.

Observation 5: SCG's internal policy and procedures for the tracking and recording of EE Program IOU administrative costs were adequately designed to meet Commission directives. SCG was in compliance with its internal Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Recommendation: None.

Observation 6: SCG's compliance with Commission Decision (D.) 09-09-047, Ordering Paragraph (OP) 13 and other applicable Commission directives respecting the 10% IOU administrative cost cap for the 2013-2015 EE program cycle could not be ascertained in this examination due to unspecified inputs for the calculation by the Commission. SCG reported its administrative cost cap at 5.6% because it included in the denominator of the calculation the EM&V and On-Bill Financing (OBF) Loan Pool budget amounts. UAFCB's determination of SCG's cost cap for the same period disclosed more than 10% because it excluded these budget amounts. UAFCB's calculations produced 9.3% cost cap based on SCG's total EE program budget for the program cycle and 10.5% based on SCG's EE program operating expenses for the same period.

Recommendation: UAFCB recommends that the Commission clarify the 10% administrative cost cap requirement and provide specific instructions to avoid ambiguity. If the Commission agrees with the UAFCB's method, UAFCB recommends that administrative expense amount in excess of the 10% cap be refunded to ratepayers.

2013-2015 EE Program Cycle Non-IOU Administrative Costs

Observation 7: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the total reported EE Program Non-IOU administrative costs for the 2013-2015 program cycle. The total recorded and reported amounted to \$2,793,234. A reconciliation of this amount reported in EEStats, including the Annual Report (Table 3) and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Recommendation: None.

Observation 8: SCG demonstrative compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 Non-IOU Administrative costs amounts sampled for verification. UAFCB verified \$337,755 expended as Non-IOU Administrative costs and found no material exceptions.

Recommendation: None.

Observation 9: SCG's internal policy and procedures for the tracking and recording of EE Program Non-IOU administrative costs were adequately designed to meet Commission directives. SCG was in compliance with its internal Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Recommendation: None.

Observation 10: SCG demonstrated compliance with Commission D.09-09-047 and other applicable Commission directives respecting the 10% administrative cost target for the 2013-2015 program cycle. SCG reported an administrative cost target of 5.2%. UAFCB's calculations produced an administrative cost target of 6.4% based on SCG's combined Third Party (TP) and Local Government Partnership (LGP) Non-IOU administrative operating expenses for the same period. SCG and UAFCB differ in their calculation as explained in Appendix A.

Recommendation: None.

Amount Spent, Committed and Unspent/Uncommitted 2013 - 2015

Observation 11: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the total EE portfolio amounts reported as spent, committed, and unspent/uncommitted for the 2013-2015 program cycle. The total recorded and reported as spent, committed, and unspent/uncommitted amounted to \$185,554,304, \$13,584,372, and \$63,071,440, respectively. A reconciliation of these amounts reported in EEStats to SCG's accounting records for the 2013-2015 program cycle disclosed no material exceptions.

Recommendation: None.

Observation 12: SCG's internal policies and procedures for the tracking and recording of EE portfolio expenditure amounts spent, committed, and unspent/uncommitted were adequately designed to meet Commission directives during the 2013-2015 program cycle. SCG had the necessary internal policies and procedures in place to account for the EE portfolio expenditure amounts to ensure compliance with Commission directives.

Recommendation: None.

Codes and Standards (C&S) Program and Subprograms – 2015

Observation 13: Except for Observation 14 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported C&S program costs in PY 2015. The \$552,494 reported in the December 2015 year-to-date Monthly EEStats report, Q4 2015 Quarterly EEStats report and in Advice Letter (AL) 5024-G reconciled to SCG's accounting records.

Recommendation: None.

Observation 14: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$45,360, instead of \$88,443 as originally recommended, in 2015 PY expenditures belonging to 2014 PY. The amount was charged to the Direct Implementation cost category.

Recommendation: SCG has since filed AL 5024-G to claim its C&S Management Fee incentive award for PY 2015. The Commission's ED should deduct \$45,360 from the 2015 C&S expenditures when SCG's 2015 ex-post Energy Savings and Performance (ESPI) true-up Advice Letter (AL) is processed. In addition, SCG should adhere to accrual basis of accounting when recording and reporting its EE Program expenditures.

Observation 15: SCG's internal policy and procedures for implementing the C&S program were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Statewide Crosscutting Codes and Standards Programs manual.

Recommendation: None.

Non-Resource (NR) Program and Subprograms - 2015

Observation 16: Except for Observations 17 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported NR Program costs in PY 2015. The \$14,156,844 reported in the December 2015 year-to-date Monthly EEStats report and in AL 5024-G reconciled to SCG's accounting records.

Recommendation: None.

Observation 17: SCG failed to demonstrate compliance with PU code §§ 581, 582 and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$132,051 in expenditures not belonging to 2015 PY. The amount was charged to the Direct Implementation cost category.

Recommendation: SCG has since filed AL 5024-G to claim its NR Program Management Fee incentive award for PY 2015. The Commission's ED should deduct \$132,051 from the 2015 NR expenditures when SCG's 2015 ex-post ESPI true-up AL is processed.

Observation 18: SCG's internal policies and procedures for implementing the NR Program were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Program Adviser Handbook, Integrated Demand Side Management Handbook, and Workforce, Education and Training (WE&T) Manuals.

Recommendation: None.

Observation 19: The criteria used by SCG for designating EE programs as Resource and Non-Resource were in compliance with the Commission's directives. SCG applied the definition contained in the EE Policy Manual (R.09-11-014), Version 5, July 2013, when determining whether an EE program is classified as Resource or Non-Resource.

Recommendation: None.

Energy Upgrade California (EUC) Home Upgrade Program - 2015

Observation 20: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported EUC Home Upgrade program costs in PY 2015. The total recorded and reported amounted to \$7,033,701. A reconciliation of this amount reported in EEStats, including

the December 2015 year-to-date Monthly report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Recommendation: None.

Observation 21: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 EUC Home Upgrade program cost amounts sampled for verification. UAFCB verified \$2,232,140 expended on the EUC Home Upgrade program and found no material exceptions.

Recommendation: None.

Observation 22: SCG's internal policies and procedures for implementing the EUC Home Upgrade program were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Energy Upgrade California Multifamily Guidelines, Program Adviser Handbook and Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Recommendation: None.

Statewide Commercial Deemed Incentives (CDI) – Commercial Rebate (CDIR) Program – 2015

Observation 23: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported CDIR program costs in PY 2015. The total recorded in reported amounted to \$5,063,506. A reconciliation of this amount reported in EEStats, including the December 2015 year-to-date Monthly report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Recommendation: None.

Observation 24: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 CDIR program cost amounts sampled for verification. UAFCB verified \$1,487,200 expended on the CDIR program and found no material exceptions.

Recommendation: None.

Observation 25: SCG's internal policies and procedures to implement the CDIR program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Program Adviser Handbook and Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Recommendation: None.

Industrial EE Program and Subprograms - 2015

Observation 26: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported Industrial EE Program costs in PY 2015. The total recorded and reported amounted to \$7,667,056. A reconciliation of this amount reported in EEStats, including

the December 2015 year-to-date Monthly EESStats report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Recommendation: None.

Observation 27: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 Industrial EE Program cost amounts sampled for verification. UAFCB verified \$2,434,295 expended on the Industrial EE Program and found no material exceptions.

Recommendation: None.

Observation 28: SCG's internal policies and procedures to implement its Industrial EE Program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Small Industrial Facility Upgrades EE Program Manual, EE Calculated Incentives Program Participant Handbook, 2013-2015 EE Calculated Incentives Program Procedures Manual, and SCG's Industrial EE Program Implementation Plan (PIP).

Recommendation: None.

Agricultural EE Program and Subprograms - 2015

Observation 29: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported Agricultural EE Program costs in PY 2015. The total recorded and reported amounted to \$919,296. A reconciliation of this amount reported in EESStats, including the December 2015 year-to-date Monthly EESStats report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Recommendation: None.

Observation 30: SCG demonstrate compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 Agricultural EE Program cost amounts sampled for verification. UAFCB verified \$304,805 expended on the Agricultural EE Program and found no material exceptions.

Recommendation: None.

Observation 31: SCG's internal policies and procedures to implement its Agricultural EE Program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Small Industrial Facility Upgrades EE Program Manual, EE Calculated Incentives Program Participant Handbook, 2013-2015 EE Calculated Incentives Program Procedures Manual, and SCG's Agricultural EE Program Implementation Plan (PIP).

Recommendation: None.

Local Government Partnership (LGP) Program and Subprograms - 2015

Observation 32: Except for Observation 33 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported LGP Program costs in PY 2015. The total recorded and reported amounted to \$2,956,870. A reconciliation of this amount reported in

EEStats, including the December 2015 year-to-date Monthly report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Recommendation: None.

Observation 33: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$10,090 in 2015 PY expenditures belonging to 2014 PY. The amount was charged to the Direct Implementation cost category.

Recommendation: SCG has since filed AL 5024-G to claim its Resource Programs Savings Incentives award for PY 2015. The incentives award associated with this incorrect amount is insignificant in UAFCB's judgement but the occurrence is an internal control weakness. Therefore, UAFCB proposes no audit adjustment. However, to minimize the occurrence of such errors in the future, SCG should adhere to the accrual basis of accounting in recording and reporting EE expenditures.

Observation 34: SCG's internal policies and procedures to implement its LGP Program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Energy Efficiency Calculated Incentives Program (EECIP) Handbook, EECIP Procedures Manual, and Institutional Partnership Calculated Incentives Procedures Manual.

Recommendation: None.

Follow-up on Prior UAFCB's Observations and Recommendations and SCG's's Internal Auditor (IA) Recommendations

Observation 35: SCG addressed and implemented all of UAFCB's audit recommendations specified in UAFCB's Audit Memo Report for the 2014 EE Program examination.

Recommendation: None.

Observation 36: SCG identified internal audit report #15-226 – Energy Efficiency Calculated Incentives Program (EECIP) that related to the EE program activities for the PY 2015 examination period. In internal audit report #15-226, dated October 13, 2015, SCG's Audit Services (AS) conducted a review of the design and operating effectiveness of controls that support the EECIP for the period January 1, 2014 through June 30, 2015.

Recommendation: SCG management addressed and corrected the issues raised by AS in internal audit report #15-226 by or before December 15, 2015.

UAFCB appreciated SCG's efforts in strengthening its internal controls for its EE program and recommends that SCG continue to monitor and improve them in order to prevent any future deficiencies.

B. Examination Process

UAFCB developed the scope of its examination based on consultation with the Energy Division, UAFCB's prior experience in examining SCG's EE program, and the results of UAFCB's risk assessment. Pertinent information about SCG's EE programs can be found in Appendix B.

UAFCB conducted its examinations in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA), and accordingly, included examining on a test basis, evidence concerning SCG's compliance with the requirements of the energy efficiency programs, directives of the Commission pertaining to the programs, SCG's internal policies and procedures, and the generally accepted accounting principles and practices.

On July 7, 2017, UAFCB provided a draft of its analysis, observations and recommendations to both SCG and the Commission's Energy Division (ED) for comment. SCG and ED provided their comments to UAFCB's draft on July 21, 2017. UAFCB summarized SCG's and ED's comments, including UAFCB's rebuttal to those comments, in Appendix A. Where appropriate, UAFCB modified its observations and recommendations based on SCG's and ED's comments. SCG's response in its entirety is provided in Appendix C.

C. Conclusion

Except for the items the UAFCB took exceptions to above, SCG demonstrated compliance with Commission directives respecting its EE Program.

No later than 30 days from the date of this report, SCG should provide to the management of the UAFCB its corrective action plan on the matters discussed above where applicable.

If you have any questions on UAFCB's examination, please contact Kayode Kajopaiye.

cc: Maryam Ebke, CPUC, Deputy Executive Director
Pete Skala, CPUC, Energy Division, Deputy Director
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Appendix A Analysis and Findings

A.1 Introduction

The Utility Audit, Finance and Compliance Branch (UAFCB) examined Southern California Gas Company's (SCG's) financial, management, regulatory, and compliance areas of Energy Efficiency (EE) Programs for program year (PY) 2015. Except for Observations (Obs.) 4, 6, 14, 17, and 33 below, SCG demonstrated compliance with Commission directives respecting the areas of its EE programs that the UAFCB examined for PY 2015.

This examination memo report addresses the financial, management, regulatory, and compliance aspects of EE Program for PY 2015. UAFCB's examination covered the following areas:

- (1) Total EE Program Year (PY) 2015 Cost Reconciliation
- (2) 2013-2015 EE Program Cycle Investor Owned Utility (IOU) Administrative Costs
- (3) 2013-2015 EE Program Cycle Non-IOU Administrative Costs
- (4) 2013-2015 Amounts Spent, Committed, and Unspent/Uncommitted
- (5) Codes and Standards Program and Subprograms – 2015
- (6) Non-Resource (NR) Program and Subprograms – 2015
- (7) Energy Upgrade California (EUC) Home Upgrade Program – 2015
- (8) Commercial Deemed Incentives – Commercial Rebate (CDIR) Program – 2015
- (9) Industrial EE Program and Subprograms – 2015
- (10) Agricultural EE Program and Subprograms – 2015
- (11) Local Government Partnership (LGP) Program and Subprograms – 2015
- (12) Follow-up on Prior UAFCB's Observations and Recommendations and SCG's Internal Audit (IA) Recommendations

A.2 Total EE Program Year (PY) 2015 Cost Reconciliation

Observation 1: SCG demonstrated compliance with Public Utility (PU) code §§ 581, 582, and 584 respecting the total reported EE portfolio program costs in PY 2015.¹ The total expenditures recorded and reported in PY 2015, excluding Evaluation, Measurement and Verification (EM&V) and Statewide Marketing, Education and Outreach (ME&O) costs, amounted to \$65,705,547.² A reconciliation of this amount reported in the California Energy Efficiency Statistics (EEStats)³ web portal, including the Annual Report (Table 3), Quarterly reports and Monthly reports, to SCG's accounting records disclosed no material exceptions.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$65,705,547 reconciled to SCG's accounting records.

Recommendation: None.

¹ All statutory references are to the Public Utilities Code unless stated otherwise.

² Refer to Table B-2, Appendix B for a detailed breakdown of SCG's total EE portfolio program costs in PY2015.

³ The California Energy Efficiency Statistics (EEStats) is a repository of utility-submitted reports to the Commission.

Observation 2: SCG's compliance with PU code §§ 581, 582, and 584 respecting the timely filing of required EE program reports could not be ascertained in this examination. SCG filed its Monthly, Quarterly and Annual reports as required by the Commission. However, UAFCB was unable to validate the timeliness of these filings due to Energy Division's (ED's) practice of informally granting extension requests to file or re-file reports (Monthly Report, Quarterly Report, and/or Annual Report) without maintaining any form of documentation and/or records.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission. The EE Policy Manual (R.09-11-014), Version 5, July 2013, Appendix D (1) (b) provides, in part, that the due date for monthly reports is the first day of the month 30 days following the month of the report, and the due date for the quarterly reports is the first day of the month 60 days following the quarter of the report. The due date for the filing of the annual report is May 1st of the year following the reporting year.⁴

Condition: During this examination, UAFCB found that ED had a practice of informally granting the utilities' extension requests to file or re-file its reports (Monthly Report, Quarterly Report, or Annual Report) without maintaining any supporting documentation and/or records. However, despite not having a formal report filing tracking system in place during this examination, ED asserted to the UAFCB that "no reports were filed late without [its] knowledge." Because there was no formal report filing tracking system in place during this examination period, UAFCB was unable to validate the timeliness of SCG's report filings in EEStats for PY 2015.

Cause: ED granted the utilities extension requests to file or re-file reports (Monthly Report, Quarterly Report, or Annual Report) informally, either through a telephone or electronic email correspondence, without maintaining adequate supporting evidence.

Effect: UAFCB was unable to ascertain whether or not SCG fully complied with the reporting requirements as required by the Commission.

Recommendation: ED should approve extension requests by a letter to the utility so that the reporting requirements can be verified by the UAFCB when it conducts its examination. A standard approval letter can be the solution instead of approval by email or telephone.

A.3 2013-2015 EE Program Cycle Investor Owned Utility (IOU) Administrative Costs

Observation 3: Except for Observation 4 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the total reported EE Program administrative costs for the 2013-2015 program cycle. SCG's total administrative expenditures recorded and reported amounted to \$19,634,397. A reconciliation of this amount reported in EEStats,

⁴ Energy Division Memorandum to all Investor Owned Utilities, Regional Networks, and Community Choice Aggregators, dated July 29, 2013.

including the Annual Reports (Table 3) and Quarterly reports, to SCG's accounting records disclosed no material exceptions.⁵

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$19,634,397 reconciled to SCG's accounting records. The breakdown is as follows:

Program Year	Amount
PY 2013	\$ 7,182,965
PY 2014	5,988,222
PY 2015	<u>6,463,210</u>
Total	<u>\$19,634,397</u>

Recommendation: None.

Observation 4: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 administrative cost amounts sampled for verification. SCG incorrectly included \$428,771 in 2015 PY administrative expenditures (Regional Energy Network and Evaluation Measurement and Valuation) belonging to 2014 PY.

Criteria: Sections 581, 582 and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed eight (8) transactions totaling \$428,771 of PY 2014 administrative costs in PY 2015. The breakdown of the \$428,771 incorrectly included in PY 2015 is as follows:

Vendor Description	Amount
County of Los Angeles (Sample #1)	\$40,335
County of Los Angeles (Sample #2)	66,713
County of Los Angeles (Sample #3)	42,705
County of Los Angeles (Sample #4)	89,809
County of Los Angeles (Sample #7)	90,365
Southern California Edison Company (SCE)	13,081
Southern California Edison Company (SCE)	53,659
Pacific Gas and Electric Company (PG&E)	<u>32,104</u>
Total	<u>\$428,771</u>

Cause: The vendor invoices were not submitted to SCG on a timely basis in order to process and record the expenditures in the proper period.

Effect: SCG over-reported its administrative costs by \$428,771 in PY 2015.

⁵ Refer to Appendix B, Table B-3 for a detailed breakdown of SCG's EE program IOU administrative costs for the 2013-2015 program cycle.

SCG Comments: SCG acknowledges that it incorrectly included \$428,771 in administrative expenditures that should have been charged to PY 2014. However, SCG requests that UAFCB not identify these incorrect charges in PY 2015 as IOU administrative expenses since these charges relate Regional Energy Network (REN) and EM&V administrative costs. Specifically, SCG asserts that sample items #1 through #4 and #7 relate to REN administrative costs and the two Southern California Edison Company (SCE) items totaling \$13,081 and \$53,659 relate to EM&V costs. Consequently, SCG requests that the UAFCB remove the reference to IOU administrative expenses from this observation.

ED Comments: ED requested that the language in the "Cause" section of this observation be stated more clearly by replacing "timely" with the words "on a more timely basis."

Rebuttal: UAFCB agrees with SCG's comments and has modified the language in this observation by removing the term "IOU" when referring to these administrative expenditures incorrectly charged to PY 2015.

Response: In regards to ED's comments, UAFCB agrees with ED to revise the language in the "Cause" section of this observation and has replaced "timely" with "on a timely basis."

Recommendation: SCG should adhere to accrual basis of accounting when recording and reporting its EE Program expenditures. The costs not accrued in the proper period would not impact the incentive award calculation because they are not subject to it

Observation 5: SCG's internal policy and procedures for the tracking and recording of EE Program IOU administrative costs were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Criteria: Did SCG's internal Customer Programs and Assistance Workbook Confirmation Procedure Manual provide appropriate policy and procedures for the proper recording of administrative costs in compliance with Commission directives?

Condition: SCG's Customer Programs and Assistance Workbook Confirmation Procedure Manual seemed reasonably adequate for the accounting and reporting of administrative costs in accordance with Commission directives in PY 2015.

Recommendation: None.

Observation 6: SCG's compliance with Commission Decision (D.) 09-09-047, Ordering Paragraph (OP) 13 and other applicable Commission directives respecting the 10% IOU administrative cost cap for the 2013-2015 EE program cycle could not be ascertained in this examination due to unspecified inputs for the calculation by the Commission. SCG reported its administrative cost cap at 5.6% because it included in the denominator of the calculation the EM&V and On-Bill Financing (OBF) Loan Pool budget amounts. UAFCB's

determination of SCG's cost cap for the same period disclosed more than 10% because it excluded these budget amounts. UAFCB's calculations produced 9.3% cost cap based on SCG's total EE program budget for the program cycle and 10.5% based on SCG's EE program operating expenses for the same period.

Criteria: D.09-09-047 imposed a 10% administrative cost cap in order to ensure that IOU administrative costs are reasonable and limited to those overhead and labor costs that are truly required to implement quality EE programs and to ensure that ratepayer funds are used to the greatest degree possible for the programs themselves. Specifically, in D.09-09-047, OP 13(a), the Commission ordered that "Administrative Costs for utility energy efficiency programs (excluding third party and/or local government partnership budgets) are limited to 10% of total energy efficiency budgets..."

Condition: SCG calculated the 10% administrative cost cap at 5.6% for the 2013-2015 program cycle. SCG used the following for its calculation:

$$10\% \text{ Admin. Cost Cap} = \frac{\text{IOU Admin. Costs} + \text{IOU Admin. Costs in support of TP \& LGP} + \text{Benefit Burdens}}{\text{Total EE Portfolio Budget} + \text{Benefit Burdens}}$$

UAFCB re-calculated SCG's administrative cost cap amount for the same period under two methodologies: budget methodology and cost methodology.

UAFCB Budget Methodology - Under this methodology, SCG's administrative cost cap amount equates to 9.3% of the total EE program budget for the 2013-2015 program cycle. UAFCB's budget methodology formula is provided below.

$$10\% \text{ Admin. Cost Cap} = \frac{\text{Total IOU Admin. Costs} + \text{IOU Admin. Costs in support of LGP \& TP Programs}}{\text{Total EE Portfolio Budget}^6 - \text{LGP Budget} - \text{TP Budget}}$$

UAFCB Cost Methodology - Under this methodology, SCG's administrative cost cap amount equates to 10.5% of the total EE program operating costs for the 2013-2015 program cycle. UAFCB's cost methodology formula is provided below.

$$10\% \text{ Admin. Cost Cap} = \frac{\text{Total IOU Admin. Costs} + \text{IOU Admin. Costs in support of LGP \& TP Programs}}{\text{Total EE Portfolio Costs} - \text{EM\&V Costs} - \text{REN Costs} - \text{ME\&O Costs}}$$

Cause: The Commission's EE program decisions and the EE Policy Manual do not provide explicit and clear instructions on how to calculate the 10% IOU administrative costs cap. There is not clear guidance on the types of costs to include in the numerator or denominator when determining the 10% IOU administrative cost cap amount. Additionally, there is no specific formula to use when calculating the IOU administrative cost cap amount.

Effect: UAFCB was unable to determine whether SCG was in compliance with the 10% administrative cost cap for the 2013-2015.

⁶ Total EE Portfolio Budget amount excludes Statewide ME&O, EM&V and On-Bill Financing (OBF) Loan Pool.

SDG&E Comments: SCG disagrees with the UAFCB that its IOU administrative costs exceeded the 10% cost cap. SCG asserts that its calculation of the percentage of the 10% cap attributable to its administrative costs is correct based on established and approved practices adopted by the Commission through the EE Policy Manual, prior directives, and its approval of IOU administrative costs during previous review periods.

SCG asserts that the premise for the difference between the formulas' proposed by the UAFCB and that adopted by the Commission is due to the amounts included in the denominator when calculating the 10% administrative cost cap.

SCG asserts that the primary difference between UAFCB's calculation (Budget Methodology) is that: (1) UAFCB erroneously excluded EM&V and OBF Loan Pool from the denominator and (2) UAFCB erroneously failed to exclude the administrative-exempt programs approved in D.09-09-047.

SCG also declares that, assuming UAFCB's "Budget Methodology" is correct, its administrative cost cap would be 6.3% and not 9.3% since the UAFCB's calculation failed to include the correct inputs. Specifically, SCG asserts that UAFCB's "Budget Methodology" calculation improperly excludes other approved budget components (i.e., EM&V and OBF Loan Pool).

Furthermore, SCG asserts that its administrative cost cap would be 8.8% and not 10.5% if applying UAFCB's calculation based actual expenditures (Cost Methodology). Under this methodology, SCG asserts that the difference is due to UAFCB improperly excluding costs for the OBF Loan Pool, EM&V, and Statewide ME&O.

In conclusion, SCG asserts that UAFCB's recommendation to refund ratepayers the administrative expenses in excess of the 10% cap is unfounded and inappropriate. SCG strongly recommends that the Commission clarify its policies and rules regarding the cost cap calculation and provide explicit consequences for non-compliance applied on a prospective basis. SCG contends that it has been managing its administrative cost cap in good faith and to retroactively apply UAFCB's recommendation would unfairly deprive SCG of its opportunity to manage the cost cap appropriately for the 2013-2015 time period.

ED Comments: ED recommends that the UAFCB recalculate its administrative cost cap amount as prescribed in the Energy Efficiency Policy Manual, version 5, pages 87-93 and modify the recommendation, if necessary. The Energy Efficiency Policy Manual, pages 87-93, provides that administrative costs include overhead, labor, human resource support and travel and conference fees but specifically excludes, among other things, administrative costs for third party programs and government partnerships.

Rebuttal: UAFCB disagrees with SCG's "Budget Methodology" calculation which includes the OBF Loan Pool, EM&V budgets for 2013-2015 and the Statewide ME&O budget amounts in the "Total Energy Efficiency Budget" denominator amount. UAFCB's "Budget Methodology" calculation excludes the OBF Loan Pool, EM&V and ME&O

budget amounts from the "Total Energy Efficiency Budget" denominator amount since D.09-09-047, OP 13 is silent on whether to include such budget amounts.

Response: UAFCB acknowledged ED's recommendation and reviewed the EE policy manual and found that its calculation of the 10% cost cap appears to be correctly interpreted based on the language in the EE Policy Manual.

Recommendation: UAFCB recommends that the Commission clarify the 10% administrative cost cap requirement and provide specific instructions to avoid ambiguity. If the Commission agrees with the UAFCB's method, UAFCB recommends that administrative expense amount in excess of the 10% cap be refunded to ratepayers.

A.4 2013-2015 EE Program Cycle Non-IOU Administrative Costs

Observation 7: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the total reported EE Program Non-IOU administrative costs for the 2013-2015 program cycle. The total recorded and reported amounted to \$2,793,234. A reconciliation of this amount reported in EEStats, including the Annual Report (Table 3) and Quarterly reports, to SCG's accounting records disclosed no material exceptions.⁷

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$2,793,234 reconciled to SCG's accounting records. The breakdown is as follows:

Program Year	Amount
PY 2013	\$ 964,188
PY 2014	752,966
PY 2015	<u>1,076,080</u>
Total	<u>\$2,793,234</u>

Recommendation: None.

Observation 8: SCG demonstrative compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 Non-IOU Administrative costs amounts sampled for verification. UAFCB verified \$337,755 expended as Non-IOU Administrative costs and found no material exceptions.

Criteria: Section 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed no material exceptions.

⁷ Refer to Appendix B, Table B-4 for a detailed breakdown of SCG's EE program Non-IOU administrative costs for the 2013-2015 program cycle.

Recommendation: None.

Observation 9: SCG's internal policy and procedures for the tracking and recording of EE Program Non-IOU administrative costs were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Criteria: Did SCG's internal Customer Programs and Assistance Workbook Confirmation Procedure Manual provide appropriate policy and procedures for the proper recording of Non-IOU administrative costs in compliance with Commission directives?

Condition: SCG's Customer Programs and Assistance Workbook Confirmation Procedure Manual seemed reasonably adequate for the accounting and reporting of Non-IOU Administrative costs in accordance with Commission directives in PY 2015.

Recommendation: None.

Observation 10: SCG demonstrated compliance with Commission D.09-09-047 and other applicable Commission directives respecting the 10% administrative cost target for the 2013-2015 program cycle. SCG reported an administrative cost target of 5.2%. UAFCB's calculations produced an administrative cost target of 6.4% based on SCG's combined TP and LGP Non-IOU administrative operating expenses for the same period.

Criteria: Per D.09-09-047, page 63, "... we [the Commission] direct the utilities [IOUs] to seek to achieve a 10% administrative cost target for third party and local government partnership direct costs (i.e., separate from utility costs to administer these programs)..."

Condition: SCG determined its compliance with the 10% administrative cost target based on the following calculation:

$$10\% \text{ Admin. Cost Target} = \frac{\text{LGP \& TP Non - IOU Administrative Costs}}{\text{Total LGP and TP Direct Costs}}$$

SCG's calculation came to 5.2% and UAFCB's calculation came to 6.4% because the UAFCB included actual LGP and TP program costs in the denominator of its calculation and the method is provided below:

$$10\% \text{ Non - IOU Cost Target} = \frac{\text{TP \& LGP Non - IOU Administrative Costs}}{\text{Total TP and LGP Program Costs}}$$

Recommendation: The Commission should clarify which method is appropriate.

A.5 2013-2015 Amounts Spent, Committed, and Unspent/Uncommitted

Observation 11: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the total EE portfolio amounts reported as spent, committed, and unspent/uncommitted for the 2013-2015 program cycle. The total recorded and reported as

spent, committed, and unspent/uncommitted amounted to \$185,554,304, \$13,584,372, and \$63,071,440, respectively. A reconciliation of these amounts reported in EEStats to SCG's accounting records for the 2013-2015 program cycle disclosed no material exceptions.⁸

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB reconciled the reported EE program portfolio amounts spent, committed, and unspent/uncommitted to SCG's accounting records for the 2013-2015 program cycle and found no material exceptions.

Recommendation: None.

Observation 12: SCG's internal policies and procedures for the tracking and recording of EE portfolio expenditure amounts spent, committed, and unspent/uncommitted were adequately designed to meet Commission directives during the 2013-2015 program cycle. SCG had the necessary internal policies and procedures in place to account for the EE portfolio expenditure amounts to ensure compliance with Commission directives.

Criteria: Did SCG did have the necessary policies and procedures in place to control and monitor its accounting practices including the recording and reporting of EE portfolio expenditure amounts spent, committed, and unspent/uncommitted in compliance with Commission directives?

Condition: SCG's established internal policies and procedures seemed adequate for the accounting and reporting of EE portfolio program expenditure amounts as spent, committed, and unspent/uncommitted.

Recommendation: None.

A.6 Codes and Standards (C&S) Program and Subprograms - 2015

Observation 13: Except for Observation 14 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported C&S program costs in PY 2015. The \$552,494 reported in the December 2015 year-to-date Monthly EEStats report, Q4 2015 Quarterly EEStats report and in Advice Letter (AL) 5024-G reconciled to SCG's accounting records.⁹

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$552,494 reconciled to SCG's accounting records. The breakdown is as follows:

⁸ Refer to Appendix B, Table B-1 for a detailed presentation of SCG's authorized budget, amount spent, amount committed, and amount unspent/uncommitted for the 2013-2015 program cycle.

⁹ Refer to Appendix B, Table B-5 for a detailed breakdown of SCG's C&S program expenditures in PY 2015.

Cost Category	Amount
Administrative	\$ 60,748
Marketing	8,878
Direct Implementation	<u>482,868</u>
Totals	<u>\$552,494</u>

Recommendation: None.

Observation 14: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$45,360, instead of \$88,443 as originally recommended, in 2015 PY expenditures belonging to 2014 PY. The amount was charged to the Direct Implementation cost category.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission. SCG's accrual policy requires that any expense item having a value equal to or greater than \$10,000 must be accrued in the period in which such expense incurred.

Condition: UAFCB's review and testing disclosed four (4) transactions totaling \$88,443 of PY 2014 C&S program Direct Implementation costs in PY 2015. The breakdown of the \$88,443 incorrectly included in PY 2015 is as follows:

Program Description	Amount
C&S Building Codes Advocacy Program (Sample #17)	\$29,979
C&S Building Codes Advocacy Program (Sample #20)	15,381
C&S Compliance Improvement Program (Sample #30)	22,129
C&S Compliance Improvement Program (Sample #31)	<u>20,954</u>
Total	<u>\$88,443</u>

Cause: When internal controls are not adequately enforced in combination with lack of proper training and supervision of employees, recording and reporting can occur.

Effect: SCG over-reported the C&S Program costs by \$45,360 in PY 2015.

SCG Comments: SCG acknowledges that it incorrectly included \$45,360 (sample #17 and #20) of the \$88,443 in C&S expenditures that should have been charged to PY 2014. However, SCG claims that the \$22,129 (sample #30) and \$20,954 (sample #31) in expenditures charged to the Compliance Improvement program were correctly accrued in PY 2014. With its comments on the draft report, SCG provided additional supporting documentation to support the \$22,129 and \$20,954 accrued in PY 2014 and requests that UAFCB modify its recommendation in this observation.

In addition, SCG asserted that, as a business practice, it continuously seeks to strengthen its internal processes, including enhanced procedures and training to ensure that program expenditures are valid and accurate, and are recognized and reported in the appropriate reporting period.

ED Comments: ED requested that the language in the UAFCB's recommendation be changed so that ED can calculate the actual earnings reduction in the resolution.

Rebuttal: UAFCB reviewed the additional supporting documentation provided by SCG in its comments to UAFCB's draft report. Based on the additional documentation, the UAFCB concurs with SCG that the \$22,129 and \$20,954 were appropriately accrued in PY 2014 and should be removed from this observation. Consequently, instead of removing \$88,443, the Commission's ED should deduct \$45,360 from SCG's 2015 C&S expenditures when SCG's 2015 ex-post Energy Savings and Performance (ESPI) true-up Advice Letter (AL) is processed.

Response: UAFCB agrees with ED to revise the language in its recommendation since it does not change the C&S expenditure amount that SCG incorrectly included in PY 2015.

Recommendation: SCG has since filed AL 5024-G to claim its C&S Management Fee incentive award for PY 2015. The Commission's ED should deduct \$45,360 from the 2015 C&S expenditures when SCG's 2015 ex-post ESPI true-up AL is processed.

Observation 15: SCG's internal policy and procedures for implementing the C&S program were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Statewide Crosscutting Codes and Standards Programs manual.

Criteria: Did SCG's internal Statewide Crosscutting Codes and Standards Programs Manual have adequate policy and procedures for implementing the C&S programs in accordance with Commission directives?

Condition: SCG's Statewide Crosscutting Codes and Standards Programs manual appeared reasonably adequate for implementing the C&S programs in accordance with Commission directives in PY 2015.

Recommendation: None.

A.7 Non-Resource (NR) Program and Subprograms - 2015

Observation 16: Except for Observations 17 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported NR Program costs in PY 2015. The \$14,156,844 reported in the December 2015 year-to-date Monthly EEStats report and in AL 5024-G reconciled to SCG's accounting records.¹⁰

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$14,156,844 reconciled to SCG's accounting records. The breakdown is as follows:

¹⁰ Refer to Appendix B, Table B-7 for a detailed breakdown of SCG's NR Program expenditures in PY 2015.

Cost Category	Amount
Administrative	\$ 2,914,258
Marketing	591,056
Direct Implementation	10,651,530
Totals	<u>\$14,156,844</u>

Recommendation: None.

Observation 17: SCG failed to demonstrate compliance with PU code §§ 581, 582 and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$132,051 in expenditures not belonging to 2015 PY. The amount was charged to the Direct Implementation cost category.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed two invoices totaling \$131,551 for services provided in PY 2014 but incorrectly reported and charged to PY 2015. In addition, UAFCB found a sample transaction in which SCG paid the incorrect amount when it approved and issued payment to the vendor, resulting in an overstatement of PY 2015 NR program expenditures by \$500. The breakdown of the \$132,051 incorrectly included in PY 2015 is as follows:

Program Description	Amount
TP – CA Sustainability Alliance (Sample #16)	\$82,785
Emerging Tech. Assessment (Sample #41)	48,766
WE&T – Centergies (Sample #49)	500
Total	<u>\$132,051</u>

Cause: The vendor invoices were not submitted to SCG timely in order to process and record the expenditures in the proper period.

Effect: SCG over-reported the NR Program costs by \$132,051 in PY 2015.

SCG Comments: SCG acknowledges that it incorrectly included \$49,266 (samples #41 and #49) in NR expenditures that should have been charged to PY 2014. However, SCG asserts that the \$82,785 (sample #16) should be removed from this observation since SCG made a concerted effort to obtain the invoices from the vendor in order to properly accrue the charges in PY 2014.

In addition, SCG asserted that, as a business practice, it continuously seeks to strengthen its internal processes, including enhanced procedures and training to ensure that program expenditures are valid and accurate, and are recognized and reported in the appropriate reporting period.

ED Comments: ED requested that the language in the UAFCB's recommendation be changed so that ED can calculate the actual earnings reduction in the resolution.

Rebuttal: UAFCB appreciates SCG's efforts trying to obtain the invoices from the vendor in a timely manner in order to accrue the charges in the proper period. However, the supporting documentation examined during this examination supports UAFCB's finding that these NR expenditures related to PY 2014 should not have been charged to PY 2015.

Response: UAFCB agrees with ED to revise the language in its recommendation since it does not change the C&S expenditure amount that SCE incorrectly included in PY 2015.

Recommendation: SCG has since filed AL 5024-G to claim its NR Program Management Fee incentive award for PY 2015. The Commission's ED should deduct \$132,051 from the 2015 NR expenditures when SCG's 2015 ex-post ESPI true-up AL is processed.

Observation 18: SCG's internal policies and procedures for implementing the NR Program were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Program Adviser Handbook, Integrated Demand Side Management Handbook, and Workforce, Education and Training (WE&T) Manuals.

Criteria: Did SCG's internal Program Adviser Handbook, Integrated Demand Side Management Handbook, and Workforce, Education and Training (WE&T) Manuals provide adequate policies and procedures for implementing NR Program in accordance with Commission directives?

Condition: SCG's internal policies and procedural manuals for the NR Program were reasonably adequate for implementing the programs in accordance with Commission directives in PY 2015.

Recommendation: None.

Observation 19: The criteria used by SCG for designating EE programs as Resource and Non-Resource were in compliance with the Commission's directives. SCG applied the definition contained in the EE Policy Manual (R.09-11-014), Version 5, July 2013, when determining whether an EE program is classified as Resource or Non-Resource.

Criteria: Did SCG refer to the EE Policy Manual in determining whether an EE program is a Resource or Non-Resource Program in accordance with Commission directives?

Condition: SCG classified its EE programs as Non-Resource per the definition in the Commission's EE Policy Manual.

Recommendation: None.

A.8 Energy Upgrade California (EUC) Home Upgrade Program - 2015

Observation 20: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported EUC Home Upgrade program costs in PY 2015. The total recorded

and reported amounted to \$7,033,701. A reconciliation of this amount reported in EEStats, including the December 2015 year-to-date Monthly report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$7,033,701 reconciled to SCG's accounting records. The breakdown is as follows:

Cost Category	Amount
Administrative	\$ 344,765
Marketing	333,984
Direct Implementation	<u>6,354,952</u>
Totals	<u>\$7,033,701</u>

Recommendation: None.

Observation 21: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 EUC Home Upgrade program cost amounts sampled for verification. UAFCB verified \$2,232,140 expended on the EUC Home Upgrade program and found no material exceptions.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed no material exceptions.

Recommendation: None.

Observation 22: SCG's internal policies and procedures for implementing the EUC Home Upgrade program were adequately designed to meet Commission directives in PY 2015. SCG was in compliance with its internal Energy Upgrade California Multifamily Guidelines, Program Adviser Handbook and Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Criteria: Did SCG's internal Energy Upgrade California Multifamily Guidelines, Program Adviser Handbook and Customer Programs and Assistance Workbook Confirmation Manual provide adequate policies and procedures for implementing the EUC Home Upgrade program in accordance with Commission directives?

Condition: SCG's internal policies and procedural manuals for the EUC Home Upgrade program were reasonably adequate for implementing the program in accordance with Commission directives in PY 2015.

Recommendation: None.

A.9 Commercial Deemed Incentives – Commercial Rebate (CDIR) Program – 2015

Observation 23: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported CDIR program costs in PY 2015. The total recorded in reported amounted to \$5,063,506. A reconciliation of this amount reported in EEStats, including the December 2015 year-to-date Monthly report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$5,063,506 reconciled to SCG's accounting records. The breakdown is as follows:

Cost Category	Amount
Administrative	\$ 458,915
Marketing	588,339
Direct Implementation	<u>4,016,252</u>
Totals	<u>\$5,063,506</u>

Recommendation: None.

Observation 24: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 CDIR program cost amounts sampled for verification. UAFCB verified \$1,487,200 expended on the CDIR program and found no material exceptions.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed no material exceptions.

Recommendation: None.

Observation 25: SCG's internal policies and procedures to implement the CDIR program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Program Adviser Handbook and Customer Programs and Assistance Workbook Confirmation Procedure Manual.

Criteria: Did SCG's internal Program Adviser Handbook and Customer Programs and Assistance Workbook Confirmation Manual provide adequate policies and procedures to implement the CDIR program in accordance with Commission directives?

Condition: SCG's internal policies and procedural manuals for the CDIR program were reasonably adequate for implementing the program in accordance with the Commission's directives in PY 2015.

Recommendation: None.

A.10 Industrial EE Program and Subprograms – 2015

Observation 26: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported Industrial EE Program costs in PY 2015. The total recorded and reported amounted to \$7,667,056. A reconciliation of this amount reported in EEstats, including the December 2015 year-to-date Monthly EEStats report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.¹¹

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$7,667,056 reconciled to SCG's accounting records. The breakdown is as follows:

Cost Category	Amount
Administrative	\$ 694,113
Marketing	366,491
Direct Implementation	<u>6,606,452</u>
Totals	<u>\$7,667,056</u>

Recommendation: None.

Observation 27: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 Industrial EE Program cost amounts sampled for verification. UAFCB verified \$2,434,295 expended on the Industrial EE Program and found no material exceptions.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed no material exceptions.

Recommendation: None.

Observation 28: SCG's internal policies and procedures to implement its Industrial EE Program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Small Industrial Facility Upgrades EE Program Manual, EE Calculated Incentives Program Participant Handbook, 2013-2015 EE Calculated Incentives Program Procedures Manual, and SCG's Industrial EE Program Implementation Plan (PIP).

Criteria: Did SCG's internal Small Industrial Facility Upgrades EE Program Manual, EE Calculated Incentives Program Participant Handbook, 2013-2015 EE Calculated

¹¹ Refer to Appendix B, Table B-11 for a detailed breakdown of SCG Industrial EE program expenditures in PY 2015.

Incentives Program Procedures Manual, and SCG's Industrial EE PIP provide adequate policies and procedures for implementing the Industrial EE Program in accordance with Commission directives?

Condition: SCG's internal policies and procedural manuals for the Industrial EE Program were reasonably adequate for implementing the program in accordance with the Commission's directives in PY 2015.

Recommendation: None.

A.11 Agricultural EE Program and Subprograms - 2015

Observation 29: SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported Agricultural EE Program costs in PY 2015. The total recorded and reported amounted to \$919,296. A reconciliation of this amount reported in EESStats, including the December 2015 year-to-date Monthly EESStats report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.¹²

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$919,296 reconciled to SCG's accounting records. The breakdown is as follows:

Cost Category	Amount
Administrative	\$109,632
Marketing	133,195
Direct Implementation	<u>676,469</u>
Totals	<u>\$919,296</u>

Recommendation: None.

Observation 30: SCG demonstrate compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 Agricultural EE Program cost amounts sampled for verification. UAFCB verified \$304,805 expended on the Agricultural EE Program and found no material exceptions.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed no material exceptions.

Recommendation: None.

¹² Refer to Appendix B, Table B-12 for a detailed breakdown of SCG's Agricultural EE program expenditures in PY 2015.

Observation 31: SCG's internal policies and procedures to implement its Agricultural EE Program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Small Industrial Facility Upgrades EE Program Manual, EE Calculated Incentives Program Participant Handbook, 2013-2015 EE Calculated Incentives Program Procedures Manual, and SCG's Agricultural EE Program Implementation Plan (PIP).

Criteria: Did SCG's internal Small Industrial Facility Upgrades EE Program Manual, EE Calculated Incentives Program Participant Handbook, 2013-2015 EE Calculated Incentives Program Procedures Manual, and SCG's Agricultural EE Agricultural PIP provide adequate policies and procedures for implementing the Agricultural EE Program in accordance with Commission directives?

Condition: SCG's internal policies and procedural manuals for the Agricultural EE Program were reasonably adequate for implementing the program in accordance with the Commission's directives in PY 2015.

Recommendation: None.

A.12 Local Government Partnership (LGP) Program and Subprograms – 2015

Observation 32: Except for Observation 33 below, SCG demonstrated compliance with PU code §§ 581, 582, and 584 respecting the reported LGP Program costs in PY 2015. The total recorded and reported amounted to \$2,956,870. A reconciliation of this amount reported in EEStats, including the December 2015 year-to-date Monthly report and Quarterly reports, to SCG's accounting records disclosed no material exceptions.¹³

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: The \$2,956,870 reconciled to SCG's accounting records. The breakdown is as follows:

Cost Category	Amount
Administrative	\$ 806,151
Marketing	277,388
Direct Implementation	<u>1,873,331</u>
Totals	<u>\$2,956,870</u>

Recommendation: None.

Observation 33: SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$10,090 in 2015 PY expenditures belonging to 2014 PY. The amount was charged to the Direct Implementation cost category.

¹³ Refer to Appendix B, Table B-13 for a detailed breakdown of SCG's LGP expenditures in PY 2015.

Criteria: Sections 581, 582, and 584 require that the utility provide complete and accurate data to the Commission.

Condition: UAFCB's review and testing disclosed that SCG recorded \$10,090 in Direct Implementation costs related to a payment to the South Bay Cities Council of Governments for services provided in PY 2014.

Cause: The invoice was not submitted to SCG on a timely basis in order to process and record the expenditure in the proper period.

Effect: SCG over-reported its LGP Program costs by \$10,090 in PY 2015.

SCG Comments: SCG acknowledges UAFCB's recommendation and asserted that as a business practice, SCG continuously seeks to strengthen its internal processes, including enhanced procedures and training to ensure that program expenditures are valid and accurate, and are recognized and reported in the appropriate reporting period.

ED Comments: ED requested that the language in the "Cause" section of this observation be stated more clearly by replacing "timely" with the words "on a more timely basis."

Response: In regards to ED's comments, UAFCB agrees with ED to revise the language in the "Cause" section of this observation and has replaced "timely" with "on a timely basis."

Recommendation: SCG has since filed AL 5024-G to claim its Resource Programs Savings Incentives award for PY 2015. The incentives award associated with this incorrect amount is insignificant in UAFCB's judgement but the occurrence is an internal control weakness. Therefore, UAFCB proposes no audit adjustment. However, to minimize the occurrence of such errors in the future, SCG should adhere to the accrual basis of accounting in recording and reporting EE expenditures.

Observation 34: SCG's internal policies and procedures to implement its LGP Program were adequately designed to meet the Commission's directives in PY 2015. SCG was in compliance with its internal Energy Efficiency Calculated Incentives Program (EECIP) Handbook, EECIP Procedures Manual, and Institutional Partnership Calculated Incentives Procedures Manual.

Criteria: Did SCG's internal EECIP Handbook, EECIP Procedures Manual, and Institutional Partnership Calculated Incentives Program Procedural Manual provide adequate policies and procedures for implementing the LGP Program in accordance with Commission directives?

Condition: SCG's internal policies and procedural manuals for the LGP Program were reasonably adequate for implementing the program in accordance with the Commission's directives in PY 2015.

Recommendation: None.

A.13 Follow-up on Prior UAFCB's Observations and Recommendations and SCG's Internal Audit (IA) Recommendations

Observation 35: SCG addressed and implemented all of UAFCB's audit recommendations specified in UAFCB's Audit Memo Report for the 2014 EE Program examination.

Criteria: Pursuant to UAFCB's examination report, SCG was required, among others things to:¹⁴

- 1) Adhere to the accrual basis of accounting in recording and reporting EE expenditures.
- 2) Ensure that the provisions in signed agreements are accurately recorded.
- 3) Reduce its Resource Programs Savings incentive award by \$123,346 in its following AL true-up filing.

Condition: SCG addressed and complied with all of UAFCB's recommendations identified in its prior examination report on PY 2014.

Recommendation: None.

Observation 36: SCG identified internal audit report #15-226 – Energy Efficiency Calculated Incentives Program (EECIP) that related to EE program activities for the PY 2015 examination period. In internal audit report #15-226, dated October 13, 2015, SCG's Audit Services (AS) conducted a review of the design and operating effectiveness of controls that support the EECIP for the period January 1, 2014 through June 30, 2015.

Criteria: In internal audit report #15-226, SCG's AS concluded the following:

- a) Management does not consistently document the monthly review of reports used to monitor budget to actual expenditures related to EE programs.
- b) The accrual method used for EECIP incentive payments to customers is not formalized or documented to ensure consistency and compliance with applicable Sempra Energy policies.
- c) Shared employee labor expenses allocated to the EECIP are not consistently reviewed. In addition, the process to manage and allocate shared employee cell phone costs to EECIP is not documented.

¹⁴ *Financial, Management, Regulatory, and Compliance Examination Report on Southern California Gas Company's (SCG's) Energy Efficiency (EE) Program For the Period January 1, 2014 through December 31, 2014, issued June 30, 2016.*

- d) IT management does not periodically recertify appropriateness of users with privileged access to the servers supporting the SAP CRM system.

Condition: SCG provided the UAFCB with the status update and supporting documentation on management's corrective actions in implementing the findings and recommendations in internal audit report #15-226 during the 2015 examination period.

SCG Comments: SCG acknowledges UAFCB's recommendation and continuously seeks to strengthen its internal processes to ensure that program expenditures are appropriately recorded.

Recommendation: SCG management addressed and corrected the issues raised by AS in internal audit report #15-226 by or before December 15, 2015.

UAFCB appreciated SCG's efforts in strengthening its internal controls for its EE program and recommends that SCG continue to monitor and improve them in order to prevent any future deficiencies.

Appendix B Program Compendium

B.1 Introduction

On November 8, 2012, the California Public Utilities Commission (Commission) issued Decision (D.) 12-11-015 which, among other things, authorized Southern California Gas Company (SCG) a total budget of \$178.6¹ million in ratepayer funds to administer and implement its Energy Efficiency (EE) programs for the years 2013-2014. This amount represents about 9% of the total \$1.9 billion EE program budget for the four major Investor-Owned Utilities (IOUs) for the 2013 - 2014 EE budget cycle. In addition, this decision also approved programs and budgets for two regional energy networks (RENs) and one community choice aggregator (CCA). D.12-11-015 also sets energy savings goals, established cost-effectiveness requirements, and required the IOUs to allocate unspent funds from previous program cycles towards their 2013-2014 budgets.

On October 16, 2014, the Commission issued D.14-10-046 which, among other things, extended the 2013-2014 EE program cycle for an additional year to 2013-2015. The decision authorized SCG a total budget of \$83.6² million, including \$3.3 million in EM&V, in ratepayer funds to administer and implement the EE program for PY 2015. This represents about 9% of the approximate total \$962 million in EE program budget for all four IOUs for the same period.

B.2 EE Funding Components

Of the \$262.2 million total authorized portfolio budget for program cycle 2013-2015, \$251.6 million of the funds is to administer and implement SCG's EE programs and the remaining \$10.6 million is dedicated to fund the Evaluation, Measurement and Verification (EM&V) portion of the program portfolio. Excluding EM&V, SCG spent a combined \$182.3 million or \$69.3 million less than its authorized budget for the same period.

A summary detailing SCG's ratepayer funded total authorized EE portfolio budget, actual expenditures, amount unspent, and amount committed for the 2013-2015 program cycle is provided in Table B-1.

¹ Amount does not include the \$4 million budget for the Statewide Marketing, Education, and Outreach (ME&O) Program, which was approved in a separate Commission decision (D.13-12-038, OP 12, dated December 19, 2013), because the ME&O budget period does not correspond with the 2013-2015 EE program cycle.

² Amount does not include the ME&O Program budget approved in D.13-12-038, OP 12.

**Table B-1
Authorized Budget and Other Components
Budget Cycle 2013-2015**

Programs	Budget	Spent	Unspent	Committed	Unspent & Uncommitted
	1	2	3 = 1 - 2	4	5 = 3 - 4
Resource (Statewide)	\$152,067,383	\$109,595,730	\$42,471,653	\$13,584,372	\$28,887,281
Other Resource (TP&LGP)	56,952,952	42,439,200	14,513,752	0	14,513,752
Non-Resource	26,859,252	25,926,665	932,586	0	932,586
Codes and Standards	<u>2,516,819</u>	<u>1,469,909</u>	<u>1,046,909</u>	<u>0</u>	<u>1,046,909</u>
Subtotal	\$238,396,406	\$179,431,504	\$58,964,900	\$13,584,372	\$45,380,528
REN	<u>13,164,161</u>	<u>2,845,644</u>	<u>10,318,517</u>	<u>0</u>	<u>10,318,517</u>
Subtotal	\$251,560,567	\$182,277,148	\$69,283,417	\$ 0	\$55,699,045
EM&V	<u>10,649,551</u>	<u>3,277,156</u>	<u>7,372,395</u>	<u>0</u>	<u>7,372,395</u>
Grand Total	<u>\$262,210,118</u>	<u>\$185,554,304</u>	<u>\$76,655,812</u>	<u>\$13,584,372</u>	<u>\$63,071,440</u>

UAFCB describes below the background information of the areas it examined from B.3 to B.13. Section B.14 contains prior examination report follow-up responses, including PG&E's Internal Audit findings related to the EE programs during the examination period.

B.3 Total EE Program Year (PY) 2015 Cost Reconciliation

SCG uses the System Application and Products (SAP) software as its accounting system of record. All financial transactions are recorded in SAP and EE related financial data is extracted from SAP for CPUC reporting purposes. Starting in 2013, SCG enhanced its accounting procedures to track EE costs associated with the three major cost categories – Administrative, Marketing/Advertising/Outreach, and Direct Implementation. In 2013, SCG began using specific internal orders (IOs) for each EE budget category, resulting in a minimum of three IOs for each program or sub-program. Costs applicable solely to a specific EE program are directly charged to that EE program. Other costs applicable to EE programs include overhead costs allocated among EE programs using the internal ordering system.

SCG reported all portfolio expenses in Table 3 of the Annual Report filed with the Commission. The Annual Report includes EE portfolio costs by three cost categories – Administrative, Marketing/Advertising/Outreach, and Direct Implementation. Table B-2 below provides a summary of SCG's EE portfolio expenditures for PY 2015.

Table B-2
EE Portfolio Expenses (Excluding EM&V and ME&O)
Program Year (PY) 2015

Program	Administrative	Marketing	Direct Implementation	Total
	1	2	3	4 = 1 to 3
Statewide Program:				
Residential	\$1,268,772	\$2,469,675	\$16,907,811	\$20,646,255
Commercial	828,355	755,114	8,023,272	9,606,741
Agricultural	109,632	133,195	676,469	919,296
Industrial	694,113	366,491	6,606,452	7,667,056
Codes & Standards	60,748	8,878	482,868	552,494
Emerging Tech	73,605	906	1,008,677	1,083,188
WE&T	215,599	131,754	2,553,921	2,901,274
IDSMS	39,700	1,453	264,173	305,326
Financing	628,891	683,402	1,704,111	3,016,404
CRM	<u>1,266,494</u>	<u>0</u>	<u>0</u>	<u>1,266,494</u>
Subtotal - Statewide	\$5,185,909	\$4,550,868	\$38,227,754	\$47,964,528
LGP Programs:				
LGP	156,905	277,388	1,873,331	2,307,624
LGP-IOU	<u>649,245</u>	<u>0</u>	<u>0</u>	<u>649,245</u>
Subtotal - LGP	\$806,150	\$ 277,388	\$ 1,873,331	\$ 2,956,869
TP Programs:				
TP	919,175	672,275	13,877,790	15,469,240
TP-IOU	<u>403,246</u>	<u>0</u>	<u>0</u>	<u>403,246</u>
Subtotal - TP	\$1,322,421	\$ 672,275	\$ 13,877,790	\$15,872,486
Non-Utility:				
SoCalREN	<u>224,811</u>	<u>176,137</u>	<u>(1,489,287)</u>	<u>(1,088,339)</u>
Subtotal - Non-Utility	\$ <u>224,811</u>	\$ <u>176,137</u>	\$ <u>(1,489,287)</u>	\$ <u>(1,088,339)</u>
Grand Total	<u>\$7,539,291</u>	<u>\$5,676,668</u>	<u>\$52,489,588</u>	<u>\$65,705,547</u>

B.4 2013-2015 EE Program Cycle IOU Administrative Costs

Administrative costs incurred by SCG for the direct implementation of the EE programs are classified as investor owned utilities (IOU) and Non-IOU Administrative costs. IOU Administrative costs include labor (management, clerical/technical and agency), employee travel, consulting services and other services provided by contractors, materials, vacation and sick leaves, payroll taxes and allocated overhead. Also included in SCG's administrative costs are charges for services cross-billed by San Diego Gas & Electric (SDG&E). These include labor, payroll taxes, leaves, pension and benefits. Non-IOU administrative costs are incurred by Third Party (TP) contractors as well as government agencies participating in Local Government Partnership (LGP) programs. These entities are the major implementers of the programs beside SCG.

According to Decision (D.) 09-09-047, OP 13(a), "Administrative costs for utility energy efficiency programs (excluding third party and/or local government partnership budgets) are

limited to 10% of total energy efficiency budgets..." Similar to other IOUs, SCG's EE program administrative costs can be grouped into two types, those administrative costs that the IOU incurred and those that the IOU incurred in support of its Third Party (TP) and Local Government Partnership (LGP) programs. Table B-3 below provides a summary of SCG's EE program IOU administrative costs for the 2013-2015 program cycle.

Table B-3
EE Program Administrative Costs (Excluding EM&V & ME&O)
Budget Cycle 2013-2015

Program Description	Budget	IOU Administrative Cost			Total
		2013	2014	2015	
		1	2	3	
Statewide Programs:					
Residential	\$ 58,710,582	\$1,339,453	\$1,240,875	\$1,268,771	\$ 3,849,099
Commercial	29,013,266	775,653	862,731	828,355	2,466,739
Agricultural	8,993,140	148,237	183,286	109,632	441,155
Industrial	40,376,947	1,052,634	586,413	694,113	2,333,160
C&S	2,516,819	28,937	68,637	60,748	158,322
Emerging Tech	3,789,061	271,485	324,819	73,605	669,909
WE&T	9,283,551	323,325	219,608	215,599	758,532
IDS M	1,231,750	53,841	3,047	39,700	96,588
Financing	17,459,324	185,927	219,987	628,891	1,034,805
CRM	<u>2,476,310</u>	<u>1,446,475</u>	<u>1,152,276</u>	<u>1,266,494</u>	<u>3,865,245</u>
Subtotal - Statewide	\$173,850,750	\$5,625,967	\$4,861,679	\$5,185,908	\$15,673,554
LG Programs	14,371,389	680,690	750,703	649,245	2,080,638
TP Programs	<u>50,174,267</u>	<u>312,788</u>	<u>327,707</u>	<u>403,246</u>	<u>1,043,741</u>
Subtotal - LGP and TP	\$ 64,545,656	\$ 993,478	\$1,078,410	\$1,052,491	\$ 3,124,379
Non-Utility:					
REN	<u>13,164,161</u>	<u>563,520</u>	<u>48,133</u>	<u>224,811</u>	<u>836,464</u>
Subtotal - Non-Utility	\$ <u>13,164,161</u>	\$ <u>563,520</u>	\$ <u>48,133</u>	\$ <u>224,811</u>	\$ <u>836,464</u>
Grand Total	<u>\$251,560,567</u>	<u>\$7,182,965</u>	<u>\$5,988,222</u>	<u>\$6,463,210</u>	<u>\$19,634,397</u>

B.5 2013-2015 EE Program Cycle Non-IOU Administrative Costs

A Per D.09-09-047, page 63, "... we [the Commission] direct the utilities [IOUs] to seek to achieve a 10% administrative cost target for third party and local government partnership direct costs (i.e., separate from utility costs to administer these programs)..." None-IOU Administrative Costs are costs that were directly incurred by LGP and TP program implementers and contractors. Table B-4 provides a summary of SCG's Non-IOU Administrative Costs for Local Government Partnership (LGP) and Third Party (TP) programs for the 2013-15 program cycle.

**Table B-4
 EE Program Non-IOU Administrative Costs (Excluding EM&V and ME&O)
 Program Cycle 2013-2015**

Program Description	Direct Cost	Non-IOU Administrative Cost			Total
		2013	2014	2015	
	1	2	3	4	5 = 2 to 4
LGP	\$ 5,370,450	\$110,998	\$139,101	\$ 156,905	\$ 407,004
TP	<u>37,953,801</u>	<u>853,190</u>	<u>613,865</u>	<u>919,175</u>	<u>2,386,230</u>
Grand Total	<u>\$43,324,251</u>	<u>\$964,188</u>	<u>\$752,966</u>	<u>\$1,076,080</u>	<u>\$2,793,234</u>

B.6 Amounts Spent, Committed, and Unspent/Uncommitted 2013-2015

Commitments are an accounting and budgeting mechanism that the company utilizes to identify, track, and set aside potential future spending of its various EE programs that are unpaid and not accrued obligations to its customers, contractors, and other third parties. Commitments are predictable future spending and include (1) records of signed agreements or applications and (2) advance reservations for program services. Payment on commitments is always conditional on fund availability and future events, such as the performance of agreed-upon work. Commitments are tracked periodically (e.g., monthly) by program management staff and are subject to changes due to changes in operational conditions, which may include changes in scope of work, cancellation, new commitments added, invoices/payments made against previous commitments, etc.

For informational disclosure purposes, Commitment is one of the two data elements within the Unspent component, with the other being the Unspent and Uncommitted. Commitments, as well as the Adjusted Authorized Budget and Amount Spent, is an important data component in order to accurately determine the Unspent and Uncommitted Amount. For detailed data disclosure, refer to Table B-1 of this Appendix.

B.7 Codes and Standards (CS) Program and Subprograms - 2015

The Statewide Codes and Standards (C&S) Program saves energy by: 1) Influencing standards and code-setting bodies (such as the California Energy Commission) to strengthen energy efficiency regulations, 2) Improving compliance with existing codes and standards, 3) Assisting local governments to develop ordinances that exceed statewide minimum requirements, and 4) Coordinating with other programs and entities to support the state's ambitious policy goals.³

The primary mission of the C&S program is on advocacy and compliance improvement activities that extend to virtually all buildings and potentially any appliance in California. These C&S activities mainly focus on California Title 20 and Title 24, Section 5 enhancements. The C&S program requires 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

³ Fact Sheet, "Statewide Codes and Standards Program (2013-2014)," March 2013, p. 1, Codes and Standards Support at <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/>

appliance energy efficiency regulations. The C&S program also seeks to influence the United States Department of Energy (DOE) in setting national energy policy that impacts California. At SCG, the C&S program consists of five subprograms: 1) Building Codes and Compliance Advocacy, 2) Appliance Standards Advocacy, 3) Compliance Improvement, 4) Reach Codes, and 5) Planning and Coordination.

SCG spent \$552,494, or 66% of its approved C&S program budget in PY 2015. A detailed summary of the C&S program charges recorded by subprogram, cost category and the proportion to total expenses for PY 2015 is provided in the table below.

**Table B-5
C&S Program Expenditures – 2015**

Program Name	Admin.	Mktg.	DI	Total	%
Building Codes and Compliance Advocacy	\$15,663	\$8,800	\$204,689	\$229,152	41%
Appliance Standards Advocacy	16,303	0	75,764	92,067	17%
Compliance Enhancement	7,762	0	155,558	163,320	30%
Reach Codes	2,184	77	20,208	22,469	4%
Planning and Coordination	<u>18,836</u>	<u>0</u>	<u>26,650</u>	<u>45,486</u>	<u>8%</u>
Totals	<u>\$60,748</u>	<u>\$8,877</u>	<u>\$482,868</u>	<u>\$552,494</u>	<u>100%</u>

Pursuant to D.13-09-023, OP 4, SCG filed Advice Letter (AL) 5024-G on September 1, 2016 for requesting C&S programs incentive award for program year 2015 in the form of a management fee equal to 12% of approved C&S program expenditures, not to exceed authorized expenditures, and excluding administrative costs. SCG requested \$59,009. A summary detailing SCG's calculation of its C&S Management Fee is provided in the table below.

**Table B-6
C&S Management Fee Calculation - 2015**

Description	Amount
Total C&S Program Expenditures	\$552,494
Less: C&S Administrative Costs	<u>60,748</u>
Subtotal	\$491,746
Multiplied by 12%	<u>12%</u>
C&S Management Fee – PY2015	<u>\$ 59,009</u>

B.8 Non-Resource (NR) Program and Subprograms - 2015

NR programs represent energy efficiency (EE) activities that do not focus on displacement of supply-side resources at the time they are implemented, but may lead to displacement over a longer-term, or may enhance program participation overall. NR programs in themselves do not provide direct energy savings and only have costs, making them not cost-effective on their own.⁴

To date, there are no specific criteria for determining whether a particular EE program is to be classified as Resource or NR EE program for each IOU. SCG classified its EE programs as NR based on the definition contained in the Energy Efficiency Policy Manual, Version 5, dated July

⁴ D.13-19-023, Findings of Fact 10, p. 88

2013. This defines NR Program as “Energy efficiency programs that do not directly procure energy resources that can be counted, such as marketing, outreach and education, workforce education and training, and emerging technologies.”

In PY 2015, SCG identified 55 EE programs as NR with recorded charges totaling \$14,156,844. A detailed summary of NR EE program charges recorded by program and cost category for PY 2015 is provided in the table below.

Table B-7
Non-Resource Program Expenditures - 2015

Program Name	Admin.	Mktg.	DI	Total
Agricultural Continuous Improvement	\$ 1,960	\$ 531	\$ 32,112	\$ 34,603
Agricultural Energy Advisor	2,722	633	22,230	25,585
CALS Energy Advisor	6,880	4,346	123,905	135,132
Commercial Cont. Energy Improvement	19,327	15,320	375,467	410,114
Commercial Energy Advisor	31,814	693	465,705	498,213
ET – Technologies Assessment Support	28,273	581	658,329	687,183
ET – Technology Development Support	9,120	0	171,843	180,963
ET – Introduction Support	36,212	325	178,505	215,042
Industrial Cont. Energy Improvement	24,297	2,188	491,868	518,353
Industrial Energy Advisor	25,899	0	150,000	175,899
IDEEA365 - HBEEP	11,423	10,358	45,980	67,761
IDEEA365 – Comm. Sustainable Dev.	71,071	16,472	235,215	322,759
IDEEA365 - Connect	13,561	4,000	136,390	153,952
IDEEA365 – Energy Advantage	64,014	7,000	214,043	285,057
IDEEA365 – Water Loss Control	17,154	4,304	147,381	168,839
TP - CA Sustainable Alliance	38,895	24,352	726,995	790,242
TP - CLEO	32,634	18,523	229,742	280,899
TP – HERS Rater Training Advisor	48,926	20,018	491,613	560,557
TP - PACE	53,543	45,655	599,853	699,051
TP – PoF	47,417	6,335	462,926	516,677
CRM	1,266,494	0	0	1,266,494
LGP – Regional Research Placeholder	127,171	117	209,884	337,172
LGP – New Partner	(697)	0	174	(523)
LGP – City of Beaumont	7,896	4,968	18,534	31,398
LGP – City of Redlands	8,232	5,378	18,521	32,131
LGP – City of Santa Ana	14,800	7,626	35,981	58,407
LGP – City of Simi Valley	9,896	3,578	8,731	22,205
LGP – Community Energy	32,703	15,867	95,286	143,856
LGP – Desert Cities	2,641	3,209	4,795	10,645
LGP – Gateway Cities	16,242	7,036	40,306	63,584
LGP – Kern County	22,187	8,678	41,785	72,650
LGP – Los Angeles County	26,867	11,795	99,715	138,376
LGP - NOCC	8,880	4,721	47,393	60,994
LGP – Orange County	25,996	12,441	25,094	63,531
LGP – Local Government EE Pilot	1,801	125	0	1,926
LGP – Riverside County	14,760	4,253	39,186	58,199
LGP – San Bernadino County	16,115	3,191	34,606	53,912
LGP – San Gabriel Valley COG	29,122	27,851	59,080	116,053
LGP – San Joaquin Valley	22,519	13,891	53,240	89,649
LGP – San Luis Obispo	27,936	13,490	68,326	109,753
LGP - SANBAG	3	0	55	58
LGP – Santa Barbara County	25,232	18,401	39,628	83,261
LGP - SEEC	11,364	7,292	148,574	167,230
LGP – South Bay Cities	40,334	25,295	186,734	252,363

LGP – Ventura County	25,748	16,202	50,875	92,825
LGP – West Side Cities	10,503	3,288	21,548	35,340
LGP – Western Riverside Energy	28,296	6,418	91,595	126,310
LLNSTP – CA Community College	81,342	44,374	211,544	338,993
LLNSTP – CA Dept. of Corrections	42,390	2,590	53,285	98,265
LLNSTP – State of CA/IOU	24,793	2,590	52,079	79,462
LLNSTP – UC/CSU/IOU	102,253	1,552	116,774	218,846
IDSM	39,700	1,454	264,173	305,327
WE&T - Centergies	194,941	131,755	2,155,786	2,482,481
WE&T - Connections	19,679	0	387,072	406,751
WE&T – Strategic Planning	979	0	11,063	12,042
Totals	<u>\$2,914,259</u>	<u>\$591,056</u>	<u>\$10,651,529</u>	<u>\$14,156,844</u>

Pursuant to D.13-09-023, OP 4, SCG filed Advice Letter (AL) 5024-G on September 1, 2016 requesting NR programs incentive award for PY 2015 equal to 3% of approved NR program expenditures, not to exceed authorized expenditures, and excluding administrative costs. SCG requested \$337,278. A summary detailing SCG's calculation of its NR Management Fee is provided in the table below.

Table B-8
Non-Resource Management Fee Calculation - 2014

Description	Amount
Total Non-Resource Program Expenditures	\$14,156,844
Less: Non-Resource Program Administrative Costs	<u>2,914,258</u>
Subtotal	\$11,242,586
Multiplied by 3%	<u>3%</u>
Non-Resource Management Fee – PY2015	<u>\$ 337,278</u>

B.9 Energy Upgrade California (EUC) Home Upgrade Program – 2015

The Energy Upgrade California (EUC) Home Upgrade Program is designed to offer a one-stop approach to whole –house residential retrofits that provide customers with energy efficiency improvements, energy savings and comfort to their dwelling. The EUC Home Upgrade Program moves customers from a single-measure based approach to energy efficiency to a more comprehensive approach that views a house as a series of interdependent systems that must be considered holistically.

There are two (2) options to this program, Home Upgrade and the Advanced Home Upgrade. These options allow the customer to choose from a variety of measures that best suit their home and needs. Some examples of measures include attic insulation, air sealing, duct testing, HVAC change out, hot water heaters, pipe wrap, thermostatic control valves, along with combustion safety testing.

- The EUC Advanced Home Upgrade option offers customers with a whole-house approach to energy savings by creating a customized plan to help improve energy efficiency by up to 45%. There is no maximum incentive amount, but the customer is

required to select a minimum of three upgrades and one of the upgrades must be a base upgrade (i.e., air sealing, attic insulation, or duct sealing).

- The EUC Home Upgrade option primarily focuses on the outer shell of the home and offers a maximum incentive amount of \$3,000. A customer is required to select a minimum of three upgrades and one of the upgrades must be a base upgrade.

In D.14-10-046, the Commission authorized SCG a total budget of \$6,767,345 for the EUC Home Upgrade program in PY 2015. SCG incurred charges totaling \$7,033,701 in implementing its EUC Home Upgrade in PY 2015. According to SCG, the EUC Home Upgrade program expenditures in PY 2015 exceeded the authorized budget due to a \$1.9 million fund shift to the Plug Load and Appliance program which was in accordance with the fund shifting guidelines. A detailed summary of SCG's reported EUC Home Upgrade program costs by cost category and their related percentages for PY 2015 is presented in the table below.

Table B-9
SCG EUC Home Upgrade Program Expenditures – PY 2015

Cost Category	Amount	%
Administrative	\$ 344,765	5%
Marketing	333,984	5%
Direct Implementation	<u>6,354,952</u>	<u>90%</u>
Totals	<u>\$7,033,701</u>	<u>100%</u>

B.10 Commercial Deemed Incentives - Commercial Rebate (CDIR) Program – 2015

The Statewide Commercial EE Program offers California's commercial customers a variety of products and services to help overcome the market barriers to optimize energy management. The program targets end users that include all commercial sub-segments such as distribution warehouses, office buildings, hotels, motels, restaurants, schools, trade schools, municipalities, universities, colleges, hospitals, entertainment centers, and smaller customers that have similar buying characteristics.

The Statewide Commercial EE Program includes five (5) statewide subprograms elements, including Commercial Energy Advisor, Continuous Energy Improvement, Commercial Calculated Incentives, Commercial Deemed Incentives – Commercial Rebate, and Nonresidential HVAC.

The statewide Commercial Deemed Incentives – Commercial Rebate (CDIR) program is designed to help influence the installation of EE 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. To achieve energy savings through measure implementation for this program, SCG also offers non-incentive measures such as technical consultation and application preparation assistance to ensure that lost opportunities are captured by not allowing projects to fall behind because the customer lacks the resources to shepherd through the process.

In D.14-10-046, the Commission authorized SCG a total budget of \$4,497,331 for the CDIR program in PY 2015. Due to the need of additional funding for the CDIR program, SCG shifted an additional \$500,000 from the Commercial Calculated Incentives subprogram in accordance with the fund shifting guidelines. In addition, for its CDIR program budget in PY 2015, SCG carried over an additional \$191,417 from the 2013-2014 EE program cycle, resulting in a total CDIR program operating budget of \$5,188,748 for PY 2015.

In PY 2015, SCG spent \$5,063,506 or 98% of its operating budget of \$5,188,748. A detailed summary of SCG's reported and recorded CDIR program costs by cost category and their related percentages for PY 2015 is presented in the table below.

Table B-10
CDIR Program Expenditures – PY 2015

Cost Category	Amount	%
Administrative	\$ 458,915	9%
Marketing	588,339	12%
Direct Implementation	<u>4,016,252</u>	<u>79%</u>
Totals	<u>\$5,063,506</u>	<u>100%</u>

B.11 Industrial EE Program and Subprograms – 2015

The Statewide Industrial EE Program offers the industrial segment 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

SCG's Statewide Industrial EE Program consists of four subprograms: 1) Industrial Calculated Incentives (ICI), 2) Industrial Deemed Incentives (IDI), 3) Industrial Continuous Energy Improvement (ICEI), and 4) Industrial Energy Advisor.

In D.14-10-046, the Commission authorized SCG a total budget of \$11.2 million for the Statewide Industrial EE Program in PY 2015. SCG also carried forward an additional \$13.3 million from 2013-2014 EE program cycle, resulting in a total Statewide Industrial EE Program operating budget of \$24.5 million for PY 2015.

In PY 2015, SCG spent \$7,667,056 or 31% of its total operating budget of \$24.5 million. A detailed summary of SCG's reported and recorded Industrial EE Program costs by subprogram, cost category and their related percentages for PY 2015 is presented in the table below.

Table B-11
Statewide Industrial EE Program Expenditures – PY 2015

Program Name	Admin.	Mktg.	DI	Total	%
Industrial Calculated Incentives	\$529,808	\$146,585	\$5,348,445	\$ 6,024,838	79%
Industrial Deemed Incentives	114,109	217,718	616,139	947,966	12%
Industrial Cont. Energy Improvement	24,297	2,188	491,868	518,353	7%
Industrial Energy Advisor	<u>25,899</u>	<u>0</u>	<u>150,000</u>	<u>175,899</u>	<u>2%</u>
Totals	<u>\$694,113</u>	<u>\$366,491</u>	<u>\$6,606,452</u>	<u>\$7,667,056</u>	<u>100%</u>

B.12 Agricultural EE Program and Subprograms – 2015

The Statewide Agricultural EE Program facilitates the delivery of integrated energy management solutions to California's diverse agricultural customers. The program offers a variety of products and services, including strategic energy planning support, technical support services, facility audits, pump tests, calculation/design assistance, financing options, and financial support through rebates and incentives. The program targets agricultural end-users, such as irrigated agriculture growers (crops, fruits, vegetable, and nuts), greenhouses, post-harvest processors (ginners, nut hullers, and associated refrigerated warehouses) and dairies. Traditionally, food processors have received IOU services through the Industrial program offering. However, there are those facilities that are integrated with 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, SCG's Statewide Agricultural EE Program consists of four subprograms: 1) Agricultural Calculated Incentives (ACI), 2) Agricultural Deemed Incentives (ADI), 3) Agricultural Continuous Energy Improvement, and 4) Agricultural Energy Advisor.

In D.14-10-046, the Commission authorized SCG a total budget of \$4.2 million for the Statewide Agricultural EE Program in PY 2015. SCG also carried forward an additional \$1.1 million from 2013-2014 EE program cycle, resulting in a total Statewide Agricultural EE Program operating budget of \$5.3 million for PY 2015.

In PY 2015, SCG spent \$919,296 or 17% of its total operating budget of \$5,295,631. A detailed summary of SCG's reported and recorded Agricultural EE Program costs by subprogram, cost category and their related percentages for PY 2015 is presented in the table below.

Table B-12
Statewide Industrial EE Program Expenditures – PY 2015

Program Name	Admin.	Mktg.	DI	Total	%
Agricultural Calculated Incentives	\$ 46,441	\$ 72,469	\$211,140	\$330,050	36%
Agricultural Deemed Incentives	58,508	59,564	410,986	529,058	58%
Agricultural Cont. Energy Imp.	1,960	531	32,112	34,603	4%
Agricultural Energy Advisor	<u>2,722</u>	<u>633</u>	<u>22,230</u>	<u>25,585</u>	<u>3%</u>
Totals – PY 2015	<u>\$109,631</u>	<u>\$133,197</u>	<u>\$676,468</u>	<u>\$919,296</u>	<u>100%</u>

B.13 Local Government Partnership (LGP) Program and Subprograms – 2015

SCG's LGP Program and subprograms serve as SCG's primary delivery channel supporting cities, counties, and other agencies seeking energy savings and greenhouse gas emission reductions on the community-scale. Promoting energy planning at a statewide and local level is a major market driver in the uptake of energy efficiency projects due to the unique advantage local governments have in understanding the distinctive circumstances of their communities. Partnerships leverage the significant role that local governments play in terms of community-wide energy usage, extending the reach and effectiveness of SCG's energy efficiency programs.

In D.14-10-046, the Commission authorized SCG a total budget of \$4.8 million for the LGP Program in PY 2015. SCG also carried forward an additional \$4.6 million from 2013-2014 EE program cycle, resulting in a total LGP Program operating budget of \$9.4 million for PY 2015.

In PY 2015, SCG incurred charges totaling \$2,956,870 in implementing its LGP Program and subprograms. A detailed summary of SCG's reported LGP program costs by subprogram, cost category and their related percentages for PY 2015 is presented in the table below.

Table B-13
LGP Expenditures – PY 2015

Program Name	Admin.	Mktg.	DI	Total	%
CA Dept. of Corrections	\$ 42,390	\$ 2,590	\$ 53,285	\$ 98,265	3%
CA Community College	83,075	44,374	211,544	338,993	11%
UC/CSU/IOU	99,346	2,726	116,774	218,846	7%
State of CA/IOU	24,793	2,590	52,079	79,462	3%
Los Angeles County	26,867	11,795	99,715	138,376	5%
Kern County	22,187	8,678	41,785	72,650	2%
Riverside County	14,760	4,253	39,186	58,199	2%
San Bernadino County	16,115	3,191	34,606	53,912	2%
Santa Barbara County	25,232	18,401	39,628	83,261	3%
South Bay Cities	40,334	25,295	186,734	252,363	9%
San Luis Obispo County	27,936	13,490	68,326	109,753	4%
San Joaquin County	22,519	13,891	53,240	89,649	3%
Orange County	25,996	12,441	25,094	63,531	2%
Statewide EE Collaborative (SEEC)	11,364	7,292	148,574	167,230	6%
Community Energy	32,703	15,867	95,286	143,856	5%
Desert Cities	2,641	3,209	4,795	10,645	0%
Ventura County	25,748	16,202	50,875	92,825	3%
Local Government EE Pilot	1,801	125	0	1,926	0%
New Partnership	(697)	0	174	(523)	0%
Regional Resource Placeholder	127,171	117	209,884	337,172	11%
Gateway Cities	16,242	7,036	40,306	63,584	2%
San Gabriel Valley COG	29,122	27,851	59,080	116,053	4%
City of Santa Ana	14,800	7,626	35,981	58,407	2%
West Side Cities	10,503	3,288	21,548	35,340	1%
City of Simi Valley	9,896	3,578	8,731	22,205	1%
City of Redlands Pilot	8,232	5,378	18,521	32,131	1%
City of Beaumont	7,896	4,968	18,534	31,398	1%
Western Riverside Energy	28,296	6,418	91,595	126,310	4%
NOCC	8,880	4,721	47,393	60,994	2%
SANBAG	3	0	5	58	0%
Totals	\$806,150	\$227,388	\$1,873,331	\$2,956,870	100%

B.14 Follow-up on Prior UAFCB's Observations and Recommendations and SCG Internal Audit Services Reports

UAFCB performed a follow-up examination on each observation and recommendation included in its prior report entitled, *Financial, Management, Regulatory, and Compliance Examination Report on Southern California Gas Company's (SCG's) Energy Efficiency Program For the Period January 1, 2014 through December 31, 2014*, issued on June 30, 2016.

UAFCB reviewed prior observations and recommendations pending corrective actions by SCG which included the following:

- **Observation 7:** SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including its established accrual policy and procedures. SCG incorrectly included \$35,238 in PY 2014 the NR program expenditures belonging to PY 2013. The amount was charged to

the Direct Implementation cost category (\$23,500) and Administrative cost category (\$11,738), respectively.

Recommendation: SCG has since filed AL 4826-G to claim the NR Programs Management Fee incentive award for PY 2014. The management fee associated with this incorrect amount is insignificant in UAFCB's judgment but the occurrence is an internal control weakness. Therefore, UAFCB proposes no audit adjustment. However, to minimize the occurrence of these errors in the future, SCG should adhere to the accrual basis of accounting in recording and reporting EE expenditures while also continuing to strengthen its oversight over its internal controls.

UAFCB Follow-Up Response: SCG's EE budget team has been working closely with program staff to ensure compliance with company accrual policy and procedures.

- **Observation 8:** SCG failed to demonstrate compliance with General Order (GO) 28 and the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts (USOA) respecting the NR programs. The documentation provided by SCG to substantiate recorded transactions with one of its vendors did not reconcile with the amounts contained in the signed Purchase Order (PO) agreement. The overstatement is insignificant but the occurrence is an indication of lack of sufficient oversight.

Recommendation: SCG should ensure that the provisions in signed agreements are accurately recorded in order to reduce the risk of any types of errors. SCG should strengthen its oversight over the existing contracting process.

UAFCB Follow-Up Response: SCG's EE budget team has been working closely with program staff to ensure contract amendment documentation are reviewed in order to reduce the risk of errors.

- **Observation 11:** SCG failed to demonstrate compliance PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly recorded \$26,461 in PY 2014 that should have been recorded in PY 2013.

Recommendation: SCG should adhere to its own accrual basis of accounting by recording and reporting its EE expenditures in the appropriate PY.

UAFCB Follow-Up Response: SCG's EE budget team has been working closely with program staff to ensure compliance with company accrual policy and procedures.

- **Observation 16:** SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$110,226 in PY 2014 the CCI program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category of the program.

Recommendation: Energy Division should exclude \$110,226 from the reported 2014 CCI Program total expenditures before calculating SCG's PY 2014 Resource Program Savings Incentive award.

UAFCB Follow-Up Response: SCG removed \$110,226 in PY 2014 resource program expenditures from its Ex Ante Review Process Performance Award calculation in accordance with UAFCB's recommendation in AL 5024-G filed on September 1, 2016.

- **Observation 19:** SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$13,120 in PY 2014 the ICI program expenditures belonging to PY 2013. The amount was charged to the Direct Implementation cost category of the program.

Recommendation: Energy Division should exclude \$13,120 from the reported 2014 ICI Program total expenditures before calculating SCG's Resource Program Savings Incentive award.

UAFCB Follow-Up Response: SCG removed \$13,120 in PY 2014 resource program expenditures from its Ex Ante Review Process Performance Award calculation in accordance with UAFCB's recommendation in AL 5024-G filed on September 1, 2016.

SCG's Internal Audit Recommendations

SCG's internal Audit Services issued one audit report that was relevant to the PY 2015 EE examination. However, company management provided appropriate corrective responses to the Audit Services' finding and recommendations, and there were no outstanding issues. Refer to Observation 35, Appendix A for more details.

Appendix C
SCG Comments

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July 21, 2017

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Re: SoCalGas Comments on Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency Programs For the Period January 1, 2015 through December 31, 2015

Dear Mr. Kajopaiye,

Southern California Gas Company (SoCalGas) has reviewed the Draft Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency (EE) Programs For the Period January 1, 2015 through December 31, 2015 (Report) prepared by the Utility Audit, Finance and Compliance Branch (UAFCB). SoCalGas hereby provides the following comments.

UAFCB Observation 4

SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584 respecting certain PY 2015 IOU administrative cost amounts sampled for verification. SCG incorrectly included \$428,771 in PY 2015 the IOU administrative expenditures belonging to PY 2014. This represents 7% of the total IOU administrative expenses in PY 2015.

SoCalGas Response to Observation 4

SoCalGas acknowledges that the items indicated in Observation 4 should have been accrued in 2014 as each item met SoCalGas' minimal accrual threshold of \$10,000 per transaction. However, SoCalGas would like to clarify that the finding inappropriately determines such costs as IOU administrative expenditures. Specifically, item #1 through item #4 and item #7 relate to Regional Energy Network (REN), and the two Southern California Electric Company (SCE) items totaling \$13,081 and \$53,659 relate to Evaluation, Measurement and Verification (EM&V) expenses; not SoCalGas administrative expenses. As such, UAFCB should revise its final report to remove the reference to IOU administrative expenses from this observation.

UAFCB Observation 6

SCG failed to demonstrate compliance with Commission Decision (D.) 09-09-047, Ordering Paragraph (OP) 13 and other applicable Commission directives respecting the 10% IOU administrative cost cap for the 2013-2015 EE program cycle. SCG reported an IOU

administrative cost cap of 5.6% for the 2013-2015 EE program cycle. However, UAFCB's determination of SCG's IOU administrative cost cap for the 2013-2015 EE program cycle disclosed that it exceeded the 10% IOU administrative cost cap. UAFCB's calculation produced an IOU administrative cost cap amount of 9.3% based on SCG's total EE program budget for the 2013-2015 program cycle and/or 10.5% based on SCG's EE program operating expenses for the 2013-2015 program cycle.

SoCalGas Response to Observation 6

SoCalGas disagrees with UAFCB's finding that SoCalGas exceeded the administrative cost cap in 2013-2015. SoCalGas' stated methodology for calculating its portfolio budget caps and targets has been the same since 2010 and has been consistently approved by the Commission in its EE Budget and Compliance advice letters and is supported by Commission decisions as discussed and cited below. Notably, UAFCB has reviewed SoCalGas' administrative cost cap calculation in past audits and has not presented any negative findings regarding SoCalGas' methodology. For 2013 through 2015, SoCalGas provided the following tables in its budget and compliance advice letters, AL 4449 (2013-2014):¹

	Budgets					
	Admin	Marketing	Direct Implementatio	Incentives	EM&V	Total Budget
2013-2014 Authorized Budget	\$ 13,219,866	\$ 8,271,580	\$ 84,787,806	\$ 56,098,578	\$ 7,301,624	\$ 169,679,454
GRC Labor Loaders	\$ 6,003,681	\$ 186,231	\$ 1,721,643	\$ -	\$ -	\$ 7,911,556
OBF Loan Pool			\$ 2,000,000			\$ 2,000,000
Statewide ME&O	\$ -	\$ 4,004,067	\$ -	\$ -	\$ -	\$ 4,004,067
Total Budget						\$ 183,595,077
SoCalREN						\$ 9,052,161
Total Budget w/ SoCalREN						\$ 192,647,238
Parameter Type	Cap	Target	Target	Target	Budget	
Cap / Target Level	\$ 14,636,586	\$ 8,457,811	\$ 63,860,018	\$ 56,098,578	\$ 7,301,624	
Total Budget for Cap	\$ 192,647,238	\$ 183,595,077	\$ 183,595,077	\$ 183,595,077	\$ 183,595,077	
Cap / Target Percent	7.6%	4.6%	34.8%	30.6%	4.0%	
Caps/Targets	10.0%	6.0%	20.0%	60.0%	4.0%	

and AL 4725 (2015):²

	Budgets					
	Admin	Marketing	Direct	Incentives	EM&V	Total Budget
2015 EE Budget	\$ 7,648,777	\$ 4,677,863	\$ 32,409,769	\$ 31,282,164	\$ 3,347,927	\$ 79,366,499
GRC Labor Loaders	\$ 5,188,178	\$ 119,345	\$ 1,114,277			\$ 6,421,800
New Financing Pilots	\$ 637,254	\$ 682,280	\$ 1,597,076	\$ 2,217,201		\$ 5,133,811
OBF Loan Pool						\$ -
Statewide ME&O		\$ 2,002,034				\$ 2,002,034
Total EE Funding						\$ 92,924,144
SoCalREN						\$ 4,337,000

¹ <https://www.socalgas.com/regulatory/tariffs/tm2/pdf/4449.pdf>, at p. 4.

² <https://www.socalgas.com/regulatory/tariffs/tm2/pdf/4725.pdf>, at p.4.

Total EE Funding w/ SoCalREN						\$ 97,261,144
Parameter Type	Cap	Target	Target	Target	Budget	
Cap / Target Level	\$ 8,877,091	\$ 5,456,929	\$ 19,917,498	\$ 33,499,365	\$ 3,347,927	
Total Budget for Calculation	\$ 92,924,144	\$ 92,924,144	\$ 92,924,144	\$ 92,924,144	\$ 83,702,927	
Cap / Target Percent	9.6%	5.9%	21.4%	36.1%	4.0%	
Caps/Targets	10.0%	6.0%	20.0%	60.0%	4.0%	

SoCalGas used the following assumptions for determining the 2013-2015 budget targets and caps:

Assumption 1. Compliance with D. 09-09-047, OP 13, which provides:

For Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company in 2010 to 2012, the following caps and targets are adopted:

- a. Administrative costs for utility energy efficiency programs (excluding third party and/or local government partnership budgets) are limited to 10% of total energy efficiency budgets. Administrative costs shall be closely identified by and consistent across utilities. Administrative costs shall not be shifted into any other costs category. Utilities shall not reduce the non-utility portions of local government partnership and third party implementer administrative costs, as compared to levels contained in budgets approved herein, unless those levels exceeded 10% in the July 2009 utility supplemental applications in this proceeding;
- b. Marketing, Education and Outreach costs for energy efficiency are set at 6% of total adopted energy efficiency budgets, subject to the fund-shifting rules in Section II, Rule 11 of the Energy Efficiency Policy Manual;
- c. Non-resource costs (excluding non-resource direct implementation costs) are set at 20% of the total adopted energy efficiency budgets; and
- d. The utilities shall not unduly reduce Strategic Planning non-administrative costs as compared to resource program direct implementation non-incentive costs.

Specifically, the SoCalGas program administrative costs that SoCalGas did not include in the administration cap calculation, as directed in D.09-09-047 at pages 50-51, for 2013-2015 are EM&V, SW ME&O, Codes & Standards, Emerging Technologies, Energy advisor programs, Commercial and Agriculture Continuous Energy Improvement program, WE&T, local & statewide IDSM, and On-Bill Financing. In addition, third party local government costs were not included in SoCalGas' administrative costs.

Assumption 2. SoCalGas' EE authorized budget already includes costs for payroll taxes, and vacation & sick leave; as such, the budget is categorized consistent with the December 28, 2008 Assigned Commissioner and Administrative Law Judge's Ruling Modifying Schedule

and Requiring Additional Information for 2009-2011 Supplemental Filings Attachment 5-A, and as modified by D. 11-04-005, OP 2.

Assumption 3. EM&V is four percent of the EE authorized program budget (and four percent of the total portfolio budget).³

Assumption 4. In order to be comparable to the other Investor-Owned Utilities, SoCalGas includes its OBF loan funds as part of its total EE budget for purposes of determining budget caps and targets (pursuant to D.12-11-015, OP 21).

Assumption 5. SoCalGas will continue to report the status of its budget caps and targets based on actual expenditures in its quarterly reports submitted through the Commission's Energy Efficiency Statistics website (EEStats).

Using UAFCB's Budget Methodology (a), the proper denominator should be **\$262,185,865 excluding GRC labor loaders** based on the approved forecasted budget used to demonstrate SoCalGas' 2013-2015 compliance with the Commission's administrative cost cap, and not UAFCB's proposed denominator of \$201,893,525. UAFCB's calculation only considers the total program budgets and the benefit loaders, and improperly excludes all other approved budget components that SoCalGas provides in the tables above—i.e., OBF loan pool and EM&V.

Using UAFCB's Operating Cost Methodology (b) and applying the same assumptions used in SoCalGas' advice letters but replacing them with actual costs, the resulting denominator is **\$187,563,699**. SoCalGas uses this methodology to calculate its performance against the administrative cost cap. UAFCB calculates the denominator as only \$179,431,506, which is incorrect because UAFCB does not include the OBF loan pool, EM&V, and SW Marketing.

With respect to the numerator, SoCalGas agrees with the following formula for calculating the total administrative costs:

(IOU administrative costs + IOU administrative costs incurred in support of its TP program and LGP program)

However, UAFCB's formula does not account for \$2,209,572 in administrative-exempted programs, as described above in Assumption 1 for SoCalGas' EE budget and compliance advice letters.

SoCalGas submits that the primary drivers for the difference in UAFCB's and SoCalGas' calculations are (1) UAFCB erroneously excluded EM&V and OBF Loan Pool from the denominator⁴, and (2) UAFCB erroneously failed to exclude the administrative-exempted programs approved in D.09-09-047. In contrast, the draft report incorrectly points to the following reasons as the primary cause for the difference in the calculations:

³D.14-10-046, "As with past portfolios, the utilities have proposed to reserve 4% of the total budget for EM&V, consistent with the guidance in D.12-05-015. No party objects to this funding level." at p. 147.

⁴ D.12-11-015, OP 39.

The Commission's EE program decisions and the EE Policy Manual do not provide explicit and clear instructions on how to calculate the 10% IOU administrative cost cap. There is no clear guidance on the types of costs to include in the numerator or denominator when determining the 10% IOU administrative cost cap amount. Additionally, there is no specific formula to use when determining the IOU administrative cost cap amount.⁵

Furthermore, the draft report states the because of the lack of clarity regarding how to calculate the cost cap, "UAFCB is unable to determine whether SoCalGas is in compliance with the 10% administrative cost cap for the 2013-2015 program cycle."⁶ This is inconsistent with UAFCB's analysis in past annual EE audits, where UAFCB has repeatedly reviewed and found no deficiencies in SoCalGas' calculation methodology.

Consistent with past practice, SoCalGas does not exceed the administrative cost cap using either the Budget Methodology or the Operating Cost Methodology, which results in an administrative cost of 6.3% and 8.8%, respectively, both well under the Commission's administrative cost cap of 10%.

Moreover, given that UAFCB admits that it is unable to determine SoCalGas's compliance with the administrative cost cap due to the lack of clarity in Commission decisions and the Policy Manual, and that UAFCB did not object to or correct SoCalGas' calculation practices in previous audits, UAFCB's recommendation to refund to ratepayers the administrative expenses allegedly in excess of the 10% cap is unfounded and inappropriate.

UAFCB's recommendation is inconsistent with prior Commission direction. In D. 14-10-046, the Commission recognized the general shortcomings of the current accounting requirements:

"We direct Commission Staff to retain an accounting consultant (using EM&V funds to cover the costs) both to review prior-cycle reporting and to develop a proposal to rationalize accounting practices for EE going forward."⁷

D.14-10-046 concluded that any future changes to energy efficiency accounting practices would be on a going forward basis. Any such future changes/ clarifications to the current accounting practices will directly impact reporting requirements including the administrative cap calculation. Thus, UAFCB's recommendation to expose SoCalGas to potential retroactive refunds is inconsistent with current Commission direction and should be removed from UAFCB's final audit report.

SoCalGas strongly recommends that the Commission clarify its policies and rules regarding the administrative cost cap calculation. Any clarification regarding the correct methodology should be applied *prospectively*, not *retrospectively*. A retroactive application of future

⁵ Draft Report, p. A-5.

⁶ *Id.*, p.A-5.

⁷ Section 3.2.5 at 43.

changes/clarifications regarding the current administrative cap calculation would unfairly deprive SoCalGas of the ability to manage its administrative cost cap appropriately.

The table below summarizing the discussion above.

Budget Methodology:							
	UAFCB				SCG		
	Administrative Cost	Total Cost	Portfolio Cost	Admin Cap Calculation	Administrative Cost	Total Portfolio Cost	Admin Cap Calculation
IOU Admin Cost	\$ 18,797,933				\$ 18,797,933		
IOU Exempted Program Admin Cost					\$ (2,209,572)		
		\$ 201,893,525		9.3%		\$ 262,185,865	6.3%
Operating Cost Methodology:							
	UAFCB				SCG		
	Administrative Cost	Total Cost	Portfolio Cost	Admin Cap Calculation	Administrative Cost	Total Portfolio Cost	Admin Cap Calculation
IOU Admin Cost	\$ 18,797,933				\$ 18,797,933		
IOU Exempted Program Admin Cost					\$ (2,209,572)		
		\$ 179,431,506		10.5%		\$ 187,563,699	8.8%

Note:

[1] Calculation excludes GRC labor loaders

[2] UAFCB mistakenly excluded EM&V and DBF Loan pool from the denominator

[3] UAFCB mistakenly fail to exclude administrative cap-exempted programs from the numerator: Codes & Standards, Emerging Technologies, Workforce Education & Training, Integrated Demand-Side Management, CALSPREE Energy Advisor, Commercial Energy Advisor, Commercial Continuous Energy Improvement, Industrial Energy Advisor, Industrial Continuous Energy Improvement, Agriculture Energy Advisor, Agriculture Continuous Energy Improvement, and all non-resource Local, Government Partnership, and Third-Party programs.

UAFCB Observation 14

SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$88,443 in PY 2015 the C&S program expenditures belonging to PY 2014. The amount was charged to the Direct Implementation cost category of the program. This represents 16% of the total C&S program expenses in PY 2015.

SoCalGas Response to Observation 14

Of the invoices identified in Observation 14, SoCalGas acknowledged that Sample #17 and #20 should have been accrued in 2014. As a business practice SoCalGas continuously seeks to strengthen its internal processes, including enhanced procedures and training to ensure that program expenditures are valid and accurate, and are recognized and reported in the appropriate reporting period.

However, the \$22,129 in expenditures related to Codes & Standards Compliance Improvement Program (Sample #30) and the \$20,954 in expenditures related to Codes & Standards Compliance Improvement Program (Sample #31) were correctly accrued in 2014 under an estimated cost of \$36,925, as shown in Attachment A. SoCalGas requests that UAFCB modify its final report to remove Sample #30 and #31 from this observation.

UAFCB Observation 17

SCG failed to demonstrate compliance with PU code §§ 581, 582 and 584, including SCG's established accrual policy and procedures. SCG incorrectly included a total of \$132,051 in NR Program expenditures not belonging to PY 2015. The amount was charged to the Direct Implementation cost category. This represents 1% of the total NR program expenses in PY 2015.

SoCalGas Response to Observation 17

SoCalGas acknowledges that Sample #41 and #49 identified in Observation 17 should have been accrued in 2014 as it met SoCalGas' minimal accrual threshold of \$10,000 per transaction. As a business practice SoCalGas continuously seeks to strengthen its internal processes, including enhanced procedures and training to ensure that program expenditures are valid and accurate, and are recognized and reported in the appropriate reporting period.

SoCalGas requests UAFCB to modify its final report to remove Sample #16 from this observation because SoCalGas made the effort to request for accrual invoices from the vendor in order to prepare the accrual request timely. SoCalGas continuously requested this information from the vendor by phone in December 2014. The documents provided to UAFCB in response to DR-07 Supplemental 01 show that SoCalGas continuously made the effort to track the budget and pay the invoice. As such, SoCalGas demonstrated compliance with PU Code §§ 581, 582 and 584, including SoCalGas' established accrual policy and procedures

UAFCB Observation 33

SCG failed to demonstrate compliance with PU code §§ 581, 582, and 584, including SCG's established accrual policy and procedures. SCG incorrectly included \$10,090 in PY 2015 the LGP Program expenditures belonging to PY 2014. The amount was charged to the Direct Implementation cost category of the LGP Program. This amount represents 0.3% of the total LGP Program expenses in PY 2015.

SoCalGas Response to Observation 33

SoCalGas acknowledges that the amount of \$10,090 should be accrued in 2014 as it met SoCalGas' minimal accrual threshold of \$10,000 per transaction. As a business practice SoCalGas continuously seeks to strengthen its internal processes, including enhanced procedures and training to ensure that program expenditures are valid and accurate, and are recognized and reported in the appropriate reporting period.

UAFCB Observation 36

SCG identified internal audit report #15-226 – Energy Efficiency Calculated Incentives Program (EECIP) that related to EE program activities for the PY 2015 examination period. In this internal audit report dated October 13, 2015, SCG's Audit Services (AS) conducted a review of the design and operating effectiveness of controls that support the EECIP for the period January 1, 2014 through June 30, 2015.

SoCalGas Response to Observation 36

SoCalGas acknowledges the recommendation and continuously seeks to strengthen its internal processes to ensure that program expenditures are appropriately recorded.

If you have any questions or require additional information regarding these comments, please do not hesitate to contact me.

Sincerely,

/s/ Daniel J. Rendler

Daniel J. Rendler
Director, Customer Programs and Assistance

Cc: J. Pong
C. Sierzant
E. Palermo
Central Files
B.Ayanruoh
K.Nakamura

Attachment A

Accrual Estimate

RE: Accruals - Message (1/16/14) (Read Only)

Message toolbar: Reply, Reply All, Forward, Move, Delete, Mark, Categorize, Follow Up, Translate, Related, Zoom, Report Abuse, etc.

From: Stuart Tartaglia <stuart.tartaglia@pge.com>
 To: Wilmore, Level <level@lwilmore.com>
 Subject: RE: Accruals

You forwarded this message on 12/16/2014 1:47 PM.

Invol,

There are two compliance improvement CFAs that we may try to get invoiced this year that are greater than 10%. Here they are.

Company	CFA-Title	SCE	PG&E	SDG&E	SCG
M&A and M&M	Tier 1 Title 24 Stds Essentials	35%	40%	15%	10%
	Committed Amount	241,420	275,908	103,466	68,977
	Invoiced To-Date	87,934	100,576	37,716	25,144
	Estimate of 2014 Not Invoiced	129,236	147,698	55,387	36,925
	Remaining Commitment	24,249	27,634	10,353	6,908
Company	CFA-Title	SCE	PG&E	SDG&E	SCG
M&A	Standards Essentials Curriculum Plan	35%	40%	15%	10%
	Estimate of 2014 Not Invoiced	73,393	0	31,431	20,934
	Remaining Commitment	49,501	\$51,149	21,216	24,144

Stuart Tartaglia
 Pacific Gas and Electric Company
 Customer Energy Solutions, Codes & Standards
 Office: (415) 973-1508
 Mobile: (415) 314-8266
stuart.tartaglia@pge.com

From: Wilmore, Level <level@lwilmore.com>
 Sent: Thursday, December 11, 2014 3:35 PM
 To: Tartaglia, Stuart; Javier, Marisol <javier.mariscal@sce.com>; Marver, Bill; Swas, Adrian
 Subject: Accruals

At SCG, I only have to be aware of charges of \$10,000 and above for the accrual process. Do any of you have outstanding invoices for SCG of \$10,000 or higher?

Thanks

Invol: B. Wilmore
 Southern California Gas Company
 Market Advisor

Examination of SCG's 2015 Energy Efficiency Programs
 July 31, 2017

Codes & Standards Accrual Template Submission

Copy of ACCRUAL-TEMPLATE(CPD)

ACCOUNT	AMOUNT	LINE DESCRIPTION	BUSINESS AREA	COST CENTER	ORDER	ASSIGNMENT	QUANTITY	UNIT OF MEASURE	FC number	PO item	Operation (CPD orders)
0220600	30025			2200-2235	300716650						
0220600	30054			2200-2235	300716650						

Estimate #	Vendor	Explanation/Calculation
Estimate 1	PG&E	Estimate is based on labor and material costs provided by contractor - \$36,926 for work performed through the end of the month. Refer to attached email sent from the contractor
Estimate 2	PG&E	Estimate is based on labor and material costs provided by contractor - \$20,964 for work performed through the end of the month. Refer to attached email sent from the contractor

Examination of SCG's 2015 Energy Efficiency Programs
 July 31, 2017

December Accrual in SAP

Order	Cost Elem.	Cost element name	AuxAcctAs1	Name	Offbal. acct name	Offplacet	Vendor Name	Vendor	Purch. Doc.	Order	Qty	RTI an	RefOrderNo	Val/COA/Cu	Quantity	PLM	Doc. Date	Posting Date
300715653	0220000	SRV CONSULTING-OTHER	CTR 2200 2238		A/P-ACCRUAL	2125000					012	CO-N	11071142	36,525.00	0.000		12/18/2014	12/01/2014
300715665	6220600	SRV-CONSULTING-OTHER	CTR 2200-2238		A/P-ACCRUAL	2125000					012	CO-N	11071142	26,954.00	0.000		12/18/2014	12/01/2014

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-22

SOCALGAS EXHIBIT

UAFCB Energy Efficiency Audit, Southern California Gas Company Program Year 2016



ENERGY EFFICIENCY AUDIT

SOUTHERN CALIFORNIA GAS COMPANY
PROGRAM YEAR 2016



A digital copy of this report can be found at:

<http://www.cpuc.ca.gov/utilityaudits/>

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Executive Summary

The California Public Utilities Commission (Commission) was established by Constitutional Amendment as the Railroad Commission in 1911. The Legislature passed the Public Utilities Act, expanding the Commission's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies in 1912. One of the Commission's duties is to oversee billions of dollars expended on energy efficiency (EE) program funded by California ratepayers. The EE program is predominantly administered by the four major Investor-Owned Utilities (IOUs) in California. They are Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and Southern California Gas Company (SCG).¹ The primary purpose of the EE program is to develop programs and measures to meet energy savings goals and transform the technology markets in California.

Pursuant to California Public Utilities Code (PUC) Sections 381 et seq., and 454.5², the Commission is responsible to oversee the EE program which is principally administered and implemented by the four major IOUs in California and funded by California ratepayers. The Commission has statutory authority to inspect and audit the books and records of the IOUs to ensure that ratepayers' money is well spent, specifically, pursuant to PUC Section 314.5 and 314.6. Other relevant criteria can be found in Decision (D.) 13-09-023, Ordering Paragraph (OP) 17, Energy Efficiency Policy Manual (Version 5 dated July 2013), and other applicable PUC codes, directives, rulings, etc. For the audit on SCG's EE program for program year (PY) 2016, we reviewed the expenditures of the EE program and selected subprograms administered and implemented by SCE in accordance with Generally Accepted Government Auditing Standards (GAGAS) as required in PUC Section 314.6(b).

The scope of this audit covered the period January 1, 2016 to December 31, 2016 or PY 2016. The purpose of this audit was to ensure that SCG was in compliance with EE program rules and regulations and to determine whether its reported EE expenditures and commitments were accurate, allowable and verifiable. For the audit on SCG's EE program, expenditures of selected EE programs and subprograms administered and implemented by SCE for the period under audit were reviewed. The specific SCG EE program and subprogram areas audited are included in the scope section of this report. Based on the audit, the following findings were identified:

- Finding #1: Lack of Compliance with Accrual Policy and Procedures Respecting its EE Program Costs for PY 2016
- Finding #2: Overstatement of the Efficiency Savings and Performance Incentive (ESPI) Award Amount for PY 2016

¹ San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SCG) are affiliated subsidiaries of SEMPR Energy.

² All statutory citations are the California Public Utilities Code, unless otherwise noted.

Audit Report

BACKGROUND

Pursuant to California Public Utilities Code (PUC) Sections 381 et seq., and 454.5, the Commission is responsible to oversee the energy efficiency (EE) program which is principally administered and implemented by the four major Investor-Owned Utilities (IOUs) in California and funded by California ratepayers. UAFCB conducted this audit of Southern California Gas Company's (SCG's) 2016 EE program pursuant Public Utilities Code (PUC) Section 314.5 and Decision (D.) 13-09-023, Ordering Paragraph (OP) 17.

The major IOUs are Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and Southern California Gas Company (SCG). To meet California's aggressive electricity and natural gas energy efficiency goals, the Commission authorized billions to the EE program, which is funded by electric and gas rates included in ratepayer bills.³ The IOUs have greatly increased its costs and budgets through rate increases for administering and implementing the EE program over time. Prior to 2016, the Commission authorized the IOUs budgets for the EE program and subprograms based on a three-year program cycle. In Rulemaking (R.) 13-11-005, the Commission contemplated moving away from authorizing the EE budgets on a triennial basis and towards authorizing the EE budgets on an annual "rolling" portfolio basis. However, the Commission recognized that the adoption of authorizing EE budgets on a "rolling" portfolio basis would not be completed on time for 2015 funding levels. As a result, in D.14-10-046, the Commission approved the 2015 EE funding levels and authorized the IOUs to use 2015 annual spending levels until the year 2025 or when the Commission issues a superseding decision on funding levels. Subsequently, on October 22, 2015, the Commission issued D.15-10-028 which, among other things, authorized the IOUs 2016 EE funding levels at 2015 annual spending levels.

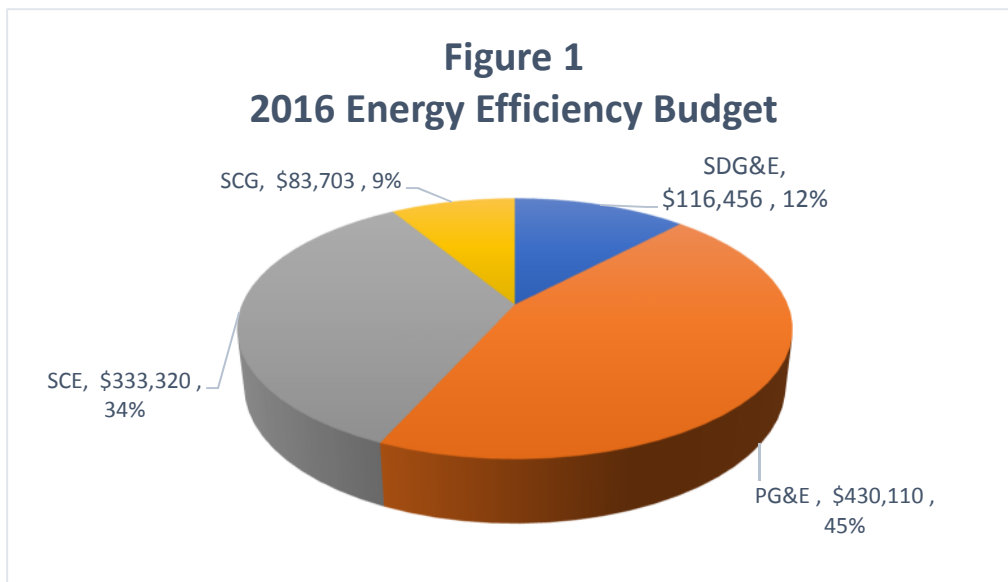
The EE program spans a variety of sectors encompassing residential homes and commercial buildings, large and small appliances, lighting and heating, ventilation and air conditioning (HVAC), industrial manufacturers, and agriculture. Within those sectors, the EE program utilizes a variety of tools to meet energy savings goals, such as financial incentives and rebates, research and development for EE technologies, financing mechanisms, codes and standards development, education and public outreach, marketing and others. The Commission also adopted the Efficiency Savings Performance Incentive (ESPI) mechanism with the intent "to motivate the utilities to prioritize EE goals, while protecting ratepayers through necessary cost containment mechanisms."⁴ In D.13-09-023, OP 15 and 16, the Commission authorized an incentive award to be paid to the IOUs as a management fee equal to 12% of authorized Codes and Standards (C&S) program expenditures and 3% of authorized non-resource

³ Section 381 established a Public Goods Charge (PGC) that consumers pay on electricity consumption for cost-effective energy efficiency, renewable technologies, and public interest research. Section 900 established a natural gas surcharge to fund cost-effective energy efficiency and other public purpose programs.

⁴ Decision 13-09-023, page 2

NR) program expenditures, not to exceed authorized expenditures and exclusive of administrative costs.⁵

For program year (PY) 2016, the Commission issued D.15-10-028 which, among other things, authorized SCG a total EE budget amount of \$83.7 million, which represents approximately 9% of the total \$963.6 million EE program budget for all four IOUs for PY 2016. SCG's PY 2016 authorized budget also included \$3.3 million for Evaluation, Measurement and Verification (EM&V) which is outside the scope of this examination. A chart reflecting SCG's portion of the total \$963.6 million EE program budget authorized for PY 2016 is shown in the figure below.



SCG received funding for the EE program through a Public Purpose Program (PPP) rate authorized by the Commission and included on customer billings.

SCOPE

Our audit objective was to ensure that SCG was in compliance with EE program rules and regulations and to determine whether the EE expenditures claimed by SCG were for allowable purposes and supported by appropriate documentation, such as invoices, contracts and relevant records, and were recorded appropriately in PY 2016.

In this audit, we examined the expenditures of the following EE programs and subprograms:

1. Codes and Standards (C&S)
2. Non-Resource (NR)
3. Residential Energy Advisor (REA)
4. Commercial Energy Advisor (CEA)
5. Plug Load and Appliances (PLA)
6. Third-Party (TP)

⁵ The C&S and Non-Resource programs support energy savings but do not provide direct energy savings.

In addition to examining the expenditures of the above selected EE program and subprograms, we also reviewed the EE commitments that SCG reported to the Commission, and reviewed the monthly EE reports submitted by SCG and uploaded to the Commission’s California Energy Efficiency Statistics (EEStats) website⁶. A follow-up review was also performed on its PY 2015 EE audit⁷ recommendations to determine whether SCG has implemented the appropriate corrective actions.

METHODOLOGY

To address the audit objectives and assist the Commission in its oversight over the EE programs, the following procedures were performed:

- Obtained an understanding of the EE program by reviewing relevant laws, rules, regulations, PUC codes, decisions, resolutions and advice letters.
- Obtained and reviewed SCG’s accounting system, accounting policies, processes and procedures for recording, tracking, and monitoring EE program costs.
- Assessed whether the SCG’s policies, procedures, and practices comply with the EE program requirements.
- Performed analysis of expenditure data to identify any anomalies or significant variances.
- From the SCG’s accounting data, judgmentally selected expenditure transactions for review and testing.
- Requested and reviewed supporting documentation such as purchase orders, detailed invoices, contracts, receiving reports, timesheets and additional documentation as needed for the expenditure transactions selected for testing.
- Reviewed relevant contracts to determine if contract terms and provisions supported the EE program.
- Traced expenditure samples recorded in SCG’s accounting records to supporting documentation to determine whether costs were reasonable, allowable, verifiable, and relevant to the EE program.
- Reviewed SCG’s accrual entries and verified the cutoff of expenditure transactions to determine if proper expenditure amounts were recorded and reported in the proper accounting period.
- Reviewed the SCG’s commitments reported in EEStats and performed reconciliation of these reported amounts to SCG’s records to determine whether these commitments were sufficiently justified and properly reported to the Commission.

FINDINGS AND RECOMMENDATIONS

FINDING 1: Lack of Compliance with Accrual Policy and Procedures Respecting its EE Program Costs for PY 2016

⁶ This California Energy Efficiency Statistics (EEStats) website is a repository of utility-submitted reports to the Commission and contains up-to-date savings, budgets, expenditures, and cost effectiveness results for each IOUs EE programs.

⁷ UAFCB report entitled “*Financial, Management, Regulatory, and Compliance Examination Report on Southern California Gas Company’s (SCG’s) Energy Efficiency (EE) Program for the Period January 1, 2015 through December 31, 2015*”, dated July 31, 2017.

Condition:

SCG incorrectly recorded \$809,495 in PY 2016 expenditures belonging to PY 2015, resulting in an overstatement of PY 2016 expenditures reported to the Commission.

Based on its review, SCG improperly recorded and accrued \$809,495 in expenditures to PY 2016 due to the inconsistent application of its own internal accrual policy and procedures. A detailed breakdown expenditure amounts overstated by SCG for PY 2016 by program and subprogram areas is provided in Appendix B, Table 1.

Criteria:

PUC Sections 581, 582, and 584 require that the utility provide timely, complete and accurate data to the Commission. PUC Section 793 requires that accounts, records, and memoranda prescribed by the Commission for corporations subject to regulatory authority shall not be inconsistent with the systems and forms established for corporations by or under the United States. The EE Policy Manual (R.09-11-014), Version 5, dated July 2013, provides policy rules for the administration, oversight, and evaluation of the EE program.

SCG's internal accrual accounting procedures require SCG to use the accrual basis of accounting to ensure expenditures are properly recognized in the period in which the services were rendered or materials received.

Cause:

SCG inadvertently reported and recorded expenditures incurred in PY 2015 to PY 2016. When internal controls were not adequately enforced in combination with lack of proper training and supervision of employees, recording and reporting errors may occur.

Effect:

Failure to record accurate expenditures in a proper period and program year resulted in an overstatement of program costs reported to the Commission by \$809,495. It is critical to ensure that EE costs are accurately recorded and reported because these programs are funded by ratepayers. Furthermore, an overstatement of expenditures may lead to higher than anticipated authorized budget in future years since SCG develops its future year EE budgets on prior year costs. This practice can result in an over-collection in ratepayer funds that subsidize the EE program through its balancing accounts.

Recommendation:

SCG should adhere to accrual basis of accounting when recording and reporting its EE program expenditures. SCG should reduce its PY 2016 EE program costs by a total amount of \$809,495 based on the exception amounts identified in the audit for the EE program and subprogram areas listed in the scope section of this report.

It is our responsibility to bring this finding to the Commission and SCG's attention since an overstatement of EE program expenditures has been a repeated finding in prior UAFCB audits including, but not limited to, PY's 2013, 2014 and 2015.

FINDING 2: Overstatement of the Efficiency Savings and Performance Incentive (ESPI) Award Amount for PY 2016

Condition:

In D.13-09-023, the Commission authorized the IOUs a new Efficiency Savings and Performance Incentive (ESPI) awards mechanism to promote achievement of EE goals. The ESPI mechanism offers each IOU incentive awards in four performance categories:

1. **Energy Efficiency Resource Savings:** A performance award for ex-ante locked down and ex-post verified net lifecycle resource programs (energy efficiency programs that are intended to achieve and report quantified energy savings) energy savings measured in MW, GWh, and MMTh.
2. **Ex-Ante Review (EAR) Process Performance:** A performance award for IOUs ex-ante review conformance.
3. **Codes and Standards (C&S):** A management fee award for the IOUs advocacy of codes and standards.
4. **Non-Resource Programs:** A management fee award for implementing non-resource programs (an energy efficiency program that has no directly attributed energy saving but the programs support the energy efficiency portfolio through activities such as marketing or improved access to training and education.)

In D.13-09-023, Ordering Paragraph (OP) 15 and 16, the Commission authorized an incentive award to be paid to the IOUs as a management fee equal to 12% of authorized Codes and Standards (C&S) program expenditures and 3% of authorized non-resource (NR) program expenditures, not to exceed authorized expenditures and exclusive of administrative costs.⁸ The decision also ordered verification of the C&S and NR program expenditures for the purposes of awarding the management fees.⁹

Based on its review and testing of the C&S and NR program expenditures, SCG overstated its ESPI award amount for PY 2016. Based upon its recalculation, UAFCB determined that the revised ESPI base amount for calculating SCG's NR program management fee incentive award amount is \$9,458,607. Consequently, SCG's incentive award amounts should be adjusted to \$283,758 for its NR program. A detailed recalculation of SCG's revised ESPI award amount for the NR program for PY 2016 is provided in the table below.

Criteria:

Commission D.13-09-023 authorizes an incentive to be paid to each IOU as a management fee equal to 12% of authorized C&S program expenditures and 3% of authorized non-resource program expenditures, not to exceed authorized expenditures in each program year, and excluding administrative expenditures.

⁸ The C&S and Non-Resource programs support energy savings but do not provide direct energy savings.

⁹ D.13-09-023, OP 17

NR ESPI Recalculation	
Reported NR ESPI Base	\$9,595,947
Audit Exception ¹⁰	<u>(137,340)</u>
Revised NR ESPI Base	9,458,607
NR Earnings Rate	<u>3%</u>
Revised ESPI Award	<u>\$ 283,758</u>

Cause:

When SCG overstated its PY 2016 EE program costs in Finding #1, it also overstated its incentive awards for its NR program.

Effect:

SCG overstated their NR program incentive award amount filed in AL 5182-G. The proper incentive award amount should be \$283,758 for the NR program.

Furthermore, it is critical to ensure that the savings claimed are accurate. The overstatement of incentive award claims by the IOUs can have negative consequences to ratepayers.

Recommendation:

Since SCG has filed AL 5182-G to claim its C&S and NR program incentive awards for PY 2016, the Commission’s Energy Division (ED) should adjust SCG’s management fee incentive awards to \$283,758 for the NR program when SCG’s 2016 ex-post ESPI true-up AL is processed.

CONCLUSION

In conducting our audit, we obtained a reasonable understanding of SCG’s internal controls, which were considered relevant and significant within the context of our audit objectives. Deficiencies in internal control that were identified during the audit and determined to be significant are included in this report.

SCG’s management is responsible for the development of its policies and procedures to ensure that expenditures and commitments of its EE programs were reported accurately and timely. The Commission is responsible to ensure the ratepayers’ monies funding energy efficiency programs in California explicitly support the EE goals and strategies and protect ratepayers’ funds against fraud and abuse.

We conducted our audit in accordance with Generally Accepted Government Auditing Standards (GAGAS). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to afford a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our limited audit objectives.

¹⁰ The original amount of the UAFCB’s audit exception was erroneously stated at \$144,236, which has been corrected to \$137,340.

The report is intended solely for the information and use of the Commission and SCG and is not intended to be and should not be used by anyone other than these specified parties.

Barbara Owens

Barbara Owens, CIA, CISA, CGAP, CRMA
Director, Enterprise Risk and Utility Audits

Kevin Nakamura, Supervisor
Frederick Ly, Sr. Analyst

Appendices

APPENDIX A Applicable Rules and Regulations

Rule/Regulation Types	Reference	Description
Public Utility Code	Section 314	Guidance providing the Commission the authority to conduct financial and performance audits consistent with Generally Accepted Government Auditing Standards (GAGAS), and to follow-up on findings and recommendations
	Section 381	Guidance mandating that the Commission to allocate funds spent on EE programs that enhance system reliability and provide in-state benefits including cost-effective EE and conservation activities.
	Section 581	Guidance providing the Commission the authority to require a utility to file complete and correct reports in prescribed form and detail
	Section 582	Guidance providing the Commission the authority to require a utility to timely provide applicable records
	Section 584	Guidance providing the Commission the authority to require a utility to furnish reports to the commission
	Section 783	Guidance on the system of accounts and the forms of accounts, records, and memoranda prescribed by the Commission.
Decisions & Rulemaking	D.09-09-047	Adopting Efficiency Savings and Performance Incentive Mechanism
	D.12-11-015	Approving 2013-2014 EE Programs and Budgets
	D.15-10-028	Establishing a “Rolling Portfolio” process for regularly reviewing and revising EE goals for 2016 and beyond
	D.14-10-046	Establishing EE Savings Goals and Approving 2015 EE Programs and Budgets (Concludes Phase I of R.13-11-005)
	R. 13-11-005	Establishing a proceeding in which to fund the current energy efficiency portfolios through 2015, implement energy efficiency "rolling portfolios", and address various related policy
Advice Letters	AL No. 5182	EE Incentive Award for PY 2015 and 2016
	AL No. 5160	2016 EE Incentive Award Earnings Rates and Award Caps

APPENDIX B

**Table 1
UAFCB Audit Adjustments
PY 2016**

Program ID	Program Name	Cost Category			Total
		Administrative	Marketing	Direct Implementation	
SCG3708	CEA	\$ -	\$ -	\$ 5,114	\$ 5,114
SCG3708	CEA	-	-	36,934	36,934
SCG3708	CEA	-	-	<u>75,458</u>	<u>75,458</u>
	Subtotal	-	-	117,506	117,506
SCG7301	REA	-	-	4,883	4,883
SCG7301	REA	-	-	6,243	6,243
SCG7301	REA	-	-	<u>8,708</u>	<u>8,708</u>
	Subtotal	-	-	19,834	19,834
SCG3775	CRM	8,490	-	-	8,490
SCG3775	CRM	9,060	-	-	9,060
SCB3775	CRM	9,180	-	-	9,180
SCG3775	CRM	19,844	-	-	19,844
SCG3775	CRM	30,000	-	-	30,000
SCG3775	CRM	<u>5,975</u>	-	-	<u>5,975</u>
	Subtotal	82,549	-	-	82,549
SCG3724	C&S Bldg. Codes Adv.	-	-	1,306	1,306
SCG3724	C&S Bldg. Codes Adv.	-	-	<u>1,339</u>	<u>1,339</u>
	Subtotal	-	-	2,645	2,645
SCG3702	CAL PLA ¹¹	-	104,720	-	104,720
SCG3702	CAL PLA	-	11,830	-	11,830
SCG3702	CAL PLA	-	-	<u>21,166</u>	<u>21,166</u>
	Subtotal	-	\$116,550	\$ 21,166	\$137,716
SCG3703	CALS PLA POS	-	-	164,475	164,475
SCG3703	CALS PLA POS	-	-	164,150	164,150
SCG3703	CALS PLA POS	-	-	<u>15,900</u>	<u>15,900</u>
	Subtotal	-	-	344,525	344,525
SCG3705	CALS EUC ¹²	-	<u>104,720</u>	-	<u>104,720</u>
Grand Total		<u>\$82,549</u>	<u>\$221,270</u>	<u>\$505,676</u>	<u>\$809,495</u>

¹¹ The \$104,720 amount consists of \$17,085, \$14,121.49, \$6,337.17, \$1,022.67, \$36,365.12, \$20,425.96, \$4,987.50 and \$4,375 related to invoices 1981, 1983, 1979, 1956, 1980, 1984, 1965 and 1982, respectively.

¹² Resulted from auditors review and testing of supporting documentation provided by SCG in response to DR-008, Question #6.

SCG's Responses



Daniel J. Rendler
Director
Customer Programs & Assistance

555 W. Fifth Street, GT19A5
Los Angeles, CA 90013-1011
Tel: 213.244.3480
DRendler@semprautilities.com

July 27, 2018

Ms. Barbara Owens
CPUC Utility Audit, Finance & Compliance Branch
505 Van Ness Avenue
San Francisco, CA 94102

Re: SoCalGas Comments on Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency Programs For the Period January 1, 2016 through December 31, 2016

Dear Ms. Owens,

Southern California Gas Company (SoCalGas) has reviewed the Draft Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency (EE) Programs For the Period January 1, 2016 through December 31, 2016 (Report) prepared by the Utility Audit, Finance and Compliance Branch (UAFCB). SoCalGas hereby provides the following comments.

UAFCB Finding 1

SCG incorrectly recorded \$809,495 in PY 2016 expenditures belonging to PY 2015, resulting in an overstatement of PY 2016 expenditures reported to the Commission.

SoCalGas Response to Finding 1

SoCalGas has conducted a review of Appendix B Table 2 and has found that the report inappropriately determines the overstatement of PY 2016 expenditures. Appendix B Table 2 identifies a total of 21 items as being incorrectly recorded in PY 2016 due to improper recording and accruing of the expenditures. On May 21, 2018, SoCalGas provided UAFCB with additional information for those items in Appendix B Table 2, noting where SoCalGas appropriately recorded the PY 2015 expenditures. The following table provides an overview of this additional information. SoCalGas requests that the final audit report revise Finding 1 to report \$465,757 in PY 2016 expenditures belonging to PY 2015, based on the information presented below and attached.

Program ID	Program Name	Total	SoCalGas Comment
SCG3708	CEA	\$5,114	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual

			threshold of \$10,000. Please refer to Attachment 1 "CPA Accrual Procedures Final revised.pdf".
SCG3708	CEA	\$36,934	This item was received by SoCalGas' Accounts Payable department on December 31, 2015 for payment processing, however the payment process was not completed on time. As a result, the Accounts Payable department accrued the item at a high-level cost center. Please refer Attachment 2 "Supporting Documentation".
SCG3708	CEA	\$75,458	SoCalGas acknowledges that this should have been accrued in 2015 as it met SoCalGas' minimum accrual threshold of \$10,000. As a business practice, SoCalGas continuously seeks to strengthen its internal processes. In 2017, SoCalGas implemented training to ensure that program expenditures are recognized and reported in the appropriate reporting period. Please refer to Attachment 3 "Budgets Reporting Oversight EE Kick-off Meeting".
SCG7301	REA	\$4,883	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG7301	REA	\$6,243	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG7301	REA	\$8,708	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG3775	CRM	\$8,490	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG3775	CRM	\$9,060	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG3775	CRM	\$9,180	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG3775	CRM	\$19,844	SoCalGas acknowledges that this item should have been accrued in 2015 as it met SoCalGas' minimum accrual threshold of \$10,000. As a business practice,

			SoCalGas continuously seeks to strengthen its internal processes. In 2017, SoCalGas implemented training to ensure that program expenditures are recognized and reported in the appropriate reporting period. Please refer to Attachment 3.
SCG3775	CRM	\$30,000	SoCalGas acknowledges that this item should have been accrued in 2015 as it met SoCalGas' minimum accrual threshold of \$10,000. As a business practice, SoCalGas continuously seeks to strengthen its internal processes. In 2017, SoCalGas implemented training to ensure that program expenditures are recognized and reported in the appropriate reporting period. Please refer to Attachment 3.
SCG3775	CRM	\$5,975	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG3724	C&S Bldg. Codes Advocacy	\$1,306	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG3724	C&S Bldg. Codes Advocacy	1,339	This item was not accrued in 2015 as it did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000. Please refer to Attachment 1.
SCG3702	CAL PLA	\$104,720	This item was appropriately accrued to the CAL PLA program in 2015. Please refer to Attachment 2.
SCG3702	CAL PLA	\$11,830	SoCalGas acknowledges that this item should have been accrued in 2015 as it met SoCalGas' minimum accrual threshold of \$10,000. As a business practice, SoCalGas continuously seeks to strengthen its internal processes. In 2017, SoCalGas implemented training to ensure that program expenditures are recognized and reported in the appropriate reporting period. Please refer to Attachment 3.
SCG3702	CAL PLA	\$21,166	This item was appropriately accrued to the CAL PLA program in 2015. Please refer to Attachment 2.
SCG3703	CAL PLA POS	\$164,475	SoCalGas acknowledges that this item should have been accrued in 2015 as it met SoCalGas' minimum accrual threshold of \$10,000. As a business practice, SoCalGas continuously seeks to strengthen its internal processes. In 2017, SoCalGas implemented training to ensure that program expenditures are recognized and reported in the appropriate reporting period. Please refer to Attachment 3.

SCG3703	CAL PLA POS	\$164,150	SoCalGas acknowledges that this item should have been accrued in 2015 as it met SoCalGas' minimum accrual threshold of \$10,000. As a business practice, SoCalGas continuously seeks to strengthen its internal processes. In 2017, SoCalGas implemented training to ensure that program expenditures are recognized and reported in the appropriate reporting period. Please refer to Attachment 3.
SCG3703	CAL PLA POS	\$15,900	This item was appropriately accrued to the CAL PLA POS program in 2015. Please refer to Attachment 2.
SCG3705	CALS EUC	\$104,720	This item was appropriately accrued to the CALS EUC program in 2015. Please refer to Attachment 2.

UAFCB Finding 2

SCG overstated its NR program incentive award amount filed in AL 5182-G. Based upon recalculation, UAFCB determined that the revised ESPI base amount for calculating SoCalGas' NR program management fee incentive award amount is \$9,451,711. Consequently, UAFCB notes that SoCalGas' incentive award amounts should be adjusted to \$283,551 for its NR program.

SoCalGas contacted UAFCB seeking clarification of the \$144,236 UAFCB Audit Exception on page 6 of the draft report. On July 26, 2018, UAFCB clarified that the number was an error and the corrected number should be \$137,340.

SoCalGas Response to Finding 2

UAFCB's finding is based on the assumption that SoCalGas did not properly accrue the expenditures under the CEA (SCG3708) and REA (SCG3701) identified in Table 2 of Appendix A. However, as shown in the table in SoCalGas' response to finding 1, SoCalGas did not overstate its PY 2016 expenditures. All the expenditures, with the exception of SCG 3708-CEA totaling \$75,458, were not accrued in 2015 as they did not meet SoCalGas' Corporate and Customer Program and Assistance (CPA) current minimum accrual threshold of \$10,000, as further explained in Attachment 1. SoCalGas acknowledges that the expenditures total \$75,458 should have been accrued in 2015 as it met SoCalGas' minimum accrual threshold of \$10,000. Given the inaccurate finding of certain expenditures in Finding 1, SoCalGas requests that the final audit report be revised to adjust UAFCB's audit exception to \$75,458.

If you have any questions or require additional information regarding these comments, please do not hesitate to contact me.

Sincerely,

/s/

Daniel J. Rendler

Director, Customer Programs and Assistance

Cc: E. Henry
C. Sierzant
E. Brooks
E. Baires
K.Nakamura
F. Ly

Evaluation of Responses

SCG's responses to the draft report have been reviewed and incorporated into the final report. In evaluating SCG's responses, we provide the following comments:

FINDING 1: Lack of Compliance with Accrual Policy and Procedures Respecting its EE Program Costs for PY 2016

Evaluation of SCG's Response to Finding 1

1) SCG3708, CEA - \$36,934

At issue is whether there was any PY 2015 expense recorded in PY 2016. In this case, the subject expense in the amount of \$36,934 belonged to PY 2015, but was recorded in PY 2016. Therefore, the original audit adjustment should remain in its entirety.

2) SCG3702, CAL PLA - \$104,720 & SCG3705 CALS EUC - \$104,720

At issue is whether or not the company had made proper accounting accruals for PY 2015 expenses. Our review of additional detailed information, we concluded that the company had made proper accounting accruals for the above-referenced subprograms' expenses in their respective amount of \$104,720. Therefore, the original audit adjustments have been removed in its entirety.

3) SCG3702, CAL PLA - \$21,166

At issue is whether or not there was PY 2015 expense recorded in PY 2016. The subject expense in the amount of \$21,166 belonged to PY 2015, but was recorded in PY 2016. Therefore, the original audit adjustment should remain in its entirety.

4) SCG3703, CAL PLA POS - \$15,900

At issue is whether there was PY 2015 expense recorded in PY 2016. The subject expense in the amount of \$15,900 belonged to PY 2015, but was recorded in PY 2016. Therefore, the proposed audit adjustment should remain in its entirety.

Based on the results of our evaluation, the total audit adjustment has been revised from \$809,495, per Table 1 of Appendix, to \$600,055. We have summarized the revised audit adjustments in the table below:

Table 1
UAFCB Audit Adjustments – As Revised
PY 2016

Program ID	Program Name	Cost Category			Total
		Administrative	Marketing	Direct Implementation	
SCG3708	CEA	\$ -	\$ -	\$ 5,114	\$ 5,114
SCG3708	CEA	-	-	36,934	36,934
SCG3708	CEA	-	-	75,458	75,458
Subtotal		-	-	117,506	117,506
SCG7301	REA	-	-	4,883	4,883
SCG7301	REA	-	-	6,243	6,243
SCG7301	REA	-	-	8,708	8,708
Subtotal		-	-	19,834	19,834
SCG3775	CRM	8,490	-	-	8,490
SCG3775	CRM	9,060	-	-	9,060
SCB3775	CRM	9,180	-	-	9,180
SCG3775	CRM	19,844	-	-	19,844
SCG3775	CRM	30,000	-	-	30,000
SCG3775	CRM	5,975	-	-	5,975
Subtotal		82,549	-	-	82,549
SCG3724	C&S Bldg. Codes Adv.	-	-	1,306	1,306
SCG3724	C&S Bldg. Codes Adv.	-	-	1,339	1,339
Subtotal		-	-	2,645	2,645
SCG3702	CAL PLA	-	11,830	-	11,830
SCG3702	CAL PLA	-	-	21,166	21,166
Subtotal		-	\$11,830	\$ 21,166	\$32,996
SCG3703	CALS PLA POS	-	-	164,475	164,475
SCG3703	CALS PLA POS	-	-	164,150	164,150
SCG3703	CALS PLA POS	-	-	15,900	15,900
Subtotal		-	-	344,525	344,525
Grand Total – As Revised		<u>\$82,549</u>	<u>\$11,830</u>	<u>\$505,676</u>	<u>\$600,055</u>

FINDING 2: Overstatement of the Efficiency Savings and Performance Incentive (ESPI) Award Amount for PY 2016

Evaluation of SCG's Response to Finding 2

After issuance of the draft report, we noted that the report contained an error which we have corrected in this final report (Refer to Finding 2). Except for the above mentioned error and correction, there was no other change to the ESPI award calculation and its result. For ease of reference, we have summarized the revised NR Efficiency Savings and Performance Incentive (ESPI) calculation below:

Table 2
NR ESPI Calculation
Program Year 2016

Reported NR ESPI Base	\$9,595,947
UAFCB's Audit Exception ¹³	<u>(137,340)</u>
Revised NR ESPI Base	9,458,607
NR Earnings Rate	<u>3%</u>
Revised ESPI Award	<u>\$ 283,758</u>

¹³ The original amount of the UAFCB's audit exception was erroneously stated at \$144,236, which has been corrected to \$137,340.

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-23

SOCALGAS EXHIBIT

UAFCB Energy Efficiency Audit, Southern California Gas Company Program Year 2017



ENERGY EFFICIENCY EXAMINATION

SOUTHERN CALIFORNIA GAS COMPANY
PROGRAM YEAR 2017

UTILITY AUDIT, FINANCE AND COMPLIANCE BRANCH
AUGUST 5, 2019



A digital copy of this report can be found at:
<http://www.cpuc.ca.gov/utilityaudits/>

Thanks to:
Angie Williams, Kevin Nakamura, and Jieli Feng

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Executive Summary

The California Public Utilities Commission (Commission) was established by Constitutional Amendment as the Railroad Commission in 1911. The Legislature passed the Public Utilities Act, expanding the Commission's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies in 1912. One of the Commission's duties is to oversee billions of dollars expended on energy efficiency (EE) programs funded by California ratepayers. These EE programs are predominantly administered by the four major Investor-Owned Utilities (IOUs) in California. They are Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and Southern California Gas Company (SCG).¹ The primary purpose of these EE programs are to develop programs and measures to meet energy savings goals and transform technology markets in California.

The Commission's Utility Audit, Finance, and Compliance Branch (UAFCB) conducted the examinations of the EE programs pursuant to Ordering Paragraph (OP) 17 of Decision (D.) 13-09-023. Additionally, the Commission has statutory authority to inspect and audit the books and records of the IOUs to ensure that ratepayers' money is well spent, specifically, pursuant to Public Utilities Code (PUC) Sections 314.5, 314.6, 581, 582, and 584. UAFCB conducted this examination in accordance with Generally Accepted Governmental Auditing Standards (GAGAS).

The scope of this examination covered the period January 1, 2017 to December 31, 2017 or PY 2017. The purpose of this examination was to ensure that SCG was in compliance with EE program rules and regulations and to determine whether its reported EE expenditures were accurate, allowable and verifiable. For the examination on SCG's EE program, expenditures of selected EE programs and subprograms administered and implemented by SCG for the period under audit were reviewed. The specific SCG EE program and subprogram areas examined are included in the scope section of this report. Based on the examination, the following findings were identified:

- Finding #1: Lack of Compliance with Accrual Policy and Procedures Relating to its EE Program Costs for PY 2017
- Finding #2: Overstatement of the Efficiency Savings and Performance Incentive (ESPI) Award Amount for PY 2017

¹ San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SCG) are affiliated subsidiaries of SEMPR Energy.

Examination Report

BACKGROUND

The California Public Utilities Commission (Commission) regulates investor-owned electric and gas utilities in California. Through its regulatory oversight, the Commission is responsible for overseeing the energy efficiency (EE) programs which are principally administered and implemented by the four major Investor-Owned Utilities (IOUs) in California and funded by California ratepayers. The four major IOUs in California are Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and Southern California Gas Company (SCG).² The primary purpose of these EE programs are to develop programs and measures to meet energy savings goals and transform technology markets within California using ratepayer funds.

To meet California's aggressive electricity and natural gas energy efficiency goals, the Commission authorized billions to the EE programs, which are funded by electric and gas rates included in ratepayer bills.³ The IOUs have greatly increased its costs and budgets through rate increases for administering and implementing these EE programs over time. Prior to 2016, the Commission authorized the IOUs budgets for the EE programs based on a three-year program cycle. In Rulemaking (R.) 13-11-005, the Commission contemplated moving away from authorizing the EE budgets on a triennial basis and towards authorizing the EE budgets on an annual "rolling" portfolio basis. As a result, the IOUs PY 2016 EE portfolio budget was the first year to utilize the new "rolling" portfolio process. Consistent with an annual EE program portfolio, the Commission provided ongoing funding for EE programs from 2015 onward. As such, the Commission extended the existing EE program through 2015, and authorized the IOUs to use the 2015 annual spending levels until the earlier of 2025 or when the Commission issues a superseding decision on funding level.⁴

These EE programs span a variety of sectors encompassing residential homes and commercial buildings, large and small appliances, lighting and heating, ventilation and air conditioning (HVAC), industrial manufacturers, and agriculture. Within those sectors, the EE program utilizes a variety of tools to meet energy savings goals, such as financial incentives and rebates, research and development for EE technologies, financing mechanisms, codes and standards development, education and public outreach, marketing and others. The Commission also adopted the Efficiency Savings Performance Incentive (ESPI) mechanism with the intent "to motivate the utilities to prioritize EE goals, while protecting ratepayers through necessary cost containment mechanisms."⁵ In D.13-09-023, Ordering Paragraphs (OP) 15 and 16, the Commission authorized an incentive award to be paid to the IOUs as a management fee equal to 12% of authorized Codes and Standards (C&S) program expenditures and

² San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SCG) are affiliated subsidiaries of SEMPR Energy.

³ Public Utilities Code (PUC) Section 381 established a Public Goods Charge (PGC) that consumers pay on electricity consumption for cost-effective energy efficiency, renewable technologies, and public interest research. PUC Section 900 established a natural gas surcharge to fund cost-effective energy efficiency and other public purpose programs.

⁴ D.14-10-046, OP 21

⁵ D.13-09-023, page 2

3% of authorized non-resource (NR) program expenditures, respectively. Furthermore, in OP 17 of D.13-09-023, it directed the Commission's Utility Audit, Finance, and Compliance Branch (UAFCB) to verify the C&S and NR program expenditures for the purposes of awarding these management fees.

In conducting the annual EE program examinations pursuant to D.13-09-023, OP 17, the UAFCB's primary objective is to ensure that the IOUs are in compliance with EE program rules and regulations and to determine whether the EE expenditures claimed by the IOUs were for allowable purposes and supported by appropriate documentation, such as invoices, contracts and relevant records, and were recorded and reported appropriately for the period under examination.

Specifically, UAFCB's objectives for the examination on SCG's EE program are to determine whether:

1. SCG's costs recorded and reported for the period January 1, 2017 through December 31, 2017 or program year (PY) 2017 were relevant to the EE program and subprograms, supported by appropriate documentation, and in compliance with: (a) Commission's guidelines, including, but not limited to D.13-09-023, D.12-11-015, D.14-10-046, D.15-10-028, the rulings in R.01-08-028, Energy Division's memo dated October 22, 2009, and any relevant subsequent amendments; and (b) SCG's established internal policies and procedures.
2. Program design, structures, processes, implementation, cost and controls of SCG's EE programs were in compliance with: (a) Commission's guidelines, including, but not limited to D.13-09-023, D.12-11-015, D.14-10-046, D.15-10-028, the rulings in R.01-08-028, Energy Division's memo dated October 22, 2009, and any relevant subsequent amendments; and (b) SCG's established internal policies and procedures.

For PY 2017 EE funding levels, SCG filed Advice Letter (AL) 5023 on September 1, 2016 pursuant to Commission directives in D.14-10-046 and D.15-10-028. On November 8, 2016, SCG submitted AL 5023-A replacing 5023 in its entirety in order to make minor updates and fix clerical errors. On June 8, 2017, the Commission's Energy Division (ED) approved SCG's AL 5023-A which, among other things, authorized SCG a total EE portfolio budget of \$83.7 million, including \$3.3 million for the Evaluation, Measurement and Verification (EM&V) budget, in ratepayer funds to administer and implement the EE programs for PY 2017.

SCOPE

UAFCB developed the scope of its examination based on consultation with the Commission's ED, UAFCB's prior experience in examining SCG's EE program, and Commission directives. The scope of this examination on PY 2017 is limited to the expenditures and activities of the following EE program and subprogram areas:

1. Overall EE Program Cost Reconciliation
2. Codes and Standards (C&S) Program and Subprograms
3. Non-Resource (NR) Program and Subprograms
4. Local Government Partnership (LGP) Program and Subprograms
5. Third Party (TP) Program and Subprograms

In addition to examining the expenditures of the above selected EE programs and subprograms, we also reviewed the monthly, quarterly claims, and annual EE reports submitted by SCG and uploaded on the Commission's California Energy Efficiency Statistics (EEStats)⁶ and California Energy Data and Reporting System (CEDARS)⁷ websites. A follow-up review was also performed on its prior recommendations in its PY 2016 EE audit⁸ to determine whether SCG has implemented the appropriate corrective actions.

For this EE examination on PY 2017, UAFCB has divided the examination into two separate reports. The second examination report covering SCG's Local Government Partnership (LGP) and Third Party (TP) programs will be issued as a supplemental to this report.

METHODOLOGY

To address the examination objectives and assist the Commission in its oversight over the EE programs, the procedures performed include, but are not limited to, the following:

- Obtained an understanding of the EE program by reviewing relevant laws, rules, regulations, PUC codes, decisions, resolutions and advice letters.
- Obtained and reviewed SCG's accounting system, accounting policies, processes and procedures for recording, tracking, and monitoring EE program costs.
- Assessed whether the SCG's policies, procedures, and practices comply with the EE program requirements.
- Evaluated the design, structure and purpose of each EE program and subprogram area included in the scope of this examination to ensure compliance with Commission directives.
- Performed analysis of expenditure data to identify any anomalies or significant variances.
- Reviewed relevant reports filed with the Commission to determine accuracy of reported EE program data and information and ensure compliance with applicable rules and program requirements.
- From SCG's accounting data, judgmentally selected expenditure transactions for review and testing.
- Requested and reviewed supporting documentation such as purchase orders, detailed invoices, contracts, receiving reports, timesheets and additional documentation as needed for the expenditure transactions selected for testing.
- Reviewed relevant contracts to determine if contract terms and provisions adequately supported the objective and purpose of the EE program.

⁶ The California Energy Efficiency Statistics (EEStats) website is a repository of utility-submitted reports to the Commission.

⁷ The California Energy Data and Reporting System (CEDARS) website securely manages data associated with demand-side management (DSM) programs, ensuring quality and improving communication between DSM Program Administrators (PAs), the Commission, and the Public.

⁸ UAFCB report entitled "*Energy Efficiency Audit, Southern California Gas Company, Program Year 2016*," issued on August 3, 2018.

- Reviewed SCG's accrual entries and verified the cutoff of expenditure transactions to determine if proper expenditure amounts were recorded and reported in the proper accounting period.
- Traced expenditures recorded in SCG's accounting records to supporting documentation and determined whether costs were reasonable, allowable, verifiable, and relevant to the EE program.

FINDINGS AND RECOMMENDATIONS

Finding 1: Lack of Compliance with Accrual Policy and Procedures Relating to its EE Program Costs for PY 2017

Condition:

SCG incorrectly recorded \$85,087 in PY 2017 expenditures belonging to PY 2016, resulting in an overstatement of Non-Resource (NR) program expenditures reported to the Commission in PY 2017. A detailed description for this exception amount is included in **Appendix B**.

An overstatement of EE program expenditures has been a repeated finding in prior Commission examinations including, but not limited to, PY's 2013, 2014, 2015 and 2016.

Criteria:

PUC Sections 581, 582, and 584 require that the utility provide timely, complete and accurate data to the Commission. PUC Section 793 requires that accounts, records, and memoranda prescribed by the Commission for a corporation subject to the regulatory authority shall not be inconsistent with the systems and forms established for corporations by or under the United States. The EE Policy Manual (R.09-11-014), Version 5, dated July 2013, provides policy rules for the administration, oversight, and evaluation of the EE program.

Cause:

SCG improperly recorded and accrued expenses to PY 2017 due to the inconsistent application of its own internal accrual policy and procedures.

Effect:

Failure to record expenditures in the proper period and program year resulted in an overstatement of EE program costs reported to the Commission by a total of \$85,087 for PY 2017. It is critical to ensure that EE program costs are accurately recorded and reported since these programs are funded by ratepayers. An overstatement of expenditures can lead to an overpayment in incentive awards to SCG. Furthermore, an overstatement in expenditures may lead to higher than anticipated authorized budget amounts in future years since SCG develops its future year EE budgets on prior year costs. This practice can result in over-collections in ratepayer funds that support the EE program.

Recommendations:

SCG should ensure compliance with Generally Accepted Accounting Principles (GAAP) and its own internal accrual policy and procedures for the proper recording and reporting of EE expenditures

funded by ratepayers. SCG should reduce its NR program costs by a total amount of \$85,087 for PY 2017.

Finding 2: Overstatement of the Efficiency Savings and Performance Incentive (ESPI) Award Amount for PY 2017

Condition:

In D.13-09-023, the Commission authorized the IOUs a new Efficiency Savings and Performance Incentive (ESPI) awards mechanism to promote achievement of EE goals. The ESPI mechanism offers each IOU incentive awards in four performance categories – Energy Efficiency Resource Savings, Ex-Ante Review (EAR) Process Performance, Codes and Standards (C&S), and Non-Resource (NR) programs.

In D.13-09-023, Ordering Paragraph (OP) 15 and 16, the Commission authorized an incentive award to be paid to the IOUs as a management fee equal to 12% of authorized Codes C&S program expenditures and 3% of authorized NR program expenditures, not to exceed authorized expenditures and exclusive of administrative costs.⁹ The decision also ordered verification of the C&S and NR program expenditures for the purposes of awarding the management fees.¹⁰

Based on our samples selected for testing of the C&S and NR program expenditures, SCG overstated its ESPI award for PY 2017. Based upon its recalculation, UAFCB has determined that the revised ESPI base amount for calculating the NR program management fee incentive award amount should be adjusted to \$9,471,256 for PY 2017. A detailed recalculation of SCG’s revised ESPI award amount for the NR program in PY 2017 is provided in the table below.

Table 1

NR ESPI Recalculation	
Reported NR ESPI Base	\$9,528,862
UAFCB’s Audit Exception	<u>(57,606)</u>
Revised NR ESPI Base	9,471,256
NR Earnings Rate	<u>3%</u>
Revised ESPI Award	<u>\$ 284,138</u>

Criteria:

Commission D.13-09-023 authorizes an incentive to be paid to each IOU as a management fee equal to 12% of authorized C&S program expenditures and 3% of authorized NR program expenditures, not to exceed authorized expenditures in each program year, and excluding administrative expenditures.

Cause:

When SCG overstated its EE program costs as stated in Finding #1, it also overstated its incentive award amount for PY 2017.

⁹ The C&S and Non-Resource programs support energy savings but do not provide direct energy savings.

¹⁰ D.13-09-023, OP 17

Effect:

SCG overstated their NR incentive award amounts filed in Advice Letter (AL) 5386. The proper incentive award amount should be \$284,138 for the NR program in PY 2017.

Furthermore, it is critical to ensure that the savings claimed are accurate. The overstatement of incentive award claims by the IOUs may lead to higher than anticipated authorized budgets in future years that are funded by ratepayers since SCG develops its future year EE budgets on prior year costs.

Recommendation:

Since SCG has filed AL 5386 to claim its NR program incentive awards for PY 2017, the Commission's Energy Division (ED) should adjust SCG's management fee incentive awards to \$284,138 for the NR program when SCG's 2017 ex-post ESPI true-up AL is processed,

CONCLUSION

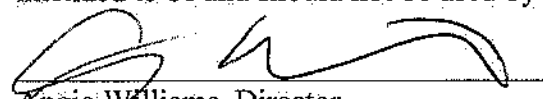
In conducting our examination, UAFCB obtained a reasonable understanding of SCG's internal controls, which were considered relevant and significant within the context of our examination objectives. UAFCB does not provide any assurance on SCG's internal control. Any significant deficiencies or material weaknesses in internal controls that were identified during the examination were communicated to SCG's management and identified in this report.

SCG's management is responsible for the development of its policies and procedures to ensure that its EE program is administered and implemented in accordance with Commission directives. The Commission is responsible to ensure the ratepayers' monies funding SCG's EE program explicitly support the EE goals and strategies and protect ratepayers' funds against improprieties and abuse.

UAFCB conducted this examination in accordance with Generally Accepted Government Auditing Standards (GAGAS). Those standards require that we plan and perform the examination to obtain sufficient, appropriate evidence on the subject matter against criteria in order to draw a reasonable basis for our findings and conclusions based on our examination objectives. UAFCB believes that the evidence obtained provides a reasonable basis for our findings and conclusions based on our limited examination objectives.

Based on our sample tested, UAFCB determined that, except for the items noted in the Findings and Recommendations section, SCG has complied, in all material respects, with the recording and reporting requirements of the EE costs for the audit period of January 1, 2017 to December 31, 2017.

The report is intended solely for the information and use of the Commission and SCG and is not intended to be and should not be used by anyone other than these specified parties.


Angie Williams, Director
Utility Audit, Finance and Compliance Branch and
Enterprise Risk and Compliance Office

Cc: Ed Randolph, Director, Energy Division
Simon Baker, Deputy Director, Energy Division
Manisha Lakhanpal, Supervisor, Energy Division
Kevin Nakamura, Supervisor, UAFCB
Jieli Feng, Auditor, UAFCB

Appendices

APPENDIX A Applicable Rules and Regulations

Rule/Regulation Types	Reference	Description
Public Utility Code	Section 314	Guidance providing the Commission the authority to conduct audits consistent with Generally Accepted Government Auditing Standards (GAGAS), and to follow-up on findings and recommendations.
	Section 381	Guidance mandating the Commission to allocate funds spent on EE programs that enhance system reliability and provide in-state benefits including cost-effective EE and conservation activities.
	Section 581	Guidance providing the Commission the authority to require a utility to file complete and correct reports in prescribed form and detail.
	Section 582	Guidance providing the Commission the authority to require a utility to timely provide applicable records.
	Section 584	Guidance providing the Commission the authority to require a utility to furnish reports to the Commission.
Decisions & Rulemaking	D.09-09-047	Adopting Efficiency Savings and Performance Incentive Mechanism
	D.12-11-015	Approving 2013-2014 EE Programs and Budgets
	D.15-10-028	Establishing a "Rolling Portfolio" process for regularly reviewing and revising EE goals for 2016 and beyond.
	D.14-10-046	Establishing EE Savings Goals and Approving 2015 EE Programs and Budgets (Concludes Phase I of R.13-11-005).
	R. 13-11-005	Establishing a proceeding in which to fund the current energy efficiency portfolios through 2015, implement energy efficiency "rolling portfolios", and address various related policy.
Advice Letters	AL No. 5023-A & 5386	Annual 2017 EE Budget Filing and Request of SCG for its 2016 and 2017 EE Saving Incentive

APPENDIX B
Summary – PY 2017 Exam Adjustments

PrgID	Program Name	ESPI Category	Cost Category			Total
			Admin.	Mktg.	Direct Imp.	
3768	2013-14 3P CA Sustainability Alliance	NR	\$ 901	\$356	\$57,250	\$58,507
3775	2013-14 CRM	NR	26,580	0	0	26,580
	Total NR Program		<u>\$27,481</u>	<u>\$356</u>	<u>\$57,250</u>	<u>\$85,087</u>

APPENDIX C SCG Responses

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July 1, 2019

Ms. Angie Williams
California Public Utilities Commission
Utility Audit, Finance & Compliance Branch
180 Promenade Circle, Suite 115
Sacramento, CA 95834

Re: SoCalGas Comments on Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency Programs For the Period January 1, 2017 through December 31, 2017

Dear Ms. Williams,

Southern California Gas Company (SoCalGas) has reviewed the Draft Financial, Management, and Regulatory Compliance Examination Report of Southern California Gas Company Energy Efficiency (EE) Programs For the Period January 1, 2017 through December 31, 2017 (Report) prepared by the Utility Audit, Finance and Compliance Branch (UAFCB). SoCalGas hereby provides the following comments.

UAFCB Finding 1

SoCalGas incorrectly recorded \$16,953 in PY 2017 expenditures belonging to PY 2016, resulting in an overstatement of C&S program expenditures reported to the Commission in PY 2017.

SoCalGas incorrectly recorded \$153,667 in PY 2017 expenditures belonging to PY 2016, resulting in an overstatement of NR program expenditures reported to the Commission in PY 2017.

SoCalGas Response to Finding 1

SoCalGas has conducted a review of the table presented in Appendix B and has found that the report inappropriately determines the overstatement of PY 2017 expenditures. Appendix B identifies certain requested expenditure samples from a total of five programs as being incorrectly recorded in PY 2017 due to improper recording and accruing of the expenditures. The following table provides SoCalGas' comments to the respective programs in Appendix B and an overview to additional information being provided as a part of these comments, as applicable.

n

Program ID	Program Name	Amount	SoCalGas Comment
3724	SW C&S Appliance Standards Advocacy	\$16,953	<p>This finding should be removed. SoCalGas did recognize and accrue the liability for the work to be completed by 2016 year-end and invoiced on the following year based on the information provided by Pacific Gas & Electric (PG&E) who is the lead investor-owned utility (IOU) on the co-funding contract that's responsible for billing. The attached correspondence demonstrates SoCalGas reached out to PG&E and was informed that the November invoice will be billed during December 2016, and only the estimated December invoice should be accrued for the 2016 year-end close. Based on the information from PG&E, SoCalGas submitted the year-end accrual excluding the November 2016 invoice and only included the estimated December 2016 invoice.</p> <p>Attachment(s):</p> <ol style="list-style-type: none"> 1. Confidential Response 12-3
3768	2013-14 3P CA Sustainability Alliance	\$58,507	<p>SoCalGas acknowledges that this should have been accrued in 2016 as it met SoCalGas' minimum accrual threshold of \$10,000. Additional mid-year accounting training for 2018 has been implemented to help the staff record the year-end program financial liability.</p>
3770	2013-2014 3P PACE	\$51,957	<p>This finding should be removed. The December 2016 invoice submitted January 2017 for payment in the amount of \$51,956.49 was accrued on December 2016 based on vendor's estimated December invoice submitted in the amount \$52,006.48. Please see attached document for validation.</p> <ol style="list-style-type: none"> 1. 2016 Accrual Template 2. ESP Monthly Invoice-Dec 16ACCR 3. SAP Data Dump - Accrual Info
3709	2013-2014 SW-COM CEI	\$16,623	<p>This finding should be removed. The December 2016 invoice submitted during 2017 by Southern California Edison (SCE) for the payment in the amount of \$16,623 was accrued on December 2016 as part of the 2016 year-end accrual package in the amount of 42,161.48. At the time of the 2016 year-end accrual, SCE provided the December 2016 amount to be 14,671.60 as listed on the attached document as a December line item. Please see attached documents listed below for validation.</p> <ol style="list-style-type: none"> 1. 2016 Accrual template CEI - Contains accrual

			request and backup documents on estimated invoice for December 2016 for SW Com CFI program.
			2. 2016 Outstanding Invoices - Contains estimated \$14,671.60 December invoice submitted by SCE as a line item to the total \$42,616.48
			3. Accrual Communication - Communication from SCE on the 2016 year-end accrual.
			4. SAP Data Dump Accrual - Validation on December accrual posted to SAP during December 2016.
3775	2013-2014 CRM	\$26,580	SoCalGas acknowledges that this should have been accrued in 2016 as it met SoCalGas' minimum accrual threshold of \$10,000. Additional mid-year accounting training for 2018 has been implemented to help the staff record the year-end program financial liability.

UAFCB Finding 2

SoCalGas overstated its energy savings performance incentive (ESPI) award for PY 2017. Based upon its recalculation, UAFCB has determined that the revised ESPI base amount for calculating the NR program management fee incentive award amount should be adjusted to \$9,403,935 for PY 2017. For the C&S program, the revised ESPI base amount should be adjusted to \$914,619 but no reduction to the ESPI award amount is required since SCG's incentive award cap amount is \$91,293 for PY 2017 pursuant to Ordering Paragraph (OP) of D.13-09-23.

SoCalGas Response to Finding 2

UAFCB's finding is based on the assumption that SoCalGas did not properly accrue the expenditures under the SW C&S – Appliance Standards Advocacy (SCG3724), 2013-2014 3P PACE (SCG3770), and 2013-2014 SW-COM CFI (SCG3709) programs identified in Appendix B. However, as shown in the above table of SoCalGas' response to finding 1, SoCalGas did not overstate its PY 2017 expenditures. SoCalGas did recognize and accrue the liability for the work to be completed by 2016 year-end and invoiced on the following year based on the information provided by SoCalGas' vendors and by IOU counterparts for work associated with statewide programs. SoCalGas acknowledges that the expenditures totals of \$58,507 and \$26,580 from programs 2013-14 3P CA Sustainability Alliance (SCG3768) and 2013-2014 CRM (SCG3775), respectively, should have been accrued in 2016.

Given the inaccurate finding of certain expenditures in Finding 1, SoCalGas requests the following:

- (1) that the final audit report be revised to adjust UAFCB's audit exception for the C&S program to zero.
- (2) that the final audit report be revised to adjust the UAFCB's audit exception for the NR program management fee to \$57,606.

If you have any questions or require additional information regarding these comments, please do not hesitate to contact me.

Sincerely,



Daniel J. Rendler
Director, Customer Programs and Assistance

Cc: H. Jones
P. Wu
E. Brooks
E. Gomez
K. Nakamura
F. Ly

APPENDIX D

Evaluation of Responses

SCG's responses to the draft report dated June 17, 2019, have been reviewed and incorporated into our final report. In evaluating SCG's responses, we provide the following comments:

Finding #1: Lack of Compliance with Accrual Policy and Procedures Relating to its EE Program Costs for PY 2017

After reviewing the additional documentation provided with its comments to the draft report, UAFCB has determined that SCG appropriately recognized and accrued the expenditures for the SW C&S – Appliance Standards Advocacy (SCG3724), 2013-2014 3P PACE (SCG3770), and 2013-2014 SW-COM CEI (SCG3709) subprograms. Therefore, UAFCB has since modified its findings in this report. However, in future audits, UAFCB recommends that SCG provide all documentation to support each sample transaction selected for testing so that UAFCB can thoroughly review and validate the appropriateness of the EE program cost amount.

Finding #2: Overstatement/Understatement of the Efficiency Savings and Performance Incentive (ESPI) Award Amount for PY 2017

Based on its revisions to Finding #1, UAFCB has removed its audit exception for the C&S program and have adjusted the NR program audit exception amount to \$57,606 for PY 2017.

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-24

SOCALGAS EXHIBIT

SoCalGas 2014 Energy Efficiency Annual Report

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



FILED

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Order Instituting Rulemaking Concerning Energy
Efficiency Rolling Portfolios, Policies, Programs,
Evaluation, and Related Issues.

Rulemaking 13-11-005
(November 14, 2013)

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)
ENERGY EFFICIENCY PROGRAMS ANNUAL REPORT
2014 RESULTS**

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June 1, 2015

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Concerning Energy
Efficiency Rolling Portfolios, Policies, Programs,
Evaluation, and Related Issues.

Rulemaking 13-11-005
(November 14, 2013)

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)
ENERGY EFFICIENCY PROGRAMS ANNUAL REPORT
2014 RESULTS**

Southern California Gas Company (“SoCalGas”) hereby submits its 2015 Annual Report for 2014 energy efficiency programs and accomplishments. The Annual Report is prepared in accordance with the Administrative Law Judge’s Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues, dated August 8, 2007. The Ruling requires “each utility to file its annual report on May 1 of the year following the end of a given program year.” On April 27, 2015, Energy Division, via a Memorandum, extended the submittal date to June 1, 2015.

SoCalGas’ Annual Report and associated documents have also been uploaded and available for viewing on the California Public Utilities Commission Energy Efficiency Statistics Application (EESTATs) website.

DATED at Los Angeles, California, this 1st day of June, 2015.

Respectfully submitted,

By: /s/ Steven D. Patrick
STEVEN D. PATRICK

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**SOUTHERN CALIFORNIA GAS
COMPANY**

**ENERGY EFFICIENCY PROGRAMS
ANNUAL REPORT**

2014 RESULTS



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2014 ENERGY EFFICIENCY PROGRAM PORTFOLIO SUMMARY

Executive Summary

Southern California Gas Company (SoCalGas) offers a comprehensive suite of conservation and energy efficiency (EE) programs, strategies, and solutions to meet the dynamic energy needs of our customers. During 2014, the second year of the 2013-2015 program cycle, SoCalGas continued the programmatic successes achieved in 2013. SoCalGas further refined its program delivery and implementation in 2014 to actively seek EE opportunities and adapt to its diverse customer base. In 2014, SoCalGas demonstrated the success of its programs by saving customers nearly 27.1 million therms, which represents approximately 117% of the energy efficiency goal established by the California Public Utilities Commission (Commission, or CPUC). SoCalGas cost-effectively administered energy efficiency savings to customers, providing ratepayers over \$135 million in resource benefits. In addition, as part of SoCalGas' commitment to help California meet its goal of greenhouse gas emission mitigation, its energy efficiency programs avoided nearly 170,000 tons of CO₂.

SoCalGas continues to work closely with the Commission and other stakeholders to achieve California's strategic vision and goals to ensure: (1) maximum achievement of all cost-effective and feasible energy efficiency savings in the natural gas sector, (2) programs, strategies, and offerings that provide deep, long-term energy savings and (3) energy efficiency programs that will generate quick and low-cost reductions in greenhouse gas emissions, as adopted in the California Long-Term Energy Efficiency Strategic Plan and Energy Action Plan (CLTEESP).

In order to achieve the Commission's aggressive long-term goals, SoCalGas has partnered with municipal electric utilities and water agencies to increase its program reach, enhance cost-effectiveness, and offer comprehensive demand-side management offerings to customers. This approach minimizes lost opportunities, allows for more comprehensive and deeper energy efficiency projects, and increases operational efficiencies allowing for a more streamlined delivery of ratepayer-funded programs.

SoCalGas has also expanded its partnership offerings with local governments to deliver services to underserved and hard-to-reach customers who have never participated in energy efficiency programs before. As the Statewide lead, SoCalGas continued to work collaboratively with key stakeholders in 2014 to develop seven innovative Finance Pilots to be launched in 2015 which will increase access to lower-cost financing for energy efficiency investments and allow customers to pay back loans or leases on their utility bill. Additionally, SoCalGas further refined its rolling solicitation process for new programs, IDEEA365, allowing third parties to submit and engage in new offerings continuously throughout the program cycle. As a result, SoCalGas created four new third party programs in 2014. SoCalGas' continued investment in natural gas emerging technologies will foster future cost-effective energy saving potential, which will facilitate the Commission's market transformational objectives.

Notable successes during program year 2014 include the following:

Customer Projects & Feedback

SoCalGas is proud of its accomplishments bringing EE solutions to the business community. SoCalGas works to identify and develop opportunities, and also aid customers through the rebate process. The current economic conditions associated with gas energy use generally translate to higher impact and greater benefit for large volume projects at commercial and industrial facilities. These sectors have naturally developed into the largest contributors to energy savings in the SoCalGas portfolio. Selected noteworthy projects are highlighted below:

- ***Food Processing Industry***

Though some agriculture customers operate only seasonally, their energy usage still can have a large impact to the grid. SoCalGas worked closely with a large tomato processing customer to improve the efficiency of their boiler system. By utilizing hot water that had been evaporated from the product to feed back into the condensate return system, the customer was able to increase their percent of returned condensate to 100%. For this improvement, the customer received an incentive of almost \$200,000 and an annual energy savings of 250,000 therms.

- ***Maximum Security Institution***

SoCalGas and Southern California Edison (SCE) partnered with a large state penitentiary to complete the first joint IOU natural gas and electric On Bill Financing (OBF) loan. The project commenced in 2012, and included the retrofit of 21 air handling units and return fans with variable frequency drives and new controls. Two years after the project commenced, the OBF loan was issued in September 2014. The project received incentive of nearly \$340,000 and an OBF Loan of \$200,000 in order to save nearly 93,000 therms and 1.7 million kilowatt hours.

- ***A Popular Restaurant***

Through the Point of Sale Food Service program, SoCalGas partnered with commercial equipment vendors in order to sell high efficient food service equipment to restaurant customers. Within the first six months of the program, a restaurant customer purchased 17 high-efficiency fryers, which represents \$13,000 in rebates and nearly 14,000 in annual therm savings.

- ***Local Integrated Demand-Side Management Partnerships***

In 2014, through the Statewide IDSM Program, SoCalGas fostered partnerships with large municipal utilities in Southern California, including Los Angeles Water Department of Water and Power (LADWP), Riverside Public Utilities and Anaheim Public Utilities, to deliver integrated and comprehensive energy and water efficiency programs that benefit their mutual customers. The partnership with LADWP in particular had 11 joint programs that helped SoCalGas achieve more than 320,000 Therms in gas savings in 2014. These joint customer programs served many different markets, ranging from new construction to small

businesses. They were very well received and had robust customer program participation. For example, the joint California Advanced Homes Program with LADWP enrolled more than 10,000 upcoming residential units, and the joint Multifamily Direct Therm Program served more than 12,000 existing multifamily units, resulting in water savings of more than 110 million gallons annually, in addition to the gas savings.

- ***Agriculture customer***

SoCalGas partnered with a large agricultural customer in the construction of two state-of-the-art greenhouses containing heat curtains, high efficiency boilers, and energy efficient air distribution systems. In total, the energy savings for the project amounted to more than 1.7 million therms. For this reduction, the customer received an energy efficiency incentive of nearly \$900,000.

- ***Project of the Year: Large Industrial Customer***

In 2014, SoCalGas' largest energy efficiency project over 1.2 million therms. The energy savings come from the replacement of a recuperative thermal oxidizer to a regenerative thermal oxidizer (RTO). The RTO will leverage the heat energy of the exhaust gases and subsequently transfer it through ceramic material to incoming gases, requiring less energy to heat incoming volatile organic compounds. SoCalGas worked with this customer from the beginning with help in the construction design and implementation of the project construction, culminating in an energy efficiency incentive of over \$300,000.

2014 Program Roster

Continuing off the successes of 2013, these program highlights reflect a fraction of the accomplishments during program year 2014. The entirety of programs were approved by the Commission on November 8, 2012, pursuant to Decision 12-11-015, which authorized \$179 million in funding over the two-year period for the SoCalGas portfolio of energy efficiency programs. These programs include the following:

Statewide Energy Efficiency Programs

- California Statewide Program for Residential Energy Efficiency
- Commercial Energy Efficiency Program
- Industrial Energy Efficiency Program
- Agricultural Energy Efficiency Program
- Emerging Technologies Program
- Codes and Standards Program
- Workforce Education and Training
- Statewide Marketing Education and Outreach
- Statewide Integrated Demand-Side Management
- Energy Efficiency Finance Programs

Government/Institutional Energy Efficiency Partnership Programs

- California Department of Corrections Partnership

- California Community College Partnership
- University of California/California State University/IOU Partnership
- State of California/IOU Partnership
- Los Angeles County Partnership
- Kern County Partnership
- Riverside County Partnership
- San Bernardino County Partnership
- Santa Barbara County Partnership
- South Bay Cities Partnership
- San Luis Obispo County Partnership
- San Joaquin Valley Partnership
- Orange County Partnership
- SEEC Partnership
- Community Energy Partnership
- Desert Cities Partnership
- Ventura County Partnership
- Local Government Energy Efficiency Pilots
- Regional Resource Placeholder
- Gateway Cities Partnership
- San Gabriel Valley COG Partnership
- City of Santa Ana Partnership
- West Side Cities Partnership
- City of Simi Valley Partnership
- City of Redlands Partnership
- City of Beaumont Partnership
- Western Riverside Energy Partnership

Third Party Energy Efficiency Programs

- Small Industrial Facility Upgrades
- Program for Resource Efficiency in Private and Public Schools
- On Demand Efficiency
- HERS Rater Training Advancement
- Multifamily Home Tune-Up
- Community Language Efficiency Outreach
- Multifamily Direct Therm Savings
- LivingWise™
- Manufactured Mobile Home
- SaveGas
- California Sustainability Alliance
- Portfolio of the Future
- PACE

- Innovative Designs for Energy Efficiency Activities
- Instant Rebates! Point of Sale Food Service Equipment Program
- Water Loss Control Program
- Commercial Sustainable Development Program
- Energy Advantage Program for Small Business

In Appendices B.1 and B.2, SoCalGas provides the final 2014 CPUC Monthly and Quarterly Reports which demonstrate programmatic performance and achievements. SoCalGas describes the activities performed and the successes achieved during the 2014 program year in these programs in the section entitled *Program Description and Strategies* below.

Program Descriptions and Strategies

Statewide Program for Residential Energy Efficiency

The 2013-2015 Residential Sector program is designated as the California Statewide Program for Residential Energy Efficiency (CalSPREE). CalSPREE offers and promotes both specific and comprehensive energy solutions for residential customers. By encouraging adoption of economically viable energy efficiency technologies, practices, and services, CalSPREE employs 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 2013-2015 and beyond, the IOUs are integrating all of these subprograms to coordinate efforts and increase comprehensiveness of measure delivery.

SCG3701 SW-CALS-Energy Advisor Narrative

This program is a continuation of the existing statewide Energy Advisor Program (formerly known as the Home Energy Efficiency Survey program) within the residential energy efficiency portfolio. Although Pacific Gas & Electric (PG&E), San Diego Gas & Electric (SDG&E), Southern California Edison (SCE), and SoCalGas share similar program theory, goals, and design elements, each IOU may be implementing a unique tool by a different vendor.

In 2013-2015, the Energy Advisor program will continue to help customers understand how and when they have been using energy. Customers will then have the knowledge and available tools to improve their energy efficiency, energy use management, and where appropriate, will be guided to advancing whole-house energy solutions. The program utilizes behavioral outreach initiatives and interactive tools designed to engage and encourage customers to reduce their energy consumption through program recommendations and, as warranted, IDSM opportunities.

SoCalGas exceeded program goals in 2014 by 198%. Annual goals are 10,000 completed surveys (either online, mail-in, or both). Year-end results were 3,838 for online surveys, and 16,000 mail-in surveys, for a total of 19,838 completed surveys.

The Behavioral goal of 5% residential customer participation was exceeded by 166%. SoCalGas is continuing collaboration with the Advanced Meter team to explore additional tactics and strategies utilizing bill tracker alerts and Home Energy Reports to continue the participation trend.

Some customers have indicated they are hesitant / reluctant in using the Universal Audit Tool (UAT) behind the My Account web service (due to limited computer skills, internet access, privacy concerns, and language, among other reasons). In addition, not all customers who are engaged in various places in the tool's activity sequence are completing action plans. This prompted SoCalGas to implement enhancements in November 2014 that drive the customer to save an action plan through a quicker and easier process ("one click" feature, and reminder windows to complete an action plan). SoCalGas is evaluating the effectiveness of these enhancements going into 2015.

By end of 2014, over 113,000 customers were engaged in the online tool suite.

Energy Advisor continued to provide survey processing for the Property Assessed Clean Energy (PACE) program. PACE provides outreach to hard-to-reach customers in-language (Spanish, Chinese, Vietnamese and Korean).

SCG3702 SW-CALS-Plug Load and Appliances Narrative

The Plug Load and Appliances (PLA) program merges the former Home Energy Efficiency Rebate (HEER), Business Consumer Electronics (BCE), and Appliance Recycling (ARP) subprograms. This subprogram develops and builds upon existing retailer relationships and includes recycling strategies, whole house solutions, plug load efficiency, performance standards, and opportunities for integration with local government, water agencies, Publically Owned Utilities (POUs), and the IDSM subprogram.

The SoCalGas PLA program continued to meet and exceed both annual and program cycle goal savings and objectives 2014. The SoCalGas PLA program achieved its success due to the continued and improved efforts with participating retail partners through increased in-store

signage, increased program visibility, and weekly in-store events through our third party retailer contractor. SoCalGas was also able to maintain and increase visibility in hard to reach retail stores through in-store marketing communication and actual in-store visits in 2014. The success of the program is attributed to multiple marketing and outreach campaigns which contributed to the PLA program meeting or exceeding its respective Program Implementation Plan (PIP) forecasts.

In 2014, SoCalGas transitioned rebate processing to a third party vendor for the first three quarters of 2014, and then transitioned the rebate processing function in-house in Q4 of 2014. The transition to and from the third party vendor, coupled with a new rebate processing system, led to program processing delays for mail-in applications throughout 2014. Further efforts in 2014 resulted in the SoCalGas PLA program introducing the Energy Star 2014 Most Efficient Clothes Washer measure (\$75). Additionally, the PLA program also increased the existing Energy Star natural gas water heater rebate from \$75 to \$100 to generate measure participation.

SCG3703 SW-CALS-Plug Load and Appliances – POS Narrative

The PLA program merges the former HEER, BCE, and ARP programs. This subprogram develops and builds upon existing Point of Sale (POS) retailer relationships and includes responsible appliance disposal strategies. PLA POS) offers rebates and incentives instantly, at the point of purchase to customers for purchasing and installing Energy Star® qualified appliances such as clothes washers and recycling inefficient refrigerators and freezers.

The SoCalGas PLA program continued to meet and exceed both annual and program cycle goal savings and objectives. Much of the continued success was due in part to the continuing POS program with the participating Big Box retailer. Additional in-store events throughout 2014 helped aid in awareness of the rebate program.

In 2014, the statewide PLA team each continued efforts to more effectively and actively recruit new and engage with existing retail partners in developing programs and enhance retail store presence. The goal is to increase retailer/customer participation and program visibility at retail locations. Residential appliance rebate offerings have become the major contenders for future POS program developments and additional programs are being evaluated. To achieve its goal, SoCalGas coordinated efforts with Big Box retailers to offer Western Regional Utility Network-wide clothes washer promotions. Promotion focused on using consistent point of purchase marketing material with statewide and weekend local store outreach, setting the foundation for new targeted promotions and more retailers to participate in the future.

As mentioned SoCalGas coordinated efforts with participating POS Big Box retailers to promote rebates and other SoCalGas residential measures at in-store outreach events throughout 2014. SoCalGas outreach representatives visited a minimum of five participating POS stores each weekend (in six hour shifts) from January to early December 2014. As a result, participating Big Box retailers reported consistent sales of rebated POS appliances during the various 2014 promotions.

The PLA POS program included three additional POS participants in 2014.

SCG3704 SW-CALS-Multifamily EE Rebates Narrative

The Multifamily Energy Efficiency Rebates (MFEER) Program offers rebates to multifamily building owners and managers for installation of qualified energy-efficiency products in apartment dwelling units and in common areas of apartment complexes, condominiums and mobile home parks. Energy efficiency measures include insulation, water heating, and space heating.

In 2014, SoCalGas continued to outreach to the multifamily sector via tradeshow, events, print ads and coordination with other SoCalGas multifamily programs. In particular, the MFEER program developed a comprehensive multifamily brochure. The brochure provides customers with information regarding all SoCalGas' multifamily offerings and benefits. The brochure was developed jointly by SoCalGas' energy efficiency and low income energy efficiency programs.

In an effort to increase program participation and benefits to the customers, the MFEER Program leveraged the Single Point of Contact approach with other multifamily EE programs, including the Energy Savings Assistance (ESA) Program and the Multifamily Home Upgrade Program. This integrated approach combined market-rate and income-qualified energy efficiency measures for presentation to multifamily customers.

SCG3705 SW-CALS-Energy Upgrade California[®] Home Upgrade Program

Energy Upgrade California[®] Home Upgrade Program (HUP)¹ uses a holistic approach to identify and correct comfort and energy-related deficiencies in single family detached homes. Contractors employ building science principles and use sophisticated diagnostic equipment to detect the cause of home performance related problems, and quickly and accurately address them. There are two options to this program, Home Upgrade and the Advanced Home Upgrade. These options allow the customer to choose from a variety of measures that best suit their home and needs. Some examples of measures used consist of attic insulation, air sealing, duct testing, HVAC change out, hot water heaters, pipe wrap, Showerstart thermostatic control valves, along with combustion safety testing.

¹ Formerly named Energy Upgrade California[®]. The program was re-named Energy Upgrade California[®] Home Upgrade pursuant to CPUC Decision (D.)12-11-015. Energy Upgrade California[®] is now the Statewide Marketing, Education & Outreach umbrella brand name.

The Advanced Home Upgrade incentive structure was redesigned and the incentive cap was removed to increase cost-effectiveness and drive deeper energy savings projects by rewarding gas and electric energy savings instead of focusing on site percentage energy usage reductions.

By partnering with the IOUs and two municipalities, SoCalGas HUP met their unit and therm goal in 2014 in the shared territory with Pacific Gas & Electric (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), Los Angeles Department of Water and Power (LADWP), and the City of Burbank.

The IOUs re-designed and enhanced the program's prescriptive participation path, Home Upgrade, in cooperation with the Regional Energy Network (RENS) to better align with the point structure incentive approach.

The number of participating contractors was increased by 62.5% with more effective and efficient recruitment efforts focused on leveraging distributor/contractor relationships.

SoCalGas continued efforts to streamline program reporting requirements during an annual program review. Building on 2013 improvements, the IOUs have continued to work closely with program participants to identify and resolve application and process challenges through desktop procedure review practices, improved inspection processes and additional training to contractors.

Contractor-facing marketing recruitment and implementation tools used by account managers and support staff were enhanced and refined:

- Sales and Recruitment brochure
- Program Application forms
- Home Upgrade Info Sheet
- Build-a-Package flyer
- Financing Info Sheet

Over 50,000 pieces of collateral were distributed to Participating Contractors and Customers during 2014. Along with customer facing marketing collateral:

- Infographic rack card
- Trifold brochure
- Program completion certificate (Gas-only; completed in early 2015)
- Realtor sales flyer (Gas-only; completed in early 2015)

Additionally, non-energy benefits from 2014 projects such as saving nearly 8 million gallons of water with the installation of thermostatic control valves and low-flow showerheads has helped toward the efforts to conserve water along with energy.

There are several issues that the HUP faces in terms of reaching the statewide goals. The following items listed show the variety of obstacles that we are working on to overcome:

- High cost of project to customers is a barrier for participation

- Financing options available to customers of all credit levels is not always available
- Not enough contractors in the program to complete the amount of projects yearly expected by the State.
- Continuous changes to the program to align with REN program in order to eliminate confusing with customers and contractors within the surrounding territories.

Program changes made in 2014 were as follows:

- Elimination of Pre-Retrofit Quality Control Verifications
- Combustion Appliance Zone Reporting Simplification
 - Eliminated 100 fields and 25 minutes of data entry by contractors
- Integration of Pool Pump Rebates (PLA)
- Adopted Vintage-specific Home Upgrade Building Leakage Values
 - Aligned default value with field-base results
- Released a Find-a-Customer (geotargeting) tool to support contractor marketing.
- HVAC Contractor Onramp Program (HOP)
 - Leverage relationship with Institute of Heating and Air Conditioning Industries, Inc. (IHACI)
 - Simplified program to allow HVAC change outs to be eligible
- Web Application provided tool to easily roll out and enforce program changes.
- Incentive amount for Advanced Home Upgrade not capped
- Promotions
 - Winter Special (extended throughout 2014)
 - Fall Special (Nov–Dec, in collaboration with LADWP)
 - End of Year Sales Bonus (\$100/job)

Energy Upgrade California[®] Multifamily (MF HUP) is a joint Pilot for SCE/SoCalGas and is an extension of the existing statewide Program. The primary purpose is to test performance-based approaches in the multifamily housing retrofit market. The MF HUP is a joint pilot program with SCE which has seven joint contractors. The 2014 goal for this program was 20 projects or 1,700 units.

Middle Income Direct Install (MIDI) Pilot is a direct install program for customers whose income falls between 201% and 300% of the federal poverty guidelines. The Pilot works in collaboration with the income qualified ESA program using the ESA contractors to initiate leads for MIDI, with a goal of 2,000 units per year.

The HUP traditionally requires significant financial contributions by customers who wish to participate. The MIDI Pilot closes this financial gap by first 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 HUP or the MF HUP Pilot.SCG3706 SW-CALS-Residential HVAC Narrative

Residential Upstream HVAC Incentive Program is modeled after the successful commercial upstream HVAC incentive program. Incentives are provided to upstream market actors for the sale of high-efficiency residential HVAC systems in the IOUs' service territories, with measures covering air-conditioning units and natural gas furnaces.

SoCalGas worked with the Statewide IOU HVAC Committees individually and through the Western HVAC Performance Alliance (WHPA) on all Statewide PIPs for implementation and logistics. SoCalGas also engaged with industry feedback on existing programs.

Following the launch of the Residential Upstream program in the third quarter of 2013, SoCalGas experienced delays in implementing the Residential Upstream program during the first half of 2014. The Residential Upstream program is constantly evolving and SoCalGas continues to look for ways to engage participation in the program.

Residential Energy Star Quality Inspection Program addresses residential installation practices to ensure that equipment is installed and commissioned above industry standards.

SoCalGas worked with the Statewide IOU HVAC Committees individually and through the WHPA on all Statewide PIPs for implementation and logistics. SoCalGas also engaged with industry feedback on existing programs. In addition, SoCalGas continues to work with SCE to determine energy savings and cost-effectiveness of measures by climate zone for the residential quality installation program.

SoCalGas experienced delays in implementing the Residential Quality Installation program during the first half of 2014. Program launched in Q3 2014 with little initial contractor uptake. The Residential Quality Installation program is constantly evolving and SoCalGas continues to look for ways to engage contractor participation in the program.

Residential Quality Maintenance Development Program addresses residential and commercial maintenance practices to ensure that equipment is serviced per industry standards and that the maintenance effort supports the long term strategic goal of transforming the trade from commodity-based to quality-based. The Residential Quality Maintenance program follows the Air Conditioning Contractors of America Maintenance Standard.

During 2014, SoCalGas continued research efforts to identify viable measure(s) and determine the cost-effectiveness of implementing a Residential Quality Maintenance program. Feasibility research was on-going to offer the program through a joint utility strategy.

Residential To Code Compliance Program attempts to drive compliance improvement efforts, focuses on the key decision points in the code compliance process that are common for all equipment change-outs, and provides financial incentives to market actors.

SoCalGas worked with the Statewide IOU HVAC Committees individually and through the WHPA on all Statewide PIPs for implementation and logistics. SoCalGas also engaged with industry feedback on existing programs. In addition, SoCalGas continues to work with city officials to discuss program design and implementation.

SoCalGas continues research and work with city officials to identify the value and cost-effectiveness of implementing a Residential To Code Compliance program.

SCG3707 SW-CALS-Residential New Construction Narrative

The California Advanced Home Program (CAHP) provides comprehensive support for saving energy in the residential new construction sector with a cross-cutting focus on sustainable design and construction, green building practices, energy efficiency, and emerging technologies. Through a combination of education, design assistance, and financial support, the CAHP works to encourage building and related industries to exceed California's Title 24 energy efficiency standards, and to prepare builders for future changes to these standards.

Program year 2014 was another successful year for CAHP, with energy savings and unit participation levels to surpass the program's targets. The residential new construction market has continued the improvement seen in 2013, providing the program good opportunities for productive engagement with the new construction industry; the recent and future tightening of California Title 24 standards have kept the program focused on continuing to improve and enhance its efforts to save energy for utility customers and to support the State's Zero Net Energy (ZNE) goals.

While weathering an expected dip in enrollment after the implementation of the updated Title 24 standards that went into effect in July 2014, the CAHP aimed longer-term and launched a revised program model. This major overhaul of the program was designed to meet the following goals:

- Establish CAHP as a vehicle for ZNE market transformation in the California building industry
- Include all energy end-uses within a home's envelope
- Create a program that can adapt to new technologies
- Encourage advanced building in all climate zones
- Simple for builders to participate, simple for utilities to implement

Expanding the program model to include all energy end uses in a home is fundamental for the program to continue to meet its energy savings objectives and to be a driver to support achievement of the State's goal of ZNE for all new homes by 2020. The program is now positioned to not only address the Title 24 regulated loads, such as heating, cooling and hot

water, that now have reduced savings potential relative to the new code, but also non-regulated loads, such as plug loads and appliances that still have untapped savings potential.

Another challenge of increasingly stringent Title 24 standards involves measures necessary to reach qualification that are more difficult than ever to implement and involve new whole building design changes. In response, the CAHP also began a strategic program initiative to address these concerns working directly with the builders/design teams.

The ENERGY STAR® Manufactured Homes Program (ESMH) is part of the statewide Residential New Construction program offering. ESMH addresses new factory-built housing not covered under the T-24 energy codes. During 2014 SoCalGas and SCE continued to rely on third party implementers to administer and market ESMH as the most reliable liaison to the manufacturer community. There were no ENERGY STAR qualified manufactured homes sold in the SoCalGas and SCE combined service territory during 2014 that participated in the ESMH program.

The ESMH program continues to see nominal uptake, which may be attributed to entry level homebuyers' reluctance to incur additional costs for energy efficiency measures.

Statewide Commercial Energy Efficiency 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 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. 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 five core statewide subprogram elements, including Commercial Energy Advisor, Continuous Energy Improvement, Commercial Calculated Incentives, Commercial Deemed Incentives, 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).

SCG3708 SW-COM-Energy Advisor Narrative

The Commercial Energy Advisor subprogram offers a suite of products and services to support customer education and participation in energy efficiency, demand response and self-generation opportunities, as well as to promote awareness of greenhouse gas and water conservation activities. The program utilizes proactive outreach initiatives and data driven interactive tools

designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

The Business Energy Advisor (BEA) continued to be a valuable tool in assisting our customers toward their energy efficiency goals. There were ongoing enhancements throughout the year for the customer service representatives to provide customers with additional support. An email campaign was created shortly after the tool launched in 2013 and targeted existing My Account business accounts. There were also ongoing marketing efforts to promote BEA through the Advanced Meter project.

The Energy Advisor program continued to work towards enhancing the audit tools to incorporate integrated energy savings recommendations. The program also continued to target the commercial sector by conducting onsite comprehensive assessments that identified therm saving opportunities through the deemed and calculated programs. The audit program supported in-depth American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Level II audits for customers who participated in the SoCalGas K-12 Sustainability Circle program and in the Continuous Energy Improvement subprogram. The customers were identified as committed participants who would benefit from a deeper dive in assessing potential energy efficiency projects and would follow through in implementing projects subsequent to these types of in-depth energy assessments.

SoCalGas is dedicated to helping its customers adopt voluntary and compliance-based building performance benchmarking. SoCalGas offers customers no-cost solutions including online and in-person training, technical support focused on the use of ENERGY STAR[®] Portfolio Manager[®] (ESPM), and resources for service providers trying to leverage benchmarking to build their businesses. SoCalGas developed and launched Web Services, for benchmarking with ESPM. Once customers are validated or authorized, SoCalGas will automatically upload 14 months of historic consumption data, if available, allowing customers to generate a benchmarking score in ESPM. Also, if the customer chooses, SoCalGas will provide monthly updates going forward for up to three years.

SoCalGas hosted three two-part benchmarking seminars in 2014. The first component was hands-on training, which used a combination of classroom instruction and online demonstrations and the second component explored how to set targets for improvements and estimate the amount of energy savings necessary to reach a higher score.

SoCalGas also launched a new Online/On-demand Learning Management System to provide benchmarking training and support to all customers in the SoCalGas service territory as a service to those who may not be able to attend the in-person training sessions.

SoCalGas continued to work with the small/medium/large-sized water agencies by providing marketing, outreach, and education to these customers in relation to the water energy nexus. In addition, SoCalGas remained committed to providing pump efficiency and landscaping classes at the Energy Resource Center. Those landscaping classes were co-taught by Los Angeles

Metropolitan Water District. SoCalGas also contributed to policy advances in the water-energy nexus proceeding.

SoCalGas also worked with Los Angeles Metropolitan Water District and other water organizations (LADWP, Anaheim, Pasadena, West Basin) to understand how to expand the gas component of water energy efficiency within their respective organizations.

SCG3709 SW-COM-Continuous Energy Improvement Narrative

The Continuous Energy Improvement (CEI) sub-program is a consultative service which supports long-term strategic energy management planning and implementation. CEI is designed to emphasize the importance of energy management by transforming the market and to help reduce energy intensity through a comprehensive energy management approach. CEI addresses technical and management opportunities for commercial customers while creating sustainable practices through a high-level commitment from executive and board-level management. The objective of the program is to affect organizational culture change which continuously improves energy performance over the long term.

CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization 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.

A CEI commercial cohort was launched in the latter half of 2013 and was completed in 2014. Customers graduated from the structured cohort following their participation in 10 monthly workshops in which they received extensive Strategic Energy Management education, on-the-job application opportunities, and one-on-one coaching. Participants were from diverse industries, including hotel, retail grocery store, private and public educational system, and banking industries. The cohort focused on both organizational behavior and engineering approaches to energy management best practices. Program participants attended regular workshops to gain the tools and knowledge needed to initiate and sustain an energy program within their organization. As participants developed an energy management system that fit their organization, support was provided in a number of ways:

- Regular workshops to train the cohort participants as a group on best practices for energy management.
- Expert coaching between workshops to apply these best practices within their organizations.
- Support for each participant to understand their key energy indicators and the drivers behind these metrics.

- Technical expertise to identify specific savings opportunities at facilities, and development of systems to identify and manage future opportunities.
- Development of energy models for each participant to quantify energy savings resulting from projects and operational changes.
- Tools and resources provided to equip each participant to successfully build an integrated energy management program that will sustain long after the cohort ends.

This cohort resulted in the identification of a significant number of short and long-term energy efficiency projects to be implemented by the participants.

Also, in 2014, SoCalGas launched two Sustainability Circles: one for K-12 school districts and one for a small group of Los Angeles area commercial and industrial customers. Sustainability Circles include a peer-learning community of organizations. Participants attended six one-day workshops which featured expert resource speakers and coaches focusing on integrating the best of sustainability with behavior change to accelerate a positive business impact to reduce energy cost and carbon footprint. The outcome of the workshops included self-generated Action Plans that engaged stakeholders and employees to implement energy efficiency initiatives and helped drive a mindset of efficiency and sustainability into the culture of the organizations.

The challenges faced by the program continue to be attributable to limited customer resources that are required for: supporting effective long-term energy management planning, implementation, monitoring, and evaluation of progress toward goals.

Overall, the CEI program was able to meet its objectives of providing customer support and implementation of long-term strategic energy management planning. This success was due in part to the fact that the CEI program is jointly implemented with SCE, which allows a comprehensive “total energy” approach to energy management.

SCG3710 SW-COM-Calculated Incentives Narrative

The Calculated Incentives Program offers incentives for customized new construction, retrofit and retro-commissioning energy efficiency projects. It also provides comprehensive technical and design assistance. Incentives are paid on the energy savings above and beyond baseline energy performance, which include state-mandated codes, federal-mandated codes, industry-accepted performance standards, or other baseline energy performance standards.

This program also includes the Savings By Design (SBD) sub-program, which serves the commercial new construction segment. It promotes integrated design by providing owner incentives, design team incentives, and design assistance to participants who design spaces that perform at least 10% better than Title 24.

This SBD program is offered in collaboration with SCE in the utilities’ overlapping service territory. It is also offered in conjunction with the LADWP. In 2014, the utility partnerships

with both SCE and LADWP have enabled the SBD subprogram to capture a myriad of project types.

SBD coordinated with a number of internal and external stakeholders to ease the transition over to the latest iteration of Title 24, effective in July 2014. A number of code transition resources were developed and posted to energydesignresources.com, SBD's educational website.

Documents and tool updates were initiated in anticipation of the code update to facilitate the change. The statewide group collaborated closely to work through any challenging issues that builders, designers or customers faced.

SoCalGas continued its collaboration with both SCE and the LADWP in implementing two Retro-commissioning (RCx) programs within the utilities' shared service territories. The goal of the RCx program is to assist customers in reducing their operating costs through cost-effective energy savings, focused on the identification and implementation of low-cost / no-cost operational improvements and on optimizing how existing equipment operates as an integrated system.

For this SoCalGas collaboration, both LADWP and SCE act in the role as the "lead utility" in implementing these co-funded programs. Initially in 2014, there was reduced uptake in RCx projects due to the implementation of a new approach for the program offering. This change was intended to offer the program to customers in a way that would encourage customers to move forward with implementing RCx projects, not just take advantage of a "no cost" RCx audit of their facilities. The intent of this new RCx program approach was to increase the success rate in moving projects from the audit phase to the measure-implementation phase. This new approach also encouraged the RCx Provider to be responsible in meeting all program requirements and project timelines in order for deliverables to be approved. These enhancements have provided motivation to both the customer and the RCx Provider to complete projects in a timely fashion. In the last half of 2014, as both the RCx Providers and customers have become educated on this new approach through workshops and training, there has been an increase in project activity.

For the overall Calculated subprogram, SoCalGas participated in the *ex ante* parallel review and incorporated lessons learned into program design. SoCalGas utilized a project checklist to further document early involvement in the project development process and standardize verification of project post-installation results. SoCalGas made improvements to policy and procedures manuals, provided training, and performed quality control procedures in order to screen out ineligible projects. In addition, a team was created to continually review and improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the CPUC's *Ex Ante* Review team.

The Custom Measure Project Archive (CMPA) parallel review process and changing program guidance continue to be a common issue with customers and trade professionals. The additional time and expense of complying with increasingly complex program requirements is a hurdle for customers to participate in the program.

The Calculated sub-program exceeded the projected 2014 savings goal objectives, including SBD. All energy savings goals statewide were realized.

SCG3711 SW-COM-Deemed Incentives Narrative

The Commercial Deemed Incentives Program offers rebates to customers in an easy to use mechanism to offset the cost of off-the-shelf energy saving equipment. The Commercial Upstream Water Heater subprogram leverages the marketing efforts and strategies aimed at distributors to transform the market and motivate installation of higher efficiency water heaters.

The Upstream Water Heater subprogram's objective is to stimulate plumber and contractor participation in promoting energy efficiency and influence the water heater upselling and stocking of distributors.

Marketing outreach was enhanced for both food service equipment vendors as well as non-food service equipment. In addition, SoCalGas' TradePro directory of vendors was launched in 2014. These marketing efforts resulted in increased customer participation.

The Commercial Deemed program exceeded projected 2014 savings goal objectives due to the implementation of the upstream delivery approach and marketing outreach efforts.

SCG3712 SW-COM-Nonresidential HVAC Narrative

The Commercial HVAC Program delivers a comprehensive set of midstream and upstream 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.

Upstream HVAC Equipment Incentive offers incentives to distributors who sell qualifying high-efficiency commercial HVAC equipment to increase the stocking and promotion of such equipment.

Commercial Quality Installation addresses commercial installation practices to ensure that equipment is installed and commissioned per industry standards

Commercial Quality Maintenance addresses commercial maintenance practices to ensure that equipment is serviced per industry standards and that the maintenance effort supports the long-term strategic goal of transforming the trade from commodity-based to quality-based.

A common problem in achieving energy efficient retrofits with HVAC equipment is that contractors do not obtain the required permits (which mandate certain energy-efficient practices)

due to lack of incentives. Although permits are mandated by California law, contractors who comply with HVAC code provisions incur higher costs that are difficult to pass onto customers.²

There is substantial evidence that improper equipment installation, operation, and maintenance lowers the realized energy savings of energy efficient measures and, most likely, explains some of the differences between *ex ante* savings estimates and *ex post* evaluations. Improper equipment installation, operation and maintenance reduce the energy outcomes. Specific studies have investigated the extent of poor installations for specific technologies, including HVAC. As a result, the issue of code noncompliance was a barrier to energy efficient HVAC installations and retrofits.

SoCalGas has a very large service area spread across several climate zones. This operating condition may necessitate the development of multiple programs aimed at specific areas based on climate and energy usage characteristics. A single program is the easiest to design and maintain, but customizing multiple programs for certain areas may yield better results. Local climate and mild weather in the service territory does not warrant large heating loads and thus defers to the cooling side of HVAC. Since there is an emphasis on electric savings over gas, electric savings becomes the primary driver. As a result of the lack of qualifying, cost-effective gas equipment and products, along with an increase in efficiency requirements, made it difficult to promote “qualifying” products and/or measures.

The HVAC program has not been implemented yet, and as a result, did not meet its goals for 2014. SoCalGas continued to evaluate new technologies and other related equipment for the Upstream Equipment Incentive subprogram. SoCalGas is continuing to assess a consultant proposal for the Commercial HVAC Quality Installation Contractor Education and Customer Awareness program based on ACCA standards as well as vetting potential measures via the SoCalGas internal Innovation Now! process. SoCalGas also collaborated with ACCA staff and other industry stakeholders in the Western HVAC Performance Alliance to validate the market transformation groundwork being laid and to ensure that QI standards can be verified in the field in a sustainable fashion for Commercial HVAC. During 2014, SoCalGas participated in monthly Western HVAC Performance Alliance sub-committee meetings, discussing input and feedback regarding improvement to HVAC programs. Finally, SoCalGas executed an inter-utility agreement with SCE to buy therms resulting from HVAC related measures. Thus far, SoCalGas is buying back therms for doors on refrigerated cases and is exploring several other HVAC measures, including Demand Control Ventilation and Energy Recovery Ventilation (ERV) to add to this agreement.

² California Energy Efficiency Long Term Strategic Plan – January 2011 Update, page 55.

Statewide Industrial Energy Efficiency 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 are based on deemed energy savings by per unit of equipment and calculated energy savings by per unit of energy.

The Statewide Industrial Energy Efficiency Program includes four statewide sub-program elements that together comprise the core product and service offerings. Each IOU 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.

In October 2014, SoCalGas hosted an Industry Stakeholders Consultation workshop in collaboration with the CPUC Energy Division staff and their consultant for the purpose of gathering some valuable input on a number of important topics which will help inform the update on the California's Statewide Energy Efficiency Strategic Plan. SoCalGas' involvement in this process will help ensure that the strategies considered will empower industrial customers to improve its efficient use of energy and to further adopt clean energy resources. The goal of coming up with a prioritized list of actions that the CPUC can include in the strategic plan was accomplished.

SCG3713 SW-IND-Energy Advisor Narrative

The Industrial Energy Advisor subprogram offers a suite of products and services to support customer education and participation in energy efficiency, demand response and self-generation opportunities, as well as to promote awareness of greenhouse gas and water conservation activities. The program utilizes proactive outreach initiatives and data driven interactive tools designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

The non-residential audit program continued to work towards enhancing the audit tools to incorporate integrated energy savings recommendations. The program also continued to target the commercial sector by conducting onsite comprehensive assessments that identified therm saving opportunities through the deemed and calculated programs.

SoCalGas persisted in its efforts to work with the small/medium/large-sized water agencies by marketing, outreach, and providing education to these customers in relation to the water energy nexus. SoCalGas remained committed to providing pump efficiency services and supporting the industrial sector and the industrial processes that are associated with the business. SoCalGas also contributed to policy advances in the water-energy nexus proceeding.

SoCalGas also worked with Los Angeles Metropolitan Water District and other water organizations (LADWP, Anaheim, Pasadena, West Basin) to understand how to expand the gas component of water energy efficiency within their respective organizations.

SCG3714 SW-IND-Continuous Energy Improvement Narrative

The Industrial CEI Program features a consultative service which supports long-term strategic energy management planning and implementation. 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 addresses technical and management opportunities for industrial customers while creating sustainable practices through a high-level energy commitment from executive and board-level management. The objective of the program is to affect organizational culture change into a state that continuously improves energy performance over the long term.

CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization 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 customers participating in the 2014 program included a diverse group of manufacturing company representatives from the food processing, clothing, steel, rubber, and foam producing companies and aerospace parts industries. These large customers participated in the traditional one-on-one coaching approach to CEI. All customers moved through the six phases of the CEI process in a steady path toward the development of their Strategic Energy Management Plans. Many have already taken advantage of the IOU rebate and incentive programs as a result of the technical assessments completed for their facilities.

The program continued in its effort of recruiting public water agencies for the cohort approach to CEI. With this approach, the agencies can benefit from a peer-to-peer learning and sharing environment.

CEI was able to meet its objectives of customer support and implementation of long-term strategic energy management planning. This success was due in part to the fact that the CEI

program is jointly implemented with SCE, which provides a comprehensive “total energy” approach to energy management. The challenges faced by the program, however, included limited customer resource time which is needed for collecting usage data, monitoring, and continuously re-evaluating progress toward established goals.

SCG3715 SW-IND-Calculated Incentives Narrative

The Industrial Calculated Incentives Program offers incentives for customized retrofit and retro-commissioning energy efficiency projects. The 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.

Heat recovery and boiler measure type projects were large contributors of energy savings for the Industrial Calculated sub-program. Continued activities such as energy audits of facilities, walkthrough surveys, and technical assistances for this sector resulted in recommendations for energy efficiency projects with calculations/estimates of energy savings for exceeding Title 24 code or industry standard practice baselines.

The Industrial Calculated program is as complex as the projects it attempts to influence, due to the unique nature of the projects and the particular needs of the segment it is attempting to serve. SoCalGas utilized a project checklist to further document early involvement in the project development process, and standardize verification of project post-installation results. SoCalGas made improvement to policy and procedures manuals, provided training, and performed quality control procedures in order to screen out ineligible projects. In addition, a team was created to continually review and improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the CPUC’s *ex ante* review process.

This program met its 2014 savings goal.

SCG3716 SW-IND-Deemed Incentives Narrative

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. The program also 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. This subprogram also offers rebates to customers in an easy to use mechanism to offset the cost of off-the-shelf energy-saving equipment.

The Industrial Deemed Energy Efficiency Program directly addressed key market factors that led to higher energy costs for California businesses. By providing a menu of prescribed common measures, this simplified the process of reviewing project proposals and provided a "per-widget" rebate that reduced the cost of retrofitting outdated and inefficient equipment. This element made it attractive for customers to spend money in the short run in order to achieve lower energy costs in the long run. Pipe and tank insulation and steam process boiler were two measures that were a focus for deemed energy savings in 2014 for the industrial sector.

Using itemized energy efficiency measures was intended to overcome barriers that prevent many business customers from adopting energy efficiency alternatives. The barriers were 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.

The program fell short of the projected 2014 savings goal due to the shift of steam traps for industrial customers to the Calculated subprogram.

Statewide Agricultural Energy Efficiency Program

The Statewide Agricultural Energy Efficiency Program facilitates the delivery of integrated energy management solutions to California's agricultural customers. The Program offers a suite of products and services, including 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 CLTEESP.

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 North American Industry Classification System designation, have received IOU services through the Industrial program offering. However, there are those facilities with on-site processing that are integrated with 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 subprograms.

SCG3717 SW-AG-Energy Advisor Narrative

The Agriculture Energy Advisor subprogram offers a suite of products and services to support customer education and participation in energy efficiency, demand response and self-generation

opportunities, as well as to promote awareness of greenhouse gas and water conservation activities. The program utilizes proactive outreach initiatives and data driven interactive tools designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

The nonresidential audit program continued to work towards enhancing the audit tools to incorporate integrated energy savings recommendations. The program also continued to target the agricultural sector by conducting onsite assessments and pump testing services that identified therm saving opportunities through the deemed and calculated programs.

SoCalGas continued to work with the small/medium/large-sized water agencies by marketing, outreach, and providing education to these customers in relation to the water energy nexus. In addition, SoCalGas remained committed to providing pump efficiency and landscaping classes at the Energy Resource Center. Those landscaping classes were co-taught by staff of the Los Angeles Metropolitan Water District. SoCalGas also contributed to policy advances in the water-energy nexus proceeding.

SoCalGas also worked with Los Angeles Metropolitan Water District and other water organizations (LADWP, Anaheim, Pasadena, West Basin) to understand how to expand the gas component of water energy efficiency within their respective organizations.

SCG3718 SW-AG-Continuous Energy Improvement Narrative

The Agricultural CEI subprogram is a consultative service which supports long-term strategic energy management planning and implementation. The objective of the program is to affect organizational culture change which continuously improves energy performance over the long term. 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 and International Organization for Standardization 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 reduction, water conservation strategies, and regulatory compliance. CEI is offered by the IOUs, based on their market segment potential and resource availability.

In the fourth quarter of 2014, for the first time since the launch of the initial CEI program offering, two agricultural customers enrolled in the program. One customer is a pistachio growing and distribution farm, and the other is a citrus growing and packing operation. These customers have expressed a particular interest in implementing an integrated approach to managing their gas, electric, and water resources. In 2015, SoCalGas will continue to work with these two customers toward creating an energy policy, establishing an energy team, developing a long-range action plan and establishing energy reduction goals as they are coached through the completion of all six phases of CEI.

The CEI program was jointly implemented with SCE, which contributed to its success as a program offering that provided a comprehensive “total energy” approach to energy management. The challenges faced by the program, however, continued to include the limitations attributable to limited customer time which is needed to collect usage data, monitor progress, and continuously re-evaluate progress toward their energy goals.

SCG3719 SW-AG-Calculated Incentives Narrative

The Agricultural Calculated Incentive Program offers incentives for customized retrofit and retro-commissioning energy efficiency projects. The program also provides comprehensive technical and design assistance.

In this sector, water-energy nexus efforts were identified in areas that use natural gas engines as the source to deliver and treat water. Flood-to-drip measures were also identified as viable custom measures to understand the relationship between water and natural gas. In addition to this work, SoCalGas supported activities such as symposiums and floriculture forums conducted in this sector.

SoCalGas also signed a memorandum of understanding with Los Angeles Metropolitan Water District to co-manage programs that cover water-energy nexus activities. SoCalGas participated and sponsored numerous water-energy nexus events; one event that stood out was the California Irrigation Institute Conference. The event looked at how water and energy utilities can work together to explore solutions to the drought.

SoCalGas utilized a project checklist to further document early involvement in the project development process and standardize verification of project post-installation results. SoCalGas made improvement to policy and procedures manuals, provided training, and performed quality control procedures in order to screen out ineligible projects. In addition, a team was created to continually review and improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the CPUC’s *Ex Ante* Review team.

The program exceeded its 2014 savings goals.

SCG3720 SW-AG-Deemed Incentives Narrative

The Agricultural Deemed Incentive Program offers rebates to customers in an easy to use mechanism to offset the cost of off-the-shelf energy saving equipment.

The program kept focus on replacing existing energy efficient natural gas equipment, and encouraging customers to move up to higher than standard efficiency models when purchasing additional equipment. The Deemed rebate offering provided utility representatives, equipment

vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage the adoption of mass market efficiency measures through fixed incentive amounts per unit/measure. The program also coordinated its activities with SoCalGas Account Executives and Commercial and Industrial Service Technicians to present energy efficiency program details to their customers.

Much of the small deemed selection is based on electric water pumping. SoCalGas continued to investigate possible deemed options for lean burning gas-powered engines.

The program fell short of the projected 2014 savings goal objectives. The primary rebated measure was the Greenhouse Heat Curtain.

Statewide Emerging Technologies Program

The Statewide Emerging Technologies Program (ETP) supports the California IOU energy efficiency programs in their achievements of aggressive objectives through three subprograms. The Technology Assessment subprogram supports the IOU energy efficiency programs by identifying and assessing the performance of emerging EE technologies and solutions that may be offered to customers with an incentive. The Technology Development Support subprogram supports efforts to increase technology supply by educating technology developers on technical and programmatic requirements for rebated measures. The Technology Introduction subprogram supports efforts to introduce technologies to the market by exposing end-users to applications of emerging technologies in real-world settings, and by using third party projects to deploy technologies on a limited scale in the market.

The ETP is focused on identification, assessment, and support for commercialization of energy-reducing technologies for residential, commercial, agricultural and industrial customers. The program is committed to helping achieve California's energy-reduction goals by screening potential technologies, assessing them to validate performance and customer acceptance, performing in-situ demonstrations and recommending the proven winners for IOU customer education and rebate programs.

ETP uses a number of tactics to achieve the objectives of its three subprograms. Some of the key tactics are described below, but each tactic may be used to achieve any of the subprogram objectives, and this list is not comprehensive.

SCG3721 SW-ET-Technology Development Support Narrative

The Technology Development Support (TDS) subprogram provides assistance to private industry in the development or improvement of technologies. Although product development is the domain of private industry, there are opportunities where IOUs are well qualified (or in a strong position) to undertake targeted, cost-effective activities that provide value in support of private industry product development efforts. This support decreases innovator uncertainties and allows

the ETP to have input. ETP looks for targeted opportunities to support EE product development. Product development is the process of taking an early-stage technology, or concept, and transforming it into a saleable product. ETP uses several activities to support technology developers. Technology Resource Incubator Outreach (TRIO) provides support and networking for EE and DR entrepreneurs, investors, and universities with the goal of providing participants the necessary perspective and tools to work with IOUs and ultimately introduce new EE measures to the marketplace. TRIO symposia are intended to educate technology developers on the requirements that IOUs must apply to considering new technologies for inclusion in IOU programs. TRIO roundtables are targeted to a smaller audience and have focused on Cost-Effectiveness, Energy Management Systems, and ET Assessments. Market and behavioral studies investigate customer needs in targeted sectors to estimate customer reaction to new technologies and solutions. The key activity in which ETP engages is in communication and collaboration with industry. These activities are often conducted on an ad hoc basis, as windows of opportunity arise.

The following TDS strategies were implemented in 2014:

- Stayed abreast of statewide HVAC initiatives.
- Collaborated with industry directly and through partners, such as the Western Cooling Efficiency Center and the Gas Technology Institute to provide targeted support for technology development.
- Collaborated and educated innovators from universities and other research institutions in engagements such as the California Institute of Technology/US Department of Energy FloW program.
- Collaborated with the Emerging Technologies Coordinating Council (ETCC) and IOUs on various activities. Continued on-going business relationships with investors who were interested in funding cost-effective EE measures.
- Supported TRIO symposium on “how to do business with utilities.” This workshop helped to educate the investor and technology communities on the requirements necessary to do business with utilities.
- Supported TRIO Roundtable event in relation to structuring, funding and/or financing companies and intellectual property.
- Supported the bi-annual statewide IOU efforts for Emerging Technologies Summit.
- Participated and engaged with industry stakeholders in California Energy Commission’s (CEC) Public Interest Energy Research (PIER) solicitations yielding successful awards.
- Developed partnership with LADWP for a strategic and holistic approach to integrating electric utilities to assist in achieving state energy efficiency goals.
- For drought mitigation, assisted developer in testing and provided expert improvement of a commercial dishwasher greywater recycling pre-rinse product.

SCG3722 SW-ET-Technology Assessment Support Narrative

Through the Technology Assessment Support (TAS) element of the ETP, energy efficient measures that are new to the market (or underutilized for a given application) are evaluated for

performance claims and overall effectiveness in reducing energy consumption. A key objective of these assessments is the adoption of new measures into SoCalGas' portfolio. Historically, technology assessments are a core strength of ETP and provide critical support to EE programs. ET assessments may utilize data/information from different sources including: in situ testing (customer or other field sites), laboratory testing, or paper studies may be used to support assessment findings. In addition to other findings and/or information, assessments typically would generate the data necessary for EE rebate programs to construct a workpaper estimating energy and demand savings over the life of the measure.

The following TAS strategies were implemented in 2014:

- Collaborated with many IOU and non-IOU partners and scanned a wide variety of sources to identify suitable assessment candidates.
- Provided information to internal stakeholders from assessments that can help IOUs' EE programs as they develop new measures or revise/integrate existing measures.
- Produced reports describing TAS results, conclusions, and recommendations.
- SoCalGas revised its internal ideation process and ETP participated in an advisory role to assist in the screening and prioritizing measure development for EE programs.
- Coordinated assessments and shared technology information through the quarterly meetings of the ETCC.
- Held the ETCC Open Forum, where developers of new technologies have an opportunity to highlight their products to ETP.
- Provided technical management of Navigant Consulting Inc.'s Portfolio of the Future third party program.

As a result of these efforts, the TAS program successfully identified technologies with verified savings and benefits to the California IOU programs.

In 2014, SoCalGas' ETP initiated or continued significant work at least 13 technology assessments. As a result of these efforts, the TAS program successfully identified technologies with verified savings and benefits to the California IOU programs. The following technologies, with a focus on the residential and small business sectors, were transferred for measure development:

- Fractional horsepower recirculating pump variable frequency drive
- Residential and small commercial HVAC fan stop delay
- Collaborated with SDG&E on a shower monitoring and alarm system
- Shower drain heat recovery
- Leveraged two CEC PIER food service projects with the Gas Technology Institute
- Leveraged CEC PIER funds for a low-income housing EE retrofit study with the Electric Power Research Institute

SCG3723 SW-ET-Technology Introduction Support Narrative

The Technology Introduction Support (TIS) subprogram supports the market introduction of new technologies to the market, on a limited scale, through several activities.

- Scaled Field Placements (SFP) projects consist of placing a measure at a number of customer sites as a key step to gain market traction and feedback. Typically, these measures have already undergone an assessment or similar evaluation to reduce risk of failure. Monitoring activities on each scaled field placement will be determined as appropriate.
- Demonstration and Showcase (DS) projects are designed to provide key stakeholders the opportunity to "kick the tires" on proven combinations of measures that advance CLTEESP and ZNE goals. DS introduces measures to stakeholders at a system level, whether they are the general public or a targeted audience, in real-world settings, thus creating broad public and technical community exposure and increased market knowledge. These potentially large-scale projects expose measures to various stakeholders using real-world applications and installations. Key attributes of a DS are that it is open to the stakeholders and highlights a system approach rather than an individual approach.
- Market and behavioral studies are designed to perform targeted research on customer behavior, decision making, and market behavior to gain a qualitative and quantitative understanding of customer perceptions, customer acceptance of new measures, and market readiness and potential for new measures.
- Technology Resource Innovation Program (TRIP) solicits third party projects to pilot and deploy emerging technologies on a limited scale to the market.

The following TIS strategies were implemented in 2014:

- Identified cost-effective natural gas emerging technologies applications and integrate to a near-zero net energy design for a LEED Platinum commercial building.
- Developed communication plan to promote project exposure, stakeholder awareness, and public information dissemination.
- Demonstrated and showcased a combination of technologies namely a tankless water heater, hydronic heating, drain heat recovery, and an advanced thermostat at a ZNE model home.
- Acted as a technical advisor and conducted multiple field tests with SoCalGas' Food Service Program in the Energy Star Fryer Scaled Field Placement (SFP), enabling market transformation of technology acceptance in the restaurant sector.
- Coordinated with the statewide ETCC stakeholders.
- Solicited third party projects through the TRIP solicitation and awarded funds to introduce emerging technologies to the market.

In 2014, SoCalGas' ETP initiated or continued significant work on numerous projects, including four SFPs and four demonstration showcases. A majority of the 2014 projects were focused on zero net energy and deep retrofit-related technologies. Building types addressed in 2014

included residential, low income, multi-family, restaurants, community centers. Most projects were made available to external stakeholders and the general public via the ETCC website.

Statewide Codes & Standards Program

The Statewide Codes and Standards (C&S) Program saves energy on behalf of ratepayers by influencing standards and code-setting bodies, such as the California Energy Commission (CEC) and the US Department of Energy (USDOE), to strengthen energy efficiency regulations, by improving compliance with existing codes and standards, by assisting local governments to develop ordinances that exceed statewide minimum requirements, and by coordinating with other programs and entities to support the State's ambitious policy goals. Codes and Standards program advocacy and compliance improvement activities extend to virtually all buildings and potentially all appliances sold in California.

Key Initiatives

- Development of Title-24 Codes and Standards Enhancement (CASE) studies, including code enhancement proposals and stakeholder development, in support of 2016 building codes.
- Updates to Title-20 CASE studies in support of the Phase 1 rulemaking, and response to all federal appliance standards rulemakings that impact California.
- Continued compliance improvement education and training for building codes, and expansion into appliance standards.

Successful Program Strategies

Support for state and federal building codes and appliances standards continues to move California towards residential ZNE by 2020, non-residential ZNE by 2030, and the Governor's expressed goal to reduce building energy usage by 50%.

Compliance improvement activities have contributed to Title-24 compliance rates that exceed 100%, and compliance rates for appliance standards between 80% and 90%.

Implementation Challenges

The 2013 Title 24 Code, which became effective in 2014, has been difficult to implement due to late availability of software, software glitches and subsequent software updates. In addition, the 2013 version had one of the largest increases in stringency of any previous code cycle.

Title 24 Code complexity necessitates many additional work aids such as fact and trigger sheets to explain code intricacies to users.

Opportunities Moving Forward

There are several opportunities to improve the quality of advocacy in support of state and federal building codes and appliance standards through increased primary research. In addition to further expansion of Title 24 education and training, significant energy savings may be achieved

by expanding support for appliance standards. New reach codes may be developed as software stabilizes.

SCG3724 SW-C&S-Building Codes & Compliance Advocacy Narrative

The Building Codes and Compliance Advocacy subprogram primarily targets improvements to Title 24 Building Efficiency Regulations that are periodically updated by the CEC. The subprogram also seeks changes to national building codes that impact California building codes through ASHRAE and other national groups. 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 efforts of ratings organizations that are referenced in Title 24 (e.g., the National Fenestration Rating Council, and the Cool Roof Rating Council). These efforts support the governor's goal to increase building efficiency by 50%. The following are the 2014 Strategies implemented by the subprogram:

- Supported post-adoption prerequisites to improve future implementation of 2013 Title 24 building energy and CALGreen standards. Activities included improvements to the Performance Method software and development of a software training program, and edits to the CEC Residential and Nonresidential Title 24 Compliance Manual.
- Commenced preparations for the 2016 code cycle to prepare for expected CEC proceedings. Activities included developing, coordinating, and providing management support for Emerging Technologies projects that are collecting energy savings, cost-effectiveness and feasibility information for the top 4 residential measures planned for the 2016 standards, including improvements to attics, walls, lighting, and water heating. These measures are critical for achieving Zero Net Energy ready homes by 2020. Also, worked closely with the CEC staff to identify and prioritize energy efficiency measures for the 2016 Title 24 standards development.
- Conducted efforts to harmonize state and national building codes. Activities included a major rewrite of ASHRAE Standard 189.1 (Standard for the Design of High Performance Green Buildings) to allow a “dual path” approach where one path is able to allow above federal minimum equipment efficiencies without violating federal preemption law. This standard has also adopted bi-level parking lot lighting controls similar to those in the 2013 Title 24 in alignment with ASHRAE Standard 90.1 (Energy Standard for Buildings Except Low-Rise Residential Buildings). The C&S team has been working with the national energy code development process to assure that daylighting code requirements are aligned between the two standards. In conjunction with Pacific Northwest National Laboratory (PNNL), the C&S team is involved with the process to require card key controls of lighting HVAC and ventilation of hotel and motel guest rooms.

SCG3725 SW-C&S-Appliance Standards Advocacy Narrative

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 and specifications by the United States

Department of Energy (USDOE), Environmental Protection Agency (EPA), ENERGY STAR®, and Federal Trade Commission (FTC). Advocacy activities include developing Title 20 code enhancement proposals, participating in the CEC public rulemaking process, submitting comment letters based on IOU research and analysis in federal standards proceedings, and participating in direct negotiations with industry. Additionally, the program monitors state and federal legislation and intervenes, as appropriate. The following are the 2014 Strategies implemented by the subprogram:

- Advocated changes to Title 20 Appliance Efficiency Regulations. Activities included the following:
 - Participated in several CEC webinars and workshops regarding “Phase 1” topics rulemaking.
 - Completed laboratory testing for several topics, with results submitted as part of the CASE studies. Additional testing pursued for further support of the rulemaking.
 - Developed and submitted 13 Title 20 CASE studies to CEC.
 - Facilitated industry and advocate stakeholder meetings for all topics including:
 - Video Displays
 - Game Consoles
 - Computers
 - Set-top Boxes
 - Dimming Ballasts
 - Small Diameter Directional Lamps
 - Light-Emitting Diode lamps
 - Commercial Clothes dryers
 - Toilets and Urinals
 - Faucets
 - Small network Equipment
 - Amend Swimming Pool and Spa Standards
 - HVAC Air Filter Labeling.
- Advocated changes to federal appliance standards. Activities included the following:
 - Researched and responded to specific issues related to federal rulemaking and specification processes conducted by USDOE, EPA ENERGY STAR, and FTC.
 - Participated in several stakeholder meetings during rulemaking and specification process resulting in 38 rulemaking advocacy letters issued in 2014. The results of these efforts will be determined in future years.
 - IOU Advocacy letters issued in previous years influenced rulings on five Federal Measures taking effect as law in 2014: 1.) Room Air Conditioners, 2.) Residential Refrigerators and Freezers, 3.) General Service Fluorescent Lamps, 4.) Fluorescent Lamp Ballasts and 5.) Water-and Evaporative-cooled Computer Air Conditioners and Heat Pumps.
 - Participated in USDOE’s Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) working groups with USDOE, industry, and other stakeholders.

SCG3726 SW-C&S-Compliance Enhancement Narrative

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. Achieving satisfactory compliance with the codes is a crucial requirement for capturing the code-related energy savings 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 and provides a solid foundation for future robust advocacy efforts. The following are the 2014 Strategies implemented by the subprogram:

- Expanded training modalities to increase the depth and breadth of educational offerings and audience reach;
 - Decoding Talks: Monthly 90-minute online discussions on specific topics targeted at Building Department Personnel and contractors;
 - On-line Learning Portal: Building industry practitioners will have prescribed paths leading to training and tools;
 - Virtual Classes: Instructor-led, interactive, web-based classes eliminating travel time and expenses;
- Developed and maintained tools to aid compliance improvement practitioners in implementing the code;
 - Forms Ace: Aids in determining which compliance forms are applicable to your specific project;
 - Installation Ace: A “field guide” to assist in identifying proper installation techniques and visual aids for some components commonly installed incorrectly;
 - Reference Ace: Helps you navigate the Standards using key word search capabilities, hyperlinked tables and related sections;
 - Crack the Code Workshops: Workshop packages to help Building Departments facilitate trainings for local installation contractors;
 - Launched an outreach campaign to increase consumer and building industry’s awareness of code requirements, and new EnergyCodeAce website designed to serve as a one-stop-shop for compliance tools, resources and learning portal access;
- Created a host of resources, including:
 - Trigger Sheets: Measure-based sheets that identify and define the code requirements that are triggered when a change is made to a building
 - Fact Sheets: Define the essential requirements, considerations and required forms for specific energy code measures
- Checklists: Provide step-by-step guidance for plans checks and field inspections;

- Developed a new Title 24 Summary Compliance form (NRCC-PRF-01-E) form using input from practitioners and building departments that reduced complexity and provided guidance regarding the forms required to be submitted for a given building project; and
- Commence outreach and education efforts for Title 20 and federal appliance standards.

SCG3727 SW-C&S-Reach Codes Narrative

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 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 and cost-effectiveness relative to Title 24 by Climate Zone, drafting 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.

The program also 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 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), Collaborative for High Performance Schools (CHPS), and the United States Green Building Council (USGBC). Additionally, the program intervenes in EnergyStar® and other voluntary activities to shape future regulations or support coordination with voluntary programs. The following are the 2014 Strategies implemented by the subprogram:

- Commenced efforts to support documenting reach code savings that may be counted towards local government climate action plan goals. Activities included initiating the development of a secure cloud-hosted system that would allow participating Reach Code jurisdictions to import data from the Performance Certificate of Compliance (PERF-1C) XML files. This database will allow the IOUs to report aggregated and detailed modeled energy savings and electric demand and GHG reductions. It will also allow the various jurisdictions access their own aggregated savings and reduction data; and
- Initiated preparation of cost-effectiveness studies to support the adoption of Cool Roof Reach Code ordinances by the City of Los Angeles, City of Pasadena and County of Los Angeles, respectively. The Studies will address product cost, energy savings, cost-effectiveness and greenhouse gas reductions (GHG) to support reach code requirements for residential and nonresidential Cool Roofs in Climate Zones 6, 8 and 9 (located in the California central coast).

SCG3728 SW-C&S-Planning Coordination Narrative

The Planning and Coordination subprogram works with the CEC, CPUC, Emerging Technologies, WE&T, rebate and other voluntary programs, to conduct strategic planning in support of the Strategic Plan policy goals, including ZNE goals for new construction. As part of the expanded outreach and communications efforts, the C&S program maintains a codes and standards collaborative, and continues to facilitate the statewide Compliance Improvement Advisory Group (CIAG). In addition, the C&S program maintains regular contact with state and federal code-setting agencies to minimize duplication of efforts and coordinate activities. The following are the 2014 Strategies implemented by the subprogram:

- Conducted tactical planning in support of the CPUC’s residential ZNE policy goal. Activities included development of a draft plan, review by CPUC and CEC staff, and revisions to the draft plan based on these inputs;
- Developed a standing statewide cross-functional conference call to improve coordination with other groups within the IOU energy efficiency portfolio; and
- Collaborated with the WE&T statewide team on training offerings for the building industry community and training for community colleges on 2013 Title 24 code requirements.

Statewide Workforce Education & Training Program

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 IOUs. Education and training are vital components of each of the IOU’s energy efficiency portfolio. 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.

SCG3729 SW-WE&T-Strategic Planning Narrative

The SW-WE&T Strategic Planning & Implementation Sub-Program involves the management and execution of several strategic statewide planning tasks and resulting project implementation actions initiated by the Strategic Plan.

During 2014, the Sub-Program spent time meeting and discussing recommendations provided by the consultant hired to review the WE&T Program. While many of the recommendations require communication and collaboration with expanded internal and external parties beyond the statewide WE&T staffs before they can be reasonably considered, the IOUs did begin assessment and closer work to see how those recommendations within their respective control could be integrated into programs.

The IOUs convened a WE&T Taskforce meeting on May 12, 2014 where the Taskforce membership was presented with recommendations from the Guidance Plan completed by the WE&T consultant hired to review the statewide WE&T program. The meeting was to provide the Taskforce membership an opportunity to ask questions of the consultant about the recommendations.

Program implementation barriers and problems encountered involved keeping pace and coordination with numerous local, regional and state initiatives pertaining to energy efficiency objectives, workforce needs, education curriculum and training standards.

SoCalGas' continued to make adjustments to its workforce training portfolio in 2014 to help meet the program's goals and objectives. This realignment of training included reaching out to new partners across the EE industry to collaborate with to achieve workforce goals and objectives. Seminars and courses were modified / developed to be compatible with changing codes, needed workforce standards and certification, and skills for supporting emerging technologies.

SCG3730 SW-WE&T- Centergies Narrative

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.

During 2014, the sub-program conducted 251 training/seminar sessions, of which 12 targeted IDSM; 65 focused on outreach consultations, and 226 covered equipment demonstrations. SoCalGas achieved these goals while taking steps to adjust its portfolio offerings to include IDSM curriculum, identifying partners to expand training experience with more demonstration lab work, and use of more hands-on field tools.

SoCalGas continued to forge relationships with local water agencies, such as Metropolitan Water district, LADWP, Anaheim Water and Power, with the mutual interest of facilitating both water conservation and EE, by presenting landscape seminars geared to preserving water and energy. This also represented opportunities to educate customers on expanded IDSM options beyond EE, demand response, and distributed generation. The sub-program also worked closely with several tankless water heating companies, to conduct classes for plumbers, installers, and repairmen. As part of a statewide effort in 2014, WE&T Centergies offered Building Operator Certification (BOC) training sessions and webinar series to commercial building operators and engineers. The sessions included eight Level I BOC training courses and six Webinars.

The 2013 Building Energy Efficiency Standards went into effect on July 1, 2014. In preparation for the effective date and the ongoing requirements, a variety of lecture, hands-on, and live webcast courses were offered through 2014 and continuing into 2015. These sessions targeted contractors, installers, inspectors and home energy raters to educate them on the new residential and commercial Title 24 Energy Efficiency Standards. WE&T intensified the number of Title 24

classes in 2014 to provide the broadest reach of knowledge, compliance skills, and program support.

In 2014, the IOU WE&T Program offered several hundred seminars, thousands of equipment presentations and live cooking demonstrations through the foodservice branded ‘California Energy Wise’ (CEW) campaign. The WE&T CEW audience includes: foodservice managers, line workers, restaurant owners, university students and culinary and community college students, chefs, environmental health professionals, consultants, engineers, designers, manufacturers, dealers, service agents and utility field representatives and account executives. The CEW rebate program is designed around testing procedures pioneered by the PG&E Food Service Technology Center. In 2014, The CEW team tested over 200 pieces of equipment. Both the SoCalGas Food Service Test Lab and the PG&E Test Lab are ISO17025 certified. The end result was an increased demand for energy-efficient commercial foodservice equipment.

SoCalGas and IHACI teamed to design and offer the highly requested economizer module to its HVAC training series. The training exemplifies a sector strategies outcome and addresses the request for training that includes more “hands on” application.

SoCalGas and Home Building Institute continue to team together to provide non-paid internship opportunities in landscape/facilities maintenance to qualified trainees at the ERC. During their four-six week stay, the trainees learn how to maintain the “California- friendly” landscape, edible garden, and succulent landscape.

SCG3731 SW-WE&T-Connections Narrative

The WE&T Connections sub-program is organized around downstream and upstream relationships between the IOUs and the educational sector, including entry and intro-level community-based training efforts that support workforce development in energy efficiency, energy management, and educating students about green careers.

The Sub-Program seeks to promote EE, DSM and green career awareness along all educational paths, from K-12 through post-secondary educational institutions, to help foster an interest in lifelong learning. WE&T Connections achieves its EE educational goals by working with community-based organizations, state education agencies, and educational stakeholders to facilitate EE strategic planning and EE educational programing at all levels of traditional and non-traditional educational paths. The program staff, in conjunction with third party vendors, provides interactive programs, educational materials, assemblies and teacher workshops correlated, as appropriate, to the California Department of Education’s content standards, infusing EE, DSM and career awareness across California.

Through successful new recruitment and re-enrollment efforts, the WE&T Connections PEAK accomplished the following in 2014:

- 72 schools enrolled
- 10,322 students in program
- 49 new schools joined the PEAK
- 23 schools re-enrolled in the PEAK program
- 49 schools enrolled are from underserved communities (exceeds 50% goal)

The WE&T Connections Power Save Campus (PSC) Program achieved its deliverable of having three to six paid interns working at each campus per school each semester/quarter. The PSC Program is implemented by the Alliance to Save Energy, who operates at 16 University of California and California State University campuses. SoCalGas sponsored interns from the University of California at Los Angeles (UCLA) who ran their fourth iteration of the “Shut the Sash” fume hood campaign and realized energy and financial savings as well as carbon dioxide reduction. The UCLA PSC Program collaborated with another on-campus student group to put together a green workforce project. Together with the Environmental Student Network, the team hosted a career talk for interested students including Environmental Science, Civil Engineering and Geography majors. Such successes contributed to the PSC Program being selected *Employer of the Year* by the California Internships and Workforce Experience Association. The annual PSC alumni survey indicates that 75 percent consider themselves to be in a green career.

At the high school level, various IOUs collaborated with local technology and technical education programs to explore partnerships for the development of enhanced K-12 Career Technical Education. SoCalGas is working with the Applied Technology Center in Montebello, CA (of the Los Angeles Unified School District) in developing real-life projects to excite students and engage them on career possibilities.

SCG3733 SW-ME&O – Marketing Education & Outreach

On December 27, 2013, the Commission issued D.13-12-038 establishing the Statewide ME&O Program for the 2014 and 2015 cycle. The Commission directed that the Center for Sustainable Energy (CSE), formerly the California Center of Sustainable Energy (CCSE) would serve as the program administrator and be independently responsible to deliver results of the program.³

D.13-12-038 also adopted “a governance structure that leaves the details of running the statewide marketing campaign to the CCSE, but also provides for strong oversight by the Commission and the CEC, while also allowing the utilities and others to provide input, advice, and collaboration.”⁴

³ See D.13-12-038 Conclusions of Law number 44 and 47, page 94.

⁴ See D.13-12-038 Conclusions of Law number 25, page 90.

D.13-12-038 identified the IOU's and SoCalREN's responsibilities: provide information to CSE in a timely manner; participate in the EM&V roadmap for marketing; coordinate with CSE on local and statewide marketing activities; and raise any issues with the semi-annual marketing plans proposed by CSE. D.13-12-038 also ordered PG&E to serve as the fiscal manager through a contract with CSE, on behalf of the IOUs, without exercising control of, or modifications to, the overall design of the 2014-2015 SW ME&O Program. PG&E and CSE finalized the contract on February 18, 2014.

The following are the 2014 strategies implemented by the program:

Since the Decision, SoCalGas has coordinated with CSE to ensure consistency between the statewide marketing program and the local marketing efforts conducted by SoCalGas.

SCG3734 SW-IDSMS-IDSMS Narrative

The CLTEESP recognizes the integration of DSM options, including EE, demand response, and distributed generation, as fundamental to achieving California's strategic energy goals. To support this initiative, the IOUs have identified IDSMS as an important strategic DSM policy priority and have proposed a series of activities, pilots and other programs in response to the CLTEESP DSM Coordination and Integration Strategy.

An IOU and CLTEESP Statewide IDSMS Task Force was formed in 2010 and has continued coordinating activities that promote, in a statewide-coordinated fashion, the strategies identified in the CLTEESP and the eight integration directives described in the EE decision as follows:

1. Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes greenhouse gas and water reductions benefits and the potential long-term economic and electric/gas hedging benefits.
2. Development of proposed measurement and evaluation protocols for IDSMS programs and projects.
3. Review IDSMS-enabling emerging technologies for potential inclusion in integrated programs.
4. Development of cross-utility standardized integrated audit tools using PG&E's developed audits as a starting point.
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).
6. Develop regular reports on progress and recommendations to the CPUC.
7. Organize and oversee internal utility IDSMS strategies by establishing internal Integration Teams with staff from EE, DR, DG, marketing, and delivery channels.
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 programs are coordinated with EE integrated marketing efforts.

Statewide IDSM Successes:

- Further efforts on developing integrated cost-effectiveness and EM&V methodologies are on hold pending on the potential scope and outcome of Commission proceeding R.14-10-003, and direction from the Energy Division.
- The Task Force tracked multiple integrated emerging technologies and reviewed various programs, projects, IDSM Pilots and activities to identify integration efforts and opportunities, as well as to develop best practices.
- The IOUs submitted four, joint quarterly reports for 2014, including an Executive Summary section, to provide Energy Division staff with updates on the eight IDSM directives. All quarterly reports were uploaded and available for viewing on California EE Stats Data Portal.
- The statewide IDSM Task Force held regular coordination phone calls
- The IOUs have developed well established processes ensuring delivery of integrated messaging via marketing, education and outreach to residential and business customers.
- In addition to the meetings described above, the IOUs have coordinated on a statewide basis in several areas:
 - The SW Online Integrated Audits team continues to coordinate to deliver a consistent online integrated audit tool that works with each IOU interface and educates customers on managing their energy use costs.
 - The Onsite Integrated Audits team continues to collaborate to share approaches and best practices and to discuss ongoing collaboration. The IOUs continue to offer onsite integrated audits to small, medium and large customers.
- On August 29, 2014, Evergreen Economics published the study, “IDSM Integrated Demand Side Management Market Characterization.” The study documents customer preferences, behavior patterns, and decision-making with respect to IDSM. It also characterizes key features of both supply and demand for IDSM in the open (non-program) marketplace.

The SoCalGas IDSM efforts in 2014 proved to be successful on many fronts. SoCalGas worked with the largest multifamily property in California (with more than 4,000 units) to identify and implement various energy and water efficiency measures. Services and incentives come from different SoCalGas and LADWP programs facilitated through a Single Point of Contact (SPOC) at SoCalGas. Through the SPOC, SoCalGas also served multiple large portfolios of multifamily properties, including those operated by the Housing Authority of the City of Los Angeles (HACLA). With SoCalGas’ assistance, HACLA properties received multiple gas measures at no cost, and also received water rebates from LADWP. SoCalGas continued to partner with other utilities to deliver IDSM solutions that encompass multiple fuel sources (gas, electricity and water).

SoCalGas continued working with SCE and PG&E to deliver joint programs and services in the statewide programs. In 2014, SoCalGas launched one new joint programs with LADWP, and two new programs with Riverside Public Utilities. SoCalGas entered into a master partnership

with the Metropolitan Water District, the largest water wholesaler in California that allows partnering in energy and water programs for customers.

SoCalGas has conducted numerous joint EE/ESA Program marketing sessions in 2014, including participation in 180 residential events and 32 business events. SoCalGas participated in four Emerging Technologies studies that included EE/ESA Program/DG opportunities. SoCalGas continued developing and enhancing the IDSM knowledge and capabilities of its internal staff through quarterly webinars.

In terms of challenges, SoCalGas continued to explore the possibility of integrating tracking energy efficiency and solar thermal projects. SoCalGas is in the process of upgrading its internal tracking system. Also, SoCalGas' ESA Program and EE continued refining its communication and coordination strategy to ensure that customers, particularly multifamily residents, receive comprehensive services and incentives regardless of the occupants' income qualification. SoCalGas added a multifamily account executive to serve as a SPOC for owners/managers of large multifamily portfolios. This dedicated account executive will facilitate integration of program offerings to large multifamily portfolios in partnership with electric and water utilities.

In terms of program changes, SoCalGas developed its internal infrastructure to manage partnerships with municipal utilities in the delivery of energy and water efficiency programs, including refining the tracking system, creating an invoicing platform, and collaborating in program design and implementation.

The SoCalGas IDSM program met its objectives for the year and is seeking to further partnerships and develop sector-specific strategies to engage customers in integrated DSM offerings.

SCG3735 SW-FIN-On-Bill Financing Narrative

Statewide On-Bill Financing (OBF) offers interest-free, unsecured, on-the-utility-bill loans that work in conjunction with utility energy efficiency programs. It is designed primarily to facilitate the purchase and installation of qualified energy efficiency measures by nonresidential customers who may lack up-front capital to invest in real and sustainable long-term energy cost reductions. Loan terms range from up to five years for commercial customers and up to ten years for government agency customers. The eligible loan amount is based on the project cost, less incentives or rebates, up to the loan maximum of the OBF product and within the loan term thresholds. Customer loans are repaid through a fixed monthly installment on their utility bills. There is no prepayment penalty and loans are not transferable. Partial or non-payment of loans could result in shut-off of utility service.

During 2014, the OBF program staff continued working with SoCalGas Account Executives and vendors of cost-effective natural gas equipment to recruit qualified OBF projects to participate in the program. The OBF staff also worked with Market Segment Advisors to incorporate OBF information into a number of marketing brochures promoting SoCalGas' energy efficiency

programs targeting various business market segments. In 2014, there has been an increased interest in OBF from Institutional customers. OBF program staff have worked closely with the Local Government Partnerships and Institutional Partnerships program staffs on a number of local and state government projects. By the end of 2014, two energy efficiency projects were financed through OBF, including the first gas/electric OBF project financed jointly by SoCalGas and Southern California Edison Company. The 2014 SoCalGas OBF loans totaling \$153,497 are associated with estimated annual energy savings of about 159,000 therms a year.

Implementation barriers for natural gas-only OBF continue to be the long payback periods for natural gas equipment. Project payback periods for most gas projects tend to be much longer than the five year maximum required for business projects to qualify.

There were no program design changes to the OBF program in 2014. However, in 2013 the OBF Program was reclassified by the CPUC as a resource program. The CPUC has indicated more information is necessary to support a workpaper that can address energy savings related to Financing Programs, as a result, SoCalGas does not have energy savings to report for 2014 at this juncture. The CPUC indicated that actual energy savings will be determined through its EM&V group *ex post* studies.

In 2014, OBF continues to serve as a funding mechanism for other energy efficiency programs and as such, helped other programs meet their program objectives.

SCG3736 SW-FIN–ARRA-Originated Financing Narrative

The American Recovery and Reinvestment Act (ARRA) Originated Programs utilize ratepayer support to continue successful ARRA-funded programs. These programs were designed to encourage the implementation of comprehensive energy efficiency retrofits by providing access to affordable financing options. SoCalGas is providing support for the following two ARRA continuation finance programs:

emPowerSBC: a comprehensive single family residential financing program administered by the County of Santa Barbara that provides unsecured loans for homeowners to implement home energy upgrades resulting in lower energy usage, reduced utility costs, and increased indoor comfort. emPowerSBC is a joint co-funding effort among PG&E, SCE, and SoCalGas. The program receives funding for various programmatic activities including marketing and workforce training, within the Santa Barbara, Ventura, and San Luis Obispo counties (Tri-Cities). Additionally, there is a credit enhancement budget of up to one million dollars for a loan loss reserve (LLR). The program leverages ARRA and ratepayer funding to create a public private partnership among the County, all eight incorporated cities within the County, Energy Upgrade California[®] Home Upgrade Program, and two competitively selected local credit unions.

The City of Los Angeles: ARRA PACE/LABBC Assistance Program was initially launched and funded in 2011 as a joint effort between Los Angeles County and the City of Los Angeles using ARRA grant funds. The City marketed the program, provided free audits, and created a Debt

Service Reserve Fund for property owners in the City of Los Angeles. The County acted as the Program administrator creating the legal documents and the assessment district, issuing Property Assessed Clean Energy (PACE) bonds to investors and providing the payment mechanism through the property tax system.

Since 2012, the program has been implemented jointly with LADWP as the Energy Efficiency Technical Assistance Program (EETAP), part of the LA Better Buildings Challenge (LABBC). LABBC is a part of national leadership initiative sponsored by the Department of Energy which calls on public and private sector leaders to take action and demonstrate the benefits of modernizing America's existing buildings.

Promoting Commercial PACE is a key element to the success of the LABBC. PACE Financing offers another avenue for the commercial, industrial and multi-family property owners within the City of Los Angeles to fund energy efficiency, renewable energy and water-saving improvements on-site. PACE financing is paid back twice a year through an assessment on the property taxes. Financing is tied to the property through the property tax system, and if the property is sold, the repayment obligation transfers to the new owner. PACE financing can fund up to 100% of the project's installed costs, eliminating the need for upfront capital for the project. In 2014, the program continued to offer PACE Workshops to engage with building owners/operators and provide project pre-qualification and development that have led to significant PACE pipeline volume.

During 2014, LABBC and emPowerSBC continued to engage various stakeholders, including customers and contractors, in an effort to promote program participation. Both programs maintained momentum throughout 2014 with a goal to increase program uptake, leveraging financing as a means for investment in energy efficiency improvements. For example, LABBC facilitated and contributed to the closing of five PACE transactions totaling over \$14 million in financing. The emPower lending amendments with the participating lenders, which included a ratepayer supported Loan Loss Reserve (LLR), were executed in April 2014. For the year, the emPowerSBC program closed 12 loans for a total of \$247,291. Five of the 12 loans totaling \$102,300 were backed by the ratepayer supported LLR. As of December 2014, emPower has 20 outstanding loans in the pipeline with an estimated total loan value of \$423,397.

As of July 2014, the emPower program started providing financing for singles measures that are approved by the participating utilities. There were no other program design changes to LABBC in 2014.

The ARRA Originated Programs were reclassified by the CPUC as resource programs in 2013. The CPUC has indicated more information is necessary to support a workpaper that can address energy savings related to Financing Programs. As a result, SoCalGas does not have energy savings to report for 2014. The CPUC indicated that actual energy savings will be determined through its EM&V group *ex post* studies.

SCG3737 SW-FIN-New Financing Offerings Narrative

The IOUs are developing a set of statewide financing pilot programs that offer scalable and leveraged financing products and test market incentives in the form of credit enhancements and on-bill repayment for attracting private capital.

The pilots consist of the following on-bill repayment (OBR) programs: Small Business OBR Loan Program; Small Business OBR Lease Program; Non Residential OBR without Credit Enhancements (CE) Program; Master-Metered Multi-Family OBR Program; and the Residential EE Finance Line Item Charge (EEFLIC) Program. The EEFLIC Program is only offered in PG&E's service territory. The pilots also consist of two off-bill programs: Single Family Loan Program (aka Residential Energy Efficiency Loan Assistance Program or REEL) and Off-Bill Small Business Lease Providers Program.

The pilots will include ratepayer-supported CEs for residential properties and small businesses. The CEs are expected to provide additional security to third-party lenders and private capital so they can extend or improve credit terms for EE projects.

The Financing Pilots will be administered by the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA). These Pilots were planned with launch dates for 2013; however, the Pilots were delayed pending approval of CAEATFA's request for state legislative budget authority to serve in its administrative role for the Pilots. CAEATFA received budget authority in July 2014. On August 25, 2014, the CPUC issued an Assigned Commissioner Ruling that ordered each finance pilot to operate for a minimum of 24 months. The first programs, which do not include the OBR feature, are scheduled to launch 2nd Quarter 2015 and the OBR programs are scheduled to launch 3rd or 4th Quarter 2015.

SoCalGas has launched the Pre-development Master-metered Multifamily OBR program in 2014. California Housing Partnership Corporation and SoCalGas identified five properties to participate in this pre-development Pilot. The first charge was placed on the utility bill at end of 1st Quarter of 2015.

Local Institutional Partnership Programs

Institutional Partnerships are designed to create dynamic and symbiotic working relationships between IOUs, state or local governments and agencies or educational institutions. The objective is to reduce energy usage through facility and equipment improvements, share best practices, and provide education and training to key personnel. The SoCalGas 2013-2015 statewide partnership portfolio focused strongly on supporting the CLTEESP. The 2013-2015 Institutional Partnerships also concentrated on innovative delivery channels and funding mechanisms to meet current economic conditions, and achieve program integration and savings.

The 2013-2015 Institutional Partnerships are leveraging the past successes of the 2010-2012 EE portfolio, and strive to enhance offerings to meet the unique challenges of the institutional partners. SoCalGas has developed a strong history of working closely with a variety of institutional customers to improve EE. These partnerships enabled customers to focus on conservation, demand response, load shifting, and renewable energy within their facilities. In doing so, the partnerships assist institutional agencies to comply with the state's CLTEESP and specific mandates of the Governor.

SCG3738 LInstP-CA Department of Corrections Partnership Narrative

The California Department of Corrections and Rehabilitation (CDCR)/IOU partnership is a customized statewide EE partnership program that accomplishes immediate and long-term energy savings and establishes a permanent framework for sustainable, long-term comprehensive energy management programs at CDCR institutions served by California's four large IOUs. Through a statewide coordination, the four IOUs work with the Energy, Sustainability and Infrastructure Section under the Facility Planning, Construction and Management (FPCM) Division of CDCR and their contracted Energy Services Company (ESCOs) to ensure implementation of projects that maximize energy savings opportunities in a cost-effective manner. Complementing this are education and outreach efforts to prison facilities operations and maintenance staff to adopt best EE and demand response practices and support CDCR's pursuit of all types of financing to fund a robust pipeline of projects with deep energy savings.

The IOUs and CDCR met every three weeks with the respective Institutional Partnership (IP) teams and stakeholders (internal and external) to discuss project opportunities, legislative issues related to EE, and demand response issues. In addition to regularly scheduled team meetings, prison site outreach and audits are performed to identify additional opportunities to integrate EE strategies. The IOUs continued to work with CDCR to develop more EE projects to add to the current pipeline to ensure long term sustainability of CDCR's effort to reduce their energy use. Following site audits, a Request for Proposal is then issued to CDCR's Energy Service Company (ESCO) pool to develop project proposals. A New Construction workshop was conducted to educate project directors on the CDCR/IOU new construction incentives process. During 2014, SCE and SoCalGas completed the first joint On-Bill Financing agreement on a CDCR project.

SCG3739 LInstP-CA Community College Partnership Narrative

The California Community Colleges/IOU (CCC/IOU) Energy Efficiency Partnership is a unique, statewide coordinated program with the California Community Colleges (CCC) and California Community College Chancellor's Office (CCCCO) to achieve immediate and long-term energy savings and peak demand reduction within California's higher education system. The goal of this partnership is to create a permanent framework for sustainable, comprehensive energy management at Community College campuses served by California's four IOUs.

The CCC/IOU Partnership has a hierarchical management structure to ensure successful implementation. The management team meets monthly to conduct business at the management level, whereas the executive team meets quarterly to discuss overall program status and policy issues. The program also has an outreach team that focuses its efforts in several areas: (1) developing a comprehensive list of technologies, project types, and offerings to be used by team members during campus visits to help generate project ideas; (2) evaluation of new project technologies for suitability in the community college market, and; (3) planning and participation in CCC conferences.

The CCC/IOU Partnership continued work toward outreach and marketing, project identification, and project implementation activities to maximize the number of projects in 2014. Campuses were encouraged to complete projects that were forecasted in the 2013 program year to maximize the number of projects completed in 2014. Remaining active projects will continue to progress and complete in 2015.

SoCalGas and the other IOUs have been able to identify EE retrofit, Retro-Commissioning, Monitoring-Based Commissioning, New Construction and Emerging Technology opportunities for implementation at CCCs throughout the State of California.

SoCalGas' continued its support of the CCC's program delivery efforts for the California Clean Energy Jobs Act (Prop 39), which included hands-on services from the CCC Partnership program team. These services include enhanced outreach, project development and technical support for all the campuses in the IOU service territory. Through the availability of funding from Prop 39, administered and implemented by the CCCCCO, the CCC/IOU Partnership has continued its progress toward achieving 2013-2015 program cycle goals with SoCalGas achieving its energy savings goal for 2014. However, lack of funding at the campuses to develop and implement projects continued to be the most common barrier to fund opportunities outside of Prop 39. Even projects with short payback periods or those financed through OBF still need upfront funding that is difficult to allocate within state-funded institutions. The CCC continues to lack resources in their facilities and maintenance departments that are devoted full-time to energy management and EE. Also, the CCCCCO saw a change in management with a new Administrator to manage both the CCC Partnership and Prop 39.

The management team also continued working with the CCC Board of Governors on the Energy and Sustainability Award Program, an annual program that awarded excellence in three categories for 2014: Prop 39 Projects, Facility/Student Initiatives, and the Community College Sustainability Champion. This award program will continue in 2015 to recognize the achievements of the CCCs.

Program managers and administrators helped campuses develop and submit applications for the IOU's OBF Program allowing the development of economically feasible projects that previously were cost prohibitive for districts.

Campus Forums were hosted quarterly at campuses across the State, serving as a venue for districts to share successes and strategies to overcoming obstacles for projects in EE. In addition, IOU facilities were utilized to conduct training for CCC staff and EE vendors.

SCG3740 LInstP-UC/CSU/IOU Partnership Narrative

The University of California/California State University/Investor Owned Utility (UC/CSU/IOU) EE Partnership is a unique, statewide program to achieve immediate and long-term energy savings and peak demand reduction within California's higher education system. The incentive funding for the 2013-2015 program cycle is being utilized to maintain the Partnership program processes and framework established in previous program cycles for sustainable, comprehensive energy management at campuses served by California's four IOUs.

The program has a hierarchical management structure to ensure successful implementation. The management team meets every three weeks to conduct business at the management level and the executive team meets quarterly to discuss overall program status and policy issues. The Partnership also has a training and education team that organizes various EE trainings targeted to university campuses. In addition to representatives from each IOU, the UC Office of the President and CSU Chancellor's Office each have members on all three program management teams. Inclusion of all Partnership stakeholders at the various management levels provides the UC and CSU campuses with support in their efforts to implement EE projects.

Overall, during 2014 the UC/CSU/IOU Partnership made progress towards the program cycle goals, putting the program on schedule to achieve its goals. The Partnership team began holding joint management and executive team meetings to begin preliminary talks about program plans, goals and pipeline projects for 2015. IOUs worked with campuses to enroll projects in the IOU's OBF programs. The IOUs also worked with the CSU campuses to get new projects in the pipeline that are being funded by the CSU Chancellor's Office. To facilitate this, the management team implemented an enhanced project tracking and scheduling approach, giving UC campuses more direct control and responsibility for detailed construction schedules.

The training and education team held various workshops for campus faculty and staff members, including LEED for Healthcare, Exceeding Title 24 workshops, American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Level 1 Energy Auditing trainings, Building Operation Certification and Certified Energy Manager courses, and an Energy Performance Benchmarking Forum for New Construction projects. Management team members and campus representatives held a UC/CSU Joint Energy Managers as part of the California Higher Education Sustainability Conference (CHESC) at San Diego State, highlighting campus best practices and Partnership program updates. The Best Practices Awards were presented to campuses at the CHESC, highlighting successful and cost-effective projects at campuses that implement green building technologies, sustainable design strategies, and energy-efficient operations. The Partnership also created the Best Practices Case Studies to be published and distributed to various parties, promoting the Partnership's statewide successes.

Title 24 implementation and eligibility for previous baseline drove focus towards those projects.

SCG3741 LInstP-State of CA/IOU Partnership Narrative

The State of California/IOU Partnership is a Statewide program designed to achieve immediate and long-term peak energy demand savings and establish a permanent framework for sustainable, comprehensive energy management programs at state facilities served by California's four large IOUs. This is accomplished by collaborating with the Department of General Services (DGS) in establishing an ESCO pool to help facilitate implementation of EE projects. In addition, the revival of the Department of Finance Energy \$Mart program will provide financing for project opportunities. This level of engagement and establishment of infrastructure are important successes in achieving immediate results along with long term sustainability.

The State of California Partnership is a continual and collaborative effort to support the DGS to manage projects for Departments without contracting authority. The Administrative Office of the Courts is also working with the IOUs to implement projects in courthouse buildings obtained from the Counties in the state. The DGS continued with getting projects for their ESCO pool for their Statewide Energy Retrofit Program; and with IOU support, and ensure that the Request for Proposal includes EE and utility incentives as an integral requirement for project proposals. This ESCO pool is being used to implement EE projects. The DGS has overcome various hurdles in developing the ESCO pool program, including many financing and legal barriers.

The IOUs participated in the Sustainable Building Working Group, a State of California working group that consists of agency sustainability managers, with the task of planning and implementing all aspects of B-18-12, the Governor's Executive Order. The IOUs attend in a supporting role to ensure that agency needs regarding energy data for benchmarking are met. The IOUs also use this platform for agency outreach.

Local Government Partnership Programs

SoCalGas' Local Government Partnership Program (LGP) for the 2013-2015 Program Cycle is complex and multi-dimensional in various ways that SoCalGas initiated with the work in its 2010-2012 portfolio. First, local governments are a distinct customer segment that operates with their own unique challenges and needs related to EE. Second, local governments also serve as a delivery channel for specific products and services when they serve as LGPs. Finally, local governments have a unique role as leaders of their communities. Increasingly, local governments are interpreting their moral responsibility for community well-being to include reducing greenhouse gas emissions, increasing renewable energy usage, protecting air quality, creating green jobs and making the community more livable and sustainable.

The Government Partnership Program is designed to serve and support local governments in each of their roles. Depending upon the activity, SoCalGas may play a different role with the

local government, ranging from service provider to supporter to equal partner. Governments increasingly engage in strategic planning for GHG reduction not only in their facilities (represented in the municipal GHG inventory) but also in the community (analyzed in the community GHG emissions inventory). Opportunities increase for partnerships with utilities to meet mutual goals of energy reduction. These governments not only coordinate and integrate demand-side management opportunities in each sector or market they influence, but also effectively leverage and promulgate low-income offerings.

SCG3742 LGP-LA Co IOU Partnership Narrative

The County of Los Angeles Partnership supports the energy reduction and environmental initiatives described in the Los Angeles County Energy and Environmental Plan, adopted in 2008, and the objectives of the CLTEESP. EE projects are focused on county-owned, municipal buildings, and consisted of lighting, HVAC, Retro-Commissioning, Steam Boilers, and Savings By Design new construction projects at each of the 38 County departments served by Energy Management (County Internal Services Department).

Additional efforts with the County Office of Sustainability include program support and coordination for Energy Upgrade California[®] Home Upgrade Program, and Strategic Plan Solicitation activities that expand the County's Enterprise Energy Management Information System (EEMIS). This allowed Los Angeles County to receive participating City data for analysis to help the city to better manage their energy usage and support the identification of EE opportunities.

The partnership met the 2014 objectives while continuing to provide information to Los Angeles County departments to increase participation in partnership activities and to look for EE projects with deeper savings opportunities. This included the successful collaboration with the Los Angeles County Internal Services Department (ISD) to capitalize on EE opportunities by working with representatives from the 38 County Departments served by ISD for energy management services. The Partnership worked together with ISD, Public Works and the Metropolitan Department of Transportation on strategies to develop energy savings opportunities and strategic implementation forecasts. The Partnership's efforts also led to the completion of Retro-Commissioning and EE projects at several facilities, which contributed therm savings through the core rebate and incentive programs.

During 2014, the Partnership continued to work with the County and SCE to support progress made toward the expansion of Los Angeles County EEMIS to over 40 local governments. Through cooperation with SoCalGas' Partnerships Program Management and Information Technology Division, the Los Angeles County Partnership supported the migration of local government data for training and use of EEMIS by local governments for the development of their EE activities.

SCG3743 LGP-Kern Co Partnership Narrative

Kern Energy Watch Partnership brings together three utilities PG&E, SCE, and SoCalGas with 12 local governments to improve energy efficiency throughout Kern County. The Kern Council of Governments (Kern COG) coordinates the energy efficiency efforts of the County of Kern, and the cities of Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco.

The Partnership continued to support several CLTEESP initiatives which resulted in several EE projects being completed within local governments, including pump replacements, pump retrofits, and equipment upgrades. The partnership guided residents and small businesses to SoCalGas' core programs through its website (www.kernenergywatch.com). In addition, the *Take 5 for Energy Efficiency!* Campaign continued to encourage local government employees and the public to participate in energy-saving activities through outreach and development success stories.

In 2014, the County of Kern, along with the cities of Ridgecrest and Delano, completed Energy Action Plans, guiding short and long-term energy use policies, and identifying specific, future projects. In addition, work commenced to examine the short-term success of Energy Action Plans created by other local communities in prior years. Other Partnership activities included participating in the Statewide Energy Efficiency Forum in San Diego, the Kern County Fair, Desert Empire Fair, Greater Bakersfield Chamber of Commerce Business Expo, and the Kern Economic Development Corporation Seventh Annual Energy Summit. To improve permit compliance through an emphasis on safety, the Partnership promoted Building Safety Week in May 2014 through a print media campaign and billboards located throughout the County. In late October, an Energy Efficiency Open House was held in the unincorporated city of Derby Acres, with the support of and keynoted by the local County Supervisor. The Open House was bracketed by a sweep of the community by EE contractors from both PG&E and SoCalGas.

The Partnership implementer changed in 2014 from the Kern Council of Governments (KernCOG) to Kern County General Services. This change was brought about at the request of KernCOG due to increased staffing constraints. The transition to Kern County General Services provided an opportunity to refresh the goals of the program and adapt the outreach efforts to attain those goals.

SCG3744 LGP-Riverside Co Partnership Narrative

In 2010, the County of Riverside (County) formed a Partnership with SCE and SoCalGas which is intended to assist the County in achieving its green policy initiatives and formulate an integrated approach to EE. This collaborative effort aims to build an infrastructure that would efficiently deliver cost effective EE projects to reduce the “carbon footprint” created by County facilities. The Partnership improves EE in the County's municipal facilities. It also leverages utility resources, customized to the County's unique needs, to advance EE in the partner's

facilities. The Partnership also supports the County in meeting carbon dioxide reduction requirement efforts of AB32, as well as contributing toward meeting CPUC energy savings goals and objectives.

The County completed their embedded Strategic Plan tasks, as well as identified a pipeline of energy retrofit opportunities including applying for numerous Savings by Design projects. Overall, the Partnership was successful in achieving and even exceeding their 2014 natural gas energy savings goal. The County's Energy Conservation Fund receives new funding through EE and solar incentives received through the utilities which through time will grow the available funding in addition to the repayments from projects.

With the use of the Energy Conservation Fund, the county completed three monitoring-based commissioning projects in 2014, in which two of the facilities implemented both natural gas and electric savings. This is a significant step for the county, as the success experienced from these projects may result in similar projects in the future, and draw from the lessons learned of these projects.

The County continues to participate in the Savings by Design program for most of their construction projects county-wide. Several new construction projects were completed in 2014, and several projects are in the pipeline for 2015.

SCG3745 LGP-San Bernardino Co IOU Partnership Narrative

SoCalGas joined the San Bernardino County Partnership Program in 2010 when it was a continuation of the 2009 partnership between SCE and the County of San Bernardino. The Partnership assists the County in achieving its green policy initiatives to formulate an integrated approach to EE. This is a collaborative effort with the aim to build an infrastructure that efficiently delivers cost-effective EE projects, thus reducing the "carbon footprint" created by County facilities. County facilities are targeted for retrofits, retro-commissioning and new construction elements.

The top county facilities with the greatest opportunity for reduction in energy consumption were identified in 2014. Leveraging County management staff from various departments including Special Districts, Sheriff, Information Technology, Library, and Fire as well as the Engineering and Architecture Department, has proven to be an effective means in identifying opportunities that would have not otherwise been supported by SCE or SoCalGas programs.

Title 24 training was held to update County officials, planners and project managers on the changes happening due to the implementation of Title 24. The Partnership worked to educate the County of San Bernardino project managers and staff on the importance and value of EE. This motivated the county's staff to look for opportunities to reduce their operating costs by implementing EE projects and conservation practices.

In addition, the Partnership helped save the county thousands of therms of natural gas through EE actions and retrofits during 2014. The County identified numerous Savings by Design projects which are currently in the development phase. Potential therm savings were identified by an audit of the Rancho Courthouse, and the county plans to move forward with the proposed measures in 2015. Two new audits of facilities were identified and are scheduled to take place in early 2015.

The partnership held monthly management team meetings to discuss program status, project tracking, and overall program implementation and coordination issues. In addition, meetings were held regularly with project managers from various County departments to identify opportunities and provide information available on SoCalGas resources and core program offerings.

SCG3746 LGP-Santa Barbara Co IOU Partnership Narrative

There are two distinct partnerships for Santa Barbara County discussed below:

SBCEW- North SBC

The Santa Barbara County Energy Watch Partnership (SBCEW) is a joint effort between PG&E, SoCalGas, and the Santa Maria Valley Chamber of Commerce. The Partnership's participating municipalities are located in the Northern Santa Barbara County and include Buellton, Solvang, Guadalupe, and Santa Maria. The program generates energy savings through identification of municipal EE projects as well as the education, training, marketing and outreach for all utility Core EE Programs and Customer Assistance.

During 2014, the SBCEW Partnership collaborated more with other organizations and agencies to extend its reach in promoting EE to businesses and residences. It did so while incorporating more programs and outreach to hard-to-reach businesses and residents and producing new marketing materials and expanding its marketing outreach. In early 2014, the Santa Maria Chamber of Commerce, the program administrator for the Partnership, became Green Business Certified.

The Partnership also provided outreach events to small communities. These events included collaboration with the County Supervisor and County Departments, such as: Fire, Public Health, Roads, and Planning. The Partnership sponsored the 4th Annual Green Business Energy Efficiency Forum in Santa Maria on July 24, 2014; the event was organized, set up, and facilitated by the Chamber of Commerce.

The SBCEW Partnership continued close collaboration with the Santa Barbara County Green Business Program as a sponsor and partner in the program's efforts. In April, it sponsored and participated in Earth Day Green Cities, during which they conducted outreach to local, as well as, agricultural and hard-to-reach businesses.

The program includes ongoing outreach, organized and sponsored by the Santa Barbara County Energy Watch Partnership, to reach out to segments of the community that are typically limited in opportunities to receive support from local agencies and the benefits of available resources. These outreach activities included the Tanglewood Town Hall Partnership Workshop and the Sisquoc Community Workshops. Other outreach highlights include: the Santa Maria Valley Chamber of Commerce's 2013-2014 year-end presentation to the Santa Maria City Council and the Partnership's meetings with local officials, such as the Guadalupe mayor and City Administrator, Buellton City Administrator, and Santa Barbara County's 3rd and 5th District Supervisors.

The Santa Barbara County Energy Watch partnership focused on regional areas to expand its outreach program, and did a focused effort on hard-to-reach businesses and businesses in the agriculture industry. Over the course of the year, the Partnership found that benchmarking with cities and municipalities proved difficult to accomplish. Despite having expanded relationships with other agencies and local officials, the SBCEW Partnership was unable to meet 2014 program goals. It did, however, complete four out of six Strategic Plan menu items, and among other efforts, will be reengaging the City of Santa Maria in 2015.

SCEEP- South SBC

The South Santa Barbara County Energy Efficiency Partnership (SCEEP) includes SCE, SoCalGas, and municipal governments within the South County of Santa Barbara -- including the County and the cities of Santa Barbara, Goleta, and Carpinteria. The program generates energy savings through identification of municipal EE projects as well as education, training, marketing, and outreach. Cities complete retrofits of their own facilities and conduct community sweeps as well as outreach to residential and business communities to increase participation in SoCalGas core EE programs.

SCEEP continued to partner with the countywide Green Business program, a voluntary certification program supported by SCEEP and individually by all SCEEP partners. A total of 76 businesses have been certified through the program, including 66 in the SCE/SoCalGas joint territory. SCEEP also coordinated with the County's emPowerSBC program, which provides flexible term unsecured loans up to 15 years for home EE upgrades. EmPowerSBC works in conjunction with the Home Upgrade Program, which offers rebates for EE upgrades. In addition, SCEEP partners continued extensive work to Strategic Plan program objectives selected from the CLTEESP.

During 2014, the partners participated in several community exhibits and outreach events, including: Santa Barbara Earth Day Festival; Central Coast Sustainability Summit at University of California of Santa Barbara; Local Government Commission Statewide Energy Efficiency Collaborative (SEEC) Forum in San Diego; City of Santa Barbara honorable mention in EE from the U.S. Conference of Mayors; and the County of Santa Barbara won two BEACON awards for EE and Best Practices from International Council for Local Environmental Initiatives and Local Governments for Sustainability (ICLEI).

Despite these successes, the program fell short of energy saving goals due to the challenges of identifying and completing EE projects with public works and within municipal accounts.

SCG3747 LGP-South Bay Cities Partnership Narrative

The South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership Program is designed to provide integrated technical and financial assistance to local governments to effectively lead their communities to increase EE, reduce GHG emissions, increase renewable energy usage, protect air quality, and ensure that the South Bay communities are more livable and sustainable. The Partnership provides a performance-based opportunity from SoCalGas' core programs and incentives, as well as SCE's core programs and incentives. SoCalGas core programs and incentives are available for SBCCOG's 16 cities and Los Angeles County Districts 2 and 4 to increase EE in local governments' facilities and their communities. The Partnership strives to eliminate energy waste, which includes retrofitting municipal facilities as well as providing opportunities for the community to take action in their homes and businesses. The Partnership provides marketing, outreach, education, training, and community action to connect the community with opportunities to minimize energy use, while saving money and helping the environment.

During 2014, the Partners met monthly with SoCalGas and SCE to provide updates regarding projected energy saving projects. The Partners included SoCalGas, SCE, and SBCCOG's other agency partners which consist of West Basin Municipal Water District (West Basin), City of Torrance Water, Los Angeles County Sanitation District, and Los Angeles County Metropolitan Transportation Authority. Through inclusion of all SBCCOG's agency partners, this allowed for an expanded audience and cross-agency information sharing that led to enhanced joint opportunities in reducing energy use through water conservation, recycling, and transportation.

In 2014, SBCCOG staff continued work on developing the remaining cities' Energy Action Plans (EAPs). EAPs were approved for the cities of Gardena, Hawthorne, and Palos Verdes Estates. Overall, the Partnership continued to have great success in promoting the SoCalGas residential EE Kit program. SBCCOG staff also continued to issue press releases to local papers in the South Bay region, with a total of 171 notices/articles published in newspapers, on-line news media, e-newsletters, and other publications. SBCCOG incorporated additional outreach strategies using social media, posting over 200 social messages in 2014. Lastly, the Partnership maintained its vendor cart/kiosk during 2014, and displayed current SoCalGas information on a monthly basis from February through November.

SBCCOG staff also scheduled and coordinated pre-and post-event support for over 160 community exhibits, business meetings, presentations, and workshops throughout the SBCCOG's service area in 2014. The SBCCOG's service area covers the 15th Council District for the City of Los Angeles; these customers were provided with program and gas savings information. In addition, SBCCOG provided technical services for municipal facility energy audits in the 15th District. SBCCOG once again offered a Holiday Light Exchange Event, during which 250 people exchanged old lights for new light emitting diode (LED) lights.

West Basin and the SBCCOG have been helping hotels, restaurants, non-profits and commercial kitchens save water by offering free assessments and EE measures since 2009. Participants receive free education materials and a training manual to implement the program. Sites may also be eligible to receive new water-saving measures to replace older, inefficient equipment, such as a pre-rinse sprayer, flow restrictor, faucet aerators and water brooms. SoCalGas also partners with West Basin on the program, thereby offering access to more resources. Gas equipment is cleaned and calibrated by the SoCalGas' Customer Service Technicians (CSTs). CSTs accompany SBCCOG staff on visits, and are trained in best practices and impart information on rebates.

Availability of funding and reduced staff capacity continued to be barriers to implement EAPs and complete EE projects. In spite of this, for 2014 the Partnership was able to meet program goals and objectives.

SCG3748 LGP-San Luis Obispo Co Partnership Narrative

San Luis Obispo County Energy Watch (SLOEW) helps residents, business owners, and municipalities improve energy efficiency to save money and energy. It is an Energy Efficiency Partnership between SoCalGas, San Luis Obispo (SLO) County, and PG&E which includes the cities of Atascadero, Arroyo Grande, Grover Beach, Morrow Bay, Pismo Beach, Paso Robles, City of San Luis Obispo and SLO County. The strategic plan priorities include, but are not limited to GHG inventories for participating cities, Title 24/HVAC/ Benchmarking training, Community and Business Event & Outreach to promote utility sponsored customer programs. The following is a summary of the 2014 program year successes:

- Developed and implemented a Community Service District (CSDs) energy management program for 10 districts. The Energy Action Plan includes energy savings/ cost analysis, inventorying GHG, performing energy project and on-site assessments, detailing financing and project implementation guidance, and more.
- In 2014 SLOEW became the marketing arm for emPower (program that finances energy efficiency measures) within the County. Two staff members were assigned to organizing homeowner workshops, contractor training and to promote the Home Upgrade Program. SLOEW was also responsible for recruiting a professional 'energy coach' to assess and provide recommendation to homeowners.
- SLOEW created an activity and data trend chart to monitor community aggregated GHG emissions, and converted the data to CO2 carbon footprint. The GHG activity chart includes 2006-2013 data, reflecting both kWh and therm usage. It includes residential, commercial and municipal accounts.

The Program implementation barriers included coordination with two different utility providers for the SLOWE territory. Available funding and program commonalities is also an implementation barrier. Due to challenges of program invoicing by two utilities, SLOEW staff, PG&E and SoCalGas embarked on a project to create, test and implement a new invoicing

template that would allow processing to be more effective and faster. The new template will be implemented January 2015.

This is the second year of the SLOEW partnership under the direction by the County. In 2014 SLOEW, re-prioritized the partnership's needs and redirected funds to new program goals which included plans to target municipal electric and gas saving projects in the cities which have been benchmarked. Below are a few objectives completed in 2014:

- Set up Energy Star Portfolio for the County and 10 Community Service Districts, which have all been benchmarked.
- Started work with CivicSpark program to implement, track and monitor the California Action Plan for the seven participating cities.
- Hosted three to four trainings for Title 24, HVAC, ClearPath CA GHG monitoring tools and EnergyStar portfolio benchmarking training.
- Program staff attended and participated in SEEC Forum as well as partner collaborative meeting in Paso Robles.

SCG3749 LGP–San Joaquin Valley Partnership Narrative

The Valley Innovative Energy Watch (VIEW) is a partnership between PG&E, SCE, SoCalGas, and municipalities in the San Joaquin Valley. The partnership identifies opportunities for improving energy efficiency in 13 San Joaquin Valley jurisdictions and is implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO). The program offers customized incentives for municipal projects; conducts EE training as well as outreach events to drive participation in core utility programs. The program also provides partner jurisdictions with energy benchmarking assistance and the development of Energy Action Plans.

The following were the program successes in 2014:

- The VIEW held four meetings of the partnership management team in 2014.
- The VIEW held nine monthly partnership meetings in 2014.
- The VIEW attended the fifth annual SEEC Forum in San Diego in June 2014 and the SJVCEO participated in two SEEC-related meetings.
- The VIEW participated in six IOU meetings in 2014.
- The VIEW attended five CPUC workshops and the SJVCEO participated in monthly Rural + Underserved Local Governments conference calls with the CPUC.
- The VIEW participated in three outreach events throughout the partnership territory in 2014, including one highly attended rural outreach community event in the unincorporated community of Alpaugh.
- The VIEW prepared to launch “Kill-A-Watt Krackdown,” a small business kWh and therm saving competition.

Program implementation barriers and/or problems that were encountered in 2014:

- VIEW uses the United States Environmental Protection Agency ESPM to benchmark a local government partner's energy account data. ESPM underwent a program

modification in June 2013, and the re-launch continues to pose hurdles for SoCalGas account benchmarking.

Program changes made in 2014:

- In February 2013, the SJVCEO Project Analyst was promoted to Program Administrator.
- In June 2014, the SJVCEO hired a new Project Analyst to assist local governments with EE project development and management and other technical assistance challenges.
- In August 2014, the SJVCEO hired a new Program Administrator to assist with Marketing and Outreach coordination.

Cumulative energy cost savings were between PG&E and SoCalGas in the two county region covered by the Partnership.

SCG3750 LGP-Orange Co Partnership Narrative

The Orange County Cities Energy Efficiency Partnership Program is a local government partnership comprised of the Cities of Huntington Beach, Westminster, Fountain Valley, Costa Mesa, and Newport Beach (the “Cities”) along with SoCalGas and SCE (or the “Utilities.”) In addition to identifying and implementing EE retrofits for municipal facilities, the Partnership also funds community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions.

Partnership activities focus on addressing energy usage in municipal facilities and in the community as a whole. The Partnership places great emphasis on having partners lead their communities by example by first concentrating on their own municipal facilities.

The Partnership establishes energy savings goals through EE retrofits of city-owned facilities, supported by Partnership technical assistance to identify and scope projects and available incentives. Another key element of the partnership is the strategic plan activities where the city is supported in creating and accomplishing long term sustainability goals in climate action planning, code compliance, reach codes and other strategic plan initiatives.

The following are the program successes in 2014:

Administrative Successes

SCE, SoCalGas, the City of Huntington Beach, Westminster, Fountain Valley, Costa Mesa, and Newport Beach met monthly to discuss program goals, milestones for marketing, training, strategic plan activities and EE projects. LEED training classes for city staff completed and final report submitted for review. The City of Huntington Beach moved forward with their Climate Action Plan with PMC Consulting.

Infrastructure for the Enterprise Energy Management Information System (EEMIS) completed. Access to EEMIS should be available to cities in 2015.

The Partnership participated in the following community marketing and outreach events in 2014:

- Westminster – Green Expo – March 2014
- Costa Mesa – Community Run – April 2014
- Newport Beach – Race for the Cure – September 2014
- Huntington Beach – Green Expo – September 2014
- Fountain Valley – Tree Lighting Ceremony – December 2014

Municipal Retrofits

The Partnership completed the following EE gas projects:

- Gas Engine Projects (4) – Huntington Beach

Technical Assistance

The partnership provided technical assistance to the cities for project identification, including the following projects for 2014:

- Gas Engine Replacement identified- Fountain Valley
- Shorebreak Hotel Parking Garage – LED – Huntington Beach

The following program objectives were met:

- The partnership completed EE retrofits in local government facilities
- Provided support for the CALEESP listed above
- Supported Core Program coordination

Coordinated training education and outreach to local governments, and non-residential and residential customers.

SCG3751 LGP-SEEC Partnership Narrative

SCE, PG&E, SoCalGas, and SDG&E have co-funding agreements with International Council for Local Environmental Initiatives and Local Governments for Sustainability (ICLEI), the Institute for Local Government (ILG) and the Local Government Commission (LGC) to provide a coordinated statewide program of workshops, technical assistance, a recognition program, and other means to allow local governments to share best practices associated with energy management. This statewide program is called the Statewide Energy Efficiency Collaborative (SEEC). Work performed in this program is coordinated with the statewide local government energy efficiency best practices coordinator, whose contract is also co-funded by the four IOUs.

ILG's main focus is the sustainability recognition program, "The Beacon Award: Local Leadership toward Solving Climate Change" and related support resources.

Statewide Local Government EE Best Practice Coordinator (SLGEEBPC): The Statewide Coordinator position was established in D.09-09-47, which was adopted in September 2009. It is funded by the IOUs, but is embedded in and reports to ICLEI, ILG, and the LGC. The Statewide

Coordinator is an employee of the Local Government Commission. The decision calls for the Coordinator to “facilitate a statewide focus both in gathering exemplary policies and practices, and tracking progress on a statewide level on government facility energy use, retrofits, and strategic plan metrics to be developed. The Coordinator should also work to advance and track progress on local government Strategic Plan strategies, and assess progress toward market transformation on local government building retrofits, reach codes, etc.” The Coordinator was also directed to advise ICLEI, ILG, LGC and the IOUs on an annual statewide EE best practices forum.

The LGC conducted a series of meetings, workshops, and forums that provided both networking and educational opportunities for local governments, including local government partners, on EE and climate change. LGC also shared innovative and inspiring ideas to build support for energy efficient communities among elected officials. The work focused on helping to implement the local government chapter of CLTEESP.

- The LGC conducted the 5th Annual Statewide Energy Best Practices Forum on June 19, 2014 in San Diego, CA, where 234 people attended. The forum was designed to encourage local officials to commit to greenhouse gas reductions and EE.
- The LGC held 1 web-based workshop and 3 statewide webcasts; 357 people participated in these web-based workshops. These workshops were topic based, focused on priority strategies and were open to all local governments and other interested individuals. Specific topics included: Strategic Plan Highlights and Local Government Case Studies; The Dollars and Sense of Energy Efficiency, Saving Money, Kilowatts and Gallons; Implementing Water-Energy Savings Programs; and Communicating About Climate Change.
- The LGC worked with the IOU’s to provide networking and educational events for local government partners from each utility. These meetings provided local government partners an opportunity to share success stories and lessons learned with their partner peers. 355 local government partners and IOU representatives participated in these meetings.
- The LGC provided support and resources for elected officials on energy and climate change issues. LGC shared innovative and inspiring ideas from across the state and nation in order to build support for energy efficient communities. This included publishing a fact sheet, speaking at events geared toward elected officials and helping to organize energy and climate related sessions at the 23rd Annual Ahwahnee Conference for Local Elected Officials; over 52 local elected officials attended the conference.
- LGC held an elected official workshop in conjunction with the Statewide Annual Energy Efficiency Forum on June 18th in San Diego, CA; 17 local elected officials attended.
- The LGC worked with the Statewide Local Government Energy Efficiency Coordinator to provide oversight and guidance for the position.
- Developed and released an Energy Leadership Development Infographic focused on the economic benefits of EE efforts, for distribution to elected officials throughout California. The infographic is available by visiting: lgc.org/wordpress/docs/seec-infographic.pdf.

- The LGC maintained a SEEC webpage that includes information about SEEC, the annual forum, webinars, Partnership meetings, and EE stories and best practices. In 2014, the website received a total of 3,300 site visits.
- LGC participated in monthly conference calls with SEEC partners, and provided updates on program activities. The SEEC NGOs and the Statewide Coordinator worked together to organize three in-person SEEC partnership meetings. LGC also worked to expand collaboration with ICLEI, ILG and the IOUs through the SEEC partnership.
 - Participated in eight monthly conference calls with SEEC partners and provided updates on LGC program activities and discussed opportunities for collaboration between the NGO's.
 - LGC helped organize, and facilitated, an in-person SEEC Partnership meeting on March 14, 2014, held in conjunction with the 23rd Annual Ahwahnee Conference for Local Elected Officials.
 - LGC helped organize an in-person SEEC Partnership meeting on June 20th, held in conjunction with the Statewide Energy Efficiency Forum.
 - Participated in planning meetings with SEEC partners to discuss SEEC's operation model, Goals and Scopes of Work for 2015.
 - Began working with SEEC Partners to prepare for an in-person SEEC planning meeting in early 2015.
 - Met with various state agencies and other key partners to identify opportunities to further support local governments in their efforts to reduce GHG emissions and save energy.

A major focus of 2014 was to recruit new Beacon Program participants and to expand support to current participants. A key component to increasing recruitment was to expand the number of Beacon Champions (regional agencies that reach out to their local agency members) and ambassadors to the program. As a result of concerted efforts, ILG increased the number of Beacon Champions from three to eight. These champions are now fully operational to help recruit participants and support them in documenting the energy savings and GHG emission reductions to advance them in the program.

In April, ILG helped facilitate a presence for SEEC and the Beacon Program at the Green California Summit. The Green California Summit is an important annual conference in Sacramento focused on strategies, best practices and technologies that are helping state and local government achieve sustainability goals. ILG was responsible for coordinating two sessions within the Local Government track. The two sessions featured four Beacon participants and three members of the SEEC team. The platform served a vital role in providing recognition for Beacon participants, peer-to-peer learning opportunities and marketing for SEEC-related program and resources.

In July, the Beacon Program and first ever Beacon Award winning city, San Rafael, was prominently featured in Western City Magazine, which has a circulation of nearly 10,000 local government leaders. In September, ILG hosted the first evening Beacon Spotlight Award Reception in conjunction with the League of California Cities Annual Conference. This event

elevated the prestige and prominence of the Beacon Program, and the achievements of the cities that received the award recognition. This year, award winners were given additional collateral which illustrated achievements to aid with communicating EE commitment and achievements.

Achievements in 2014 include the following:

- 7 new Beacon Participants, totaling 62 cities and counties representing more than 25% of California's population
- Five new Beacon Champions
- 27 Spotlight Awards, 1 Full Beacon Award (presented in front of more than 1000 local elected officials and staff)
- 15 Participants updated Best Practice Inventories, adding 350 new activities
- 14 Conference/Training Sessions & Marketing Opportunities
- One feature article, one column and three advertisements in Western City magazine

There were 6,905 visits to Beacon pages on the ILG website, 3,848 visits and 794 downloads of the Sustainability Best Practices Framework, 237 visits and 119 downloads to Celebrating Local Leadership in Sustainability.

Over the course of 2014, ICLEI successfully executed and delivered its resources for SEEC which included further enhancing SEEC ClearPath and training local governments, regional agencies and consultants in the cloud-based emissions management tool, as well as developing related tools, user manuals, webinars, in-person trainings and online training modules.

SEEC ClearPath California

ICLEI launched both the Planning and Monitoring Modules in SEEC ClearPath to round out the fully integrated online climate action planning platform for local governments. The platform now includes functionality to assess potential mitigation measures and monitor energy and emissions progress. ICLEI also released user guides for both the Planning and Monitoring modules as well as a new guide, "ClearPath 101," to provide a holistic overview of getting starting with ClearPath and fill a much needed gap in local government understanding and application of the platform. During the course of development of SEEC ClearPath in 2014, ICLEI consistently engaged local government stakeholders through advisory committees and beta test users groups to ensure applicability and completeness. In 2014, the number of local governments registered to manage their energy and emissions in SEEC ClearPath grew from 133 to 279, now representing more than half of all general-purpose local governments in the State.

Training

Along with tool development, ICLEI delivered 10 in-person trainings to 10 distinct parts of the California, 17 online training modules for SEEC ClearPath and 2 statewide webinars on the Planning and Monitoring modules to further enhance the local government capacity and understanding of available SEEC tools and resources. Working in collaboration with the other SEEC NGOs and the IOUs, the in-person trainings series reached 179 local government staff and elected officials as well as 14 different regional agencies that represented ½ of California's

population. Attendees reported a 92% likelihood to use SEEC ClearPath while 97% noted they became more knowledgeable about SEEC ClearPath following the trainings. The completion of seventeen online training modules covering all four of the modules in SEEC ClearPath allowed for local government practitioners the opportunity to access on demand trainings through the California SEEC website. ICLEI convened two statewide webinars introducing the Planning and Monitoring modules in March and December, respectively to a total audience of 85 local government staff, state official, regional agencies and consultants.

Website and Marketing

ICLEI maintained the CaliforniaSEEC.org website and marketed its SEEC offerings through newsletters and participation in events, including the Ahwahnee Conference, the SEEC Best Practices Forum, and the Annual California League of Cities Conference. As a result of the efforts, registration on the program website continued to grow (from 786 to 857) and CaliforniaSEEC.org received 11,908 page views.

The Coordinator provided four reports tracking the progress of local government Strategic Plan strategies.

- Coordinator completed or updated 9 best practices fact sheets in 2014 to fulfill the requirement for 12 in the 2013-2014 contract period.
- Coordinator visited 20 of the 56 local government partnerships and regional energy networks during the 2013-2014 contract period.
- Coordinator co-wrote four quarterly energy newsletters for local governments.
- Coordinator administered the web page (www.EECoordinator.info) to house his products.
- Coordinator increased the number of stakeholders engaged in EE through the Weekly Updates email newsletter from 550 to over 670 in 2014.
- Coordinator sent email alerts on 364 different topics to over 670 stakeholders interested in local government energy programs during the 2013-2014 contract period.
- Coordinator created, edited, and submitted to the Energy Division of the CPUC a draft Local Government Energy Action Plan in 2014.

The CPUC recognizes that the 2008 CLTEESP needs to be updated. Many of the goals do not have measureable metrics and/or have been rendered ineffective by changes in State Title 24 Energy Code. The Coordinator worked with CPUC Energy Division staff and consultants during 2014 to develop a Local Government Energy Action Plan that could be used by local government program implementers to guide their efforts while the full Strategic Plan was being updated. The Action Plan was developed to a draft stage and submitted to Energy Division for final processing in September, 2014. Since that time, activity on the update and Action Plan has been placed on hold. It is anticipated that sometime in 2015 or 2016 activity on completing the update will resume. In the interim period, the Coordinator will continue work assisting local government program implementers in reducing energy use and greenhouse gas emissions in support of moving communities toward the overarching Zero Net Energy Goals of the Strategic Plan.

In 2014, ILG's lead in the SEEC partnership and one of the original members of the SEEC collaborative retired. The transition set back some program activities for a short duration of the year as time was spent on capturing her "institutional memory" and staff duties were reassigned. Changes in program staff and administrative procedures at SCE and other IOU partners also required additional time for orientation.

Two program barriers identified in 2014 and ICLEI has been able to learn from these experiences to bring a more successful and productive 2015 for California local governments. The implementation and delivery of 10 field trainings and limited collaboration with the other SEEC NGOs at those trainings were challenges ICLEI faced in the beginning of 2014. Over the course of the field training series, ICLEI collaborated more closely with LGC and ILG to unify the SEEC partners and help ensure training attendees understood the wide breadth of tools, resources and networking opportunities available with SEEC.

ILG expanded outreach and support to both current and prospective Beacon participants. As a result, we welcomed five new Beacon participants. ILG concentrated more time and effort in the onboarding process to help the participants establish a better understanding of the expectations, needs of participants and ways in which cities and counties can excel in the program.

In 2014, ILG finalized new guidelines which address two refinements to the Beacon program: (1) Climate Action Plan Alternative, and (2) Energy Savings requirements for participants that are served by a municipal utility or who have savings from energy retrofits that are not part of IOU rebate programs for which consistent data is more readily available. These efforts will not only clarify processes for new participants, but will help support existing participants in moving up in spotlight categories.

Reflecting the rebranding of the SEEC tools from Climate and Energy Management Suite to SEEC ClearPath California, all documents relating to the tool were revised. The californiaseec.org website underwent significant changes to reflect the release of the Planning and Monitoring Modules of SEEC ClearPath California. The most significant changes to californiaseec.org involved a revision to the SEEC ClearPath California registration system. These made primarily to accommodate communities that were relying on consultants or other third parties to perform the work done with the tool. ICLEI streamlined access for consultants and invited them to provide input which allowed for greater buy-in and new users from this important market. No program changes occurred in 2014 for the field training series or delivery of the online training modules.

The Coordinator changed the practice of his predecessor related to production of fact sheets. Previously, local government staff members were asked to write a draft best practice fact sheet for publication and then submit it to the Coordinator for publication. This process created delays in publication of fact sheets. Now, the Coordinator writes the fact sheet draft and then asks the LG to review it for content and accuracy. This change eliminated the issue reported in 2013 of LG staff not having time to write fact sheets about their work and expedited the development and publication of fact sheets in 2014.

SEEC is a non-resource program. Each non-governmental organization achieved the objectives set forth for them in 2014.

SCG3752 LGP-Community Energy Partnership Narrative

The Community Energy Partnership (CEP) program is a unique local government partnership comprised of the cities of Brea, Corona, Irvine, Moreno Valley, San Bernardino, Santa Clarita and Santa Monica, and SCE, SoCalGas, and the Energy Coalition (TEC) as the implementing partner. The CEP members work in collaboration to deliver energy savings in municipal facilities and create EE awareness among multiple market segments, including municipal, residential, and non-residential. The program initiatives also include an emphasis on activities that support the Strategic Plan, and coordination of utility core programs to Partner city communities.

In 2014, CEP continued implementation of the SCE and SoCalGas joint Local Government Partnership focused on achieving energy savings and behavioral change in residential, nonresidential, and municipal sectors. The following are the program successes:

- CEP coordinated with City of Irvine and engineering firm AESC to educate community center staff about energy audits completed by AESC in their municipal facilities and how the City uses these audits to save energy and money
- CEP coordinated with City of Santa Clarita and City of Santa Monica to educate City staff about the core utility program, Savings By Design, and projects completed through the program in their respective cities
- Eleven Partnership E-blasts sent to City and Utility Partners for partner education and training
- Energy Audit of Santa Clarita City Hall identified potential energy savings of 15,689 therms
- Engineering progress made toward completion of Corona's methane reclamation project

The following are the program implementation barriers and/or problems encountered:

- Limited opportunities for energy efficiency incentives due to relatively low natural gas loads at municipal facilities
- Lost pool cover projects due to delay of waiting several months while pool cover incentives were being re-evaluated by the CPUC to transition from custom incentives to deemed savings

The following program objectives were met:

- Core Program Element A - Government Facilities
 - In 2014, the CEP worked with City and Utility Partners to identify opportunities for municipal therm savings and tracked municipal energy efficiency projects with therm savings potential
- Core Program Element B - Strategic Plan Support

- Strategic Planning Menu Item 1.1.6 - Develop educational programs for local elected officials, building officials, commissioners, and stakeholders to improve adoption of energy efficiency codes, ordinances, standards, guidelines, and programs
 - Completed by Irvine, Santa Clarita, and Santa Monica
- Core Program Element C - Core Program Coordination
 - SoCalGas Core Utility Programs promoted at 11 outreach events across each of the CEP's 7 cities
 - Partner-to-Partner dialogue was facilitated by planning and facilitating an in-person Team Leaders Meeting as well as a 2015 Partnership planning webinar
 - Partnership-to-Partnership dialogue was facilitated by coordinating and facilitating Peer-to-Peer meetings with Utility Partners and multiple Local Government Partnership Implementers

SCG3753 LGP-Desert Cities Partnership Narrative

The Desert Cities Energy Partnership Program is a local government partnership comprised city of Blythe, Cathedral City, Desert Hot Springs, Indian Wells, Palm Springs, Rancho Mirage, Agua Caliente tribe, La Quinta, Coachella, Indio, SoCalGas, Imperial irrigation District, and SCE. The program is designed to assist local governments to effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality and ensure that their communities are more livable and sustainable.

This Partnership focused on installing measurable and persistent EE and conservation devices for the benefit of the Cities, their constituencies, the State of California, and California IOU ratepayers. Partnership activities focus on implementing EE in municipal facilities specifically and in the community in whole. The Partnership establishes energy savings goals through City-identified projects, funded by Partnership incentives and technical assistance. The Partnership supports City and community EE efforts through marketing and outreach funds.

The team met monthly to discuss program goals, milestones, marketing, training, and EE projects. The Partnership also held working group meetings quarterly with the cities to discuss their ongoing projects. The Partnership conducted trainings to cities on Reach Code, Title 24, and Climate Action Plans to promote Strategic Planning activities. The Partnership worked with the Coachella Valley Association of Governments to educate the cities on the benefits of reach code and the affect the code can have on the cities. The partnership moved forward with an integrated energy audit of the Agua Caliente Spa and Casino in conjunction with SCE. Numerous retrofit and energy efficiency opportunities were identified. The casino plans to move forward with these opportunities in 2015.

SoCalGas was able to achieve its therm goals for the Desert Cities Partnership in 2013 and 2014.

SCG3754 LGP-Ventura County Partnership Narrative

The Ventura County Regional Energy Alliance (VCREA), in partnership with SoCalGas and SCE, builds on progress to date towards implementing a targeted Public Sector Program of energy savings for public agencies throughout the Ventura County region.

VCREA supports efforts for nine cities (Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Thousand Oaks, and Ventura) and the County of Ventura to utilize the strengths of the VCREA and its utility partners to jointly assist public agencies in leading their communities to greater participation in EE programs.

Strategies Implemented in 2014

- Continued to meet monthly to discuss initial contract formats, milestones for marketing, training, and EE projects.
- Partnership completed 22 EE projects including water pump rehabs, new construction projects and projects at wastewater.
- Submitted applications for 15 new projects estimated for 2015 completion identified through pump tests and audits completed by partnership technical assistance. Conducted partner workshops and trainings on updated Title 24 code, and SEEC Clearpath.
- The Cities of Camarillo and Fillmore completed their Energy Action Plans.
- Six cities moved up in the tier level model including 3 moving to Gold. The County of Ventura was the first county to progress to Gold Level Tier Status.
- Distributed a quarterly newsletter.

SCG3755 LGP-Local Government Energy Efficiency Pilots Narrative

In D.12-11-015 for 2013-2014 Energy Efficiency portfolios, the CPUC authorized funding for SoCalGas for the Partnerships to Pilot new approaches for implementing EE.

SoCalGas continued to explore a direct install program which would be implemented by a third party which would benefit foodservice customers by providing gas EE measures, electric, and water. SoCalGas will submit a request to implement once additional details are flushed out with the stake holders. Program objectives have been met.

SCG3773 LGP-New Partnership Programs Narrative

In D.12-11-015 for 2013-2014 EE portfolios, the CPUC authorized funding for SoCalGas for the purpose of adding new LGPs subject to the approval of the CPUC. These new LGPs will continue to promote Energy Upgrade California[®] Home Upgrade Program. Deep energy retrofits will be a priority in the 2013-2015 program cycle. Expansion opportunities will include closing the gap between partnerships that currently have partnerships with SCE and adopting those partners into SoCalGas' LGP program in 2013-2015 program cycle.

SoCalGas continued discussions with two potential new partners which are being prepared for filing with the CPUC in 2015 with SCE. SoCalGas will be working with the CPUC with the list of partnerships to add to the approved LGPs.

Program objectives have been met.

SCG3774 LGP-LG Regional Resource Placeholder Narrative

In D.12-11-015 approving the 2013-2014 Energy Efficiency proposal, the Commission authorized the formation of the Southern California Regional Energy Network (SoCalREN) to implement certain approved EE programs which includes SoCalREN's Energy Upgrade California[®] Home Upgrade Program (HUP), finance and Southern California Regional Energy Center (SoCalREC) sub-programs.

In 2014, SoCalGas continues its role as the lead utility to provide fiscal oversight, day-to-day contract management, and overall monitoring of the various SoCalREN programs. SoCalGas works collaboratively with SoCalREN to coordinate on all aspects of SoCalREN program implementation to achieve seamless program offerings and avoid duplication between IOU and SoCalREN programs.

During 2014, the IOUs and SoCalREN executed amendments to the existing IOU/REN Programs Agreement to enhance the loan loss reserve (LLR) funding mechanism and provide advance funding for HUP incentives and marketing efforts. In addition, pursuant to the Commission's D.14-10-046, SoCalGas, SCE, and SoCalREN executed Amendment Three to the existing IOU/REN Programs Agreement on December 12, 2014 to fund the SoCalREN portfolio of 2015 EE programs.

In 2014, SoCalGas engaged in wide range program coordination with SoCalREN as well as fiscal management of SoCalREN funding. SoCalGas participated in various joint events to build awareness and understanding of program offerings from both IOUs and SoCalREN. SoCalGas also started a major IT effort to provide certain authorized billing data of local government customers to SoCalREN's Enterprise Energy Management Information System (EEMIS) system. This automated data system for EEMIS is scheduled to be launched in early 2015. The program objectives were met.

SCG3776 LGP-Gateway Cities Partnership Narrative

The Gateway Cities Energy Leader Partnership Program is a local government partnership comprised of the Cities of South Gate, Norwalk, Downey and Lynwood *currently Edison only* (the "Cities" or "Partners") along with SCE and SoCalGas. This partnership program operated through the 2013-2015 program cycle, installing measurable and persistent energy efficiency and

conservation equipment upgrades for the benefit of the Cities, their constituencies, the State of California, and California IOU ratepayers.

Partnership activities focus on addressing energy usage in municipal facilities and in the community as a whole. The Partnership places great emphasis on having partners lead their communities by example by first concentrating on their own municipal facilities.

The Partnership establishes energy savings goals for each participating city and with the partnership's assistance helps identify energy retrofit opportunities to help reach these goals. Funded by the Partnership cities are able to access valuable energy efficiency expertise through technical assistance to help define identify, define project scope, estimated project cost, and determine eligible incentives.

The Partnership also funds marketing, education and outreach efforts to create awareness and connect residents and businesses with information and opportunities to make energy smart decisions within their own homes. Through this component cities can take advantage of eligible training classes for city staff, marketing assistance for various community events and other outreach opportunities to highlight the unique partnership between City, SCE and SoCalGas.

In addition, the partnership offers funding for Strategic Plan Program activities. These activities focus on long-term sustainability goals and plans. Cities can develop and implement policies and procedures in support of the CLTEESP. The City of Norwalk received funding in 2014 to undertake the following strategic plan activities; development of a municipal benchmarking policy, development of an energy action plan and creating a retro-commissioning policy. In addition the City will be procuring a utility manager software system. The City of Downey completed and adopted an energy action plan funded through embedded. The program successes are:

Administrative Successes

SCE, SoCalGas, the City of South Gate, Lynwood, Norwalk and Downey met monthly to discuss Partnership program goals, and milestones.

In a joint effort with the San Gabriel COG, the Partnership was able to provide free BOC Training (education for city staff) to both the SGVCOG and Gateway Cities Partnership. We committed 12 staff participants, maximum (30 participants max for both Partnerships).

The City of Downey selected a consultant for the development of the Energy Action Plan (EAP). The EAP was adopted by City Council.

The Partnership participated in the following community marketing and outreach events in 2014:

- City of Downey – Kids Day – Apollo Park – May 2014
- City of Downey – Street Faire – Brookshire Park – May 2014
- City of Norwalk – Summery Concert #1 – August 2014

- City of Norwalk – Summery Concert #2 – August 2014
- City of South Gate - Family Day in the Park – October 2014

Technical Assistance

The partnership provided the following technical assistance to the cities in 2014:

- The Partnership several therm-savings opportunities for 5 Downey facilities and 2 Norwalk facilities.

The following program objectives were met:

- The partnership completed EE retrofits in local government facilities
- Provided support for the CLTEESP listed above
- Supported Core Program coordination
- Coordinated training education and outreach for local governments, non-residential and residential customers

SCG3777 LGP-San Gabriel Valley Partnership Narrative

The San Gabriel Valley Energy Wise Program (SGVEWP) is a partnership between SoCalGas and the San Gabriel Valley Council of Governments (SGVCOG), in collaboration with SCE that will raise awareness of energy efficiency and complete targeted retrofit and retro-commissioning projects in city facilities. The Partner cities within San Gabriel Valley are: Alhambra, Arcadia, Baldwin Park, Bradbury, Claremont, Covina, Diamond Bar, Duarte, El Monte, Glendora, Industry, Irwindale, La Canada Flintridge, La Puente, La Verne, Monrovia, Montebello, Monterey Park, Pomona, Rosemead, San Dimas, San Gabriel, San Marino, Sierra Madre, South El Monte, South Pasadena, Temple City, Walnut, and West Covina. SoCalGas joined the Partnership in 2013.

This partnership program will provide energy education, retrofit assistance, retro-commissioning as well as design consultation and energy analysis of new construction and renovation project plans. Analysis of city facilities will be conducted to identify demand reduction projects alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit project in each of the targeted cities. The Partnership also conducts energy efficiency trainings, community education, marketing and outreach events to create awareness and connect residents and businesses with information and opportunities to take actions to reduce energy consumption; as well as strategic plan activities such as climate action planning, code compliance, and reach codes.

The primary objectives of the SGVEWP include:

- Provide specialized energy efficiency offerings to San Gabriel Valley local governments, residential and business communities,
- Leverage their communication infrastructure to inform their local communities about the wide variety of EE and demand reduction offerings available to them and encourage participation;

- Identify opportunities for municipal building retrofits, new construction, commissioning and retro commissioning as well as funnel existing energy programs to the partnership participants.

The program successes:

- The Partnership exceeded its annual savings target by completing the following municipal projects through SoCalGas rebate and incentive programs:
 - City: San Gabriel Project: Pool Cover
 - City: Duarte Project: Tankless Water Heaters
 - City: Pomona Project: Police Dept. Boiler Rebate
 - City: South El Monte Project: Aquatic Center Pool Heater Rebate
 - City: San Gabriel Project: Smith Park Pool Heater Rebate
- SGVCOG, SoCalGas and SCE held monthly regular meetings to discuss program administration, marketing, training, EE projects and implementation efforts.
- Updated the Partnership website, www.sgvenerywise.org, to include recent news and events.
- Completed the first bi-monthly e-newsletter
- Coordinated distribution of information about the Partnership to member agencies by leveraging existing communication channels, including the COG's committee structure.
- The Partnership participated in 13 community outreach events to promote EE in the residential and nonresidential areas of the San Gabriel Valley Cities.
- The Partnership hosted the 6th Annual Energy Awards Luncheon on December 10, 2014.
- The Partnership hosted three EE trainings to create awareness and provide our cities with updated information.
- The Partnership Held Beacon Award Recognition for the City of West Covina on March 18, 2014.

Program objectives were met.

SCG3778 LGP-City of Santa Ana Partnership Narrative

The City of Santa Ana Partnership Program is a local government partnership comprised of the City of Santa Ana, SoCalGas and SCE. Partnership activities focus on implementing EE in municipal facilities specifically and promoting EE in the community. The partnership establishes energy savings goals for EE retrofit of city-owned facilities, and identifies scopes, and implements projects. The partnership also funds community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take actions to reduce energy consumption, and includes strategic plan activities such as climate action planning, code compliance, and reach codes developments.

Successes in 2014

- SoCalGas, SCE and the City of Santa Ana met monthly to discuss Energy Efficiency program goals, milestones for marketing, training, and EE projects.

- The city completed two pool heater projects; and came close to closing 4 pool cover projects, which were postponed to 2015.
- The City featured EE and other SoCalGas and SCE programs in each of its quarterly newsletters.
- The city participated in the Direct Install program with installations completed at 8 municipal facilities in 2014.
- The city continued development of an online permitting system, further promoting demand side management.

The annual savings target was not met; however, several projects were completed and more are in the pipeline for 2015.

SCG3779 LGP-West Side Cities Partnership Narrative

The Westside Cities Partnership (WSCP) is the SoCalGas Local Government Partnership with the City of Culver City. The WSCP's three core program elements are consistent with the SoCalGas Master Program Implementation Plan: Government Facilities, Strategic Plan Activities, and Core Program Coordination the WSCP enhances the leadership role of Culver City in energy management.

The partnership consists of SoCalGas, SCE, City of Culver City, and The Energy Coalition (TEC) provides implementing services for the partnership.

The program successes were:

- SoCalGas signed WSCP contracts with Culver City and TEC
- SoCalGas signed WSCP contract amendments with Culver City and TEC extending the Partnership implementation period through 2015
- Identified 16,000 in estimated therms savings from municipal Enterprise Energy Management System (EEMS) project

The program implementation barriers and/or problems encountered were:

- Because the Partnership did not begin to be implemented until mid-2014, the initial administrative billing was high as the program was being rolled out. However, the program is on track to stay on budget.
- Limited opportunities for energy efficiency incentives due to relatively low natural gas loads at municipal facilities.

The program changes made in 2014 were:

- 2013-14 therm targets updated to account for Partnership implementation beginning in mid-2014.

The program objectives met:

- Total savings for Culver City were achieved in 2014.

- Rebate for Boiler and Pipe Insulation resulted in therms saved.
- Rebate for tankless water heater achieved therms saved for 2014.
- Promoted SoCalGas core utility programs at outreach events in Culver City.
- Strategic Planning Menu Item 1.1.6 - Develop educational programs for local elected officials, building officials, commissioners, and stakeholders to improve adoption of energy efficiency codes, ordinances, standards, guidelines, and programs
 - Completed by Culver City with a Codes, Challenges, and Opportunities workshop

SCG3780 LGP-City of Simi Valley Partnership Narrative

The City of Simi Valley Partnership is a local government partnership between the City of Simi Valley, and its Investor-Owned Utilities: SoCalGas and SCE. Partnership activities focus on implementing EE in municipal facilities and promoting energy efficiency in the community.

The Partnership establishes energy savings goals for EE retrofit of city-owned facilities, and identifies scopes and implements EE projects. The Partnership team, comprising of IOU and City members, met monthly in person to discuss partnership efforts toward achieving energy savings goals, community outreach opportunities, and other pertinent information.

SoCalGas sponsored the City's Living Green Expo, and a booth at the event and the Small Business Forum.

Partnership efforts and attention were directed towards lighting and other electric-only EE measures. Working with SCE, SoCalGas worked to get RCx on the table for the City's consideration as a dual-fuel EE saving measure.

SCG3781 LGP-City of Redlands Partnership Narrative

The Redlands Energy Partnership Program is a local government partnership comprised of the City of Redlands, SoCalGas, and SCE. The program is designed to assist the City of Redlands to effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality and ensure that their communities are more livable and sustainable.

This Partnership will focus on installing measurable and persistent EE and conservation devices for the benefit of the city, their constituencies, the State of California, and California IOU ratepayers. Partnership activities focus on implementing EE in municipal facilities specifically and in the community in whole. The Partnership establishes energy savings goals through City-identified projects, funded by Partnership incentives and technical assistance. The Partnership supports City and community EE efforts through marketing and outreach funds.

SoCalGas was successfully added to this partnership in 2013. This has allowed the city to focus on EE efforts in all aspects of its energy usage. Monthly meetings were held with the energy

champion for the city where potential opportunities were discussed. Redlands updated the cities EE page on their website to include the SoCalGas and links to our EE programs and rebates. Audits were conducted on four facilities in the city and proposed measures are under consideration by the city. Three successful community educational events were held during 2014.

Many of the proposed measures from the facility audits do not have great payback and the city may not move forward with them. The city has fairly low natural gas usage and opportunities are limited with the existing rebates. Many of the proposed measures would have better payback if the electric side was taken into consideration too. SCE is hesitant to move forward with audits unless they get a commitment from the city that they will move forward with the proposed measures. The city is broken up into many departments that do not always communicate with each other and it is difficult to get this commitment.

There are many potential projects lined up for 2015.

SCG3782 LGP-City of Beaumont Partnership Narrative

The 2013-2015 SoCalGas/LGPs are designed to provide integrated technical and financial assistance to help local governments effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, protect air quality and ensure that their communities are more livable and sustainable. The Program provides performance-based opportunities for the city to demonstrate EE leadership in its communities through energy saving actions, including retrofitting its municipal facilities, as well as providing opportunities for constituents to take action in their homes and businesses.

By implementing measures in its own facilities, the city will lead by example as the city and SoCalGas work together to increase community awareness of EE and position the city as leaders in energy management practices. The Program will provide marketing, outreach, education, training and community sweeps to connect the communities with opportunities to save energy, money and help the environment. The program participants will leverage the strengths of each other to efficiently deliver energy and demand savings. This partnership will allow the city to deliver sustainable energy savings, promote energy efficient lifestyles, and develop an enduring leadership role for the city through its relationships with other program participants, its constituents, and the Utility.

The program successes:

- Met monthly with the city's energy champion to discuss potential opportunities for energy efficiency and community outreach.
- Completed a comprehensive natural gas efficiency audit of city facilities.
- Conducted public outreach on Energy Savings Assistance Program (ESAP) and energy efficiency rebates at the annual Veteran's Expo.

Program Implementation Barriers or Problems Encountered:

- Due to the small number of facilities owned and operated by the city, the opportunities for natural gas savings are limited.
- Although the city moved forward with energy audits of city facilities, no natural gas measures were identified and cost effective. A fuel cell was proposed for City Hall, but the city is not considering this because of cost issues at this time.
- The city is having financial difficulty and spending money on energy efficiency measures is not a high priority.

The partnership successfully participated in community outreach events but no EE measures were adopted by the city at this time.

SCG3783 LGP-Western Riverside Energy Partnership Narrative

The Western Riverside Energy Partnership is a local government partnership comprised of the cities of Calimesa, Canyon Lake, Eastvale, Hemet, Lake Elsinore, Menifee, Murrieta, Norco, Perris, San Jacinto, Temecula, Wildomar, , as well as the implementer, Western Riverside Council of Governments (WRCOG) and SCE.

SoCalGas joined the Partnership in mid-2013. The Partnership delivers energy savings by implementing energy efficiency measures to municipal facilities while concentrating on deep energy retrofits. The Partnership offers marketing education and outreach to local governments and their communities, coordinates with core utility EE and demand response programs as well as Strategic Planning assistance to participating cities. The Partnership covers an area of over 2,100 square miles in one of the fastest growing areas in the United States. Western Riverside County is a large geographical area in Southern California, generally located east of Orange County, south of San Bernardino County, and north of San Diego County.

The program successes:

- SoCalGas continued ramping up efforts to include SoCalGas into the partnership and supporting cities in identifying EE opportunities.
- The Partnership conducted monthly and quarterly meetings with their partner cities to discuss program goals, milestones for marketing, training, and EE projects.
- The Partnership conducted a citywide integrated gas and electric energy audit at the City of Murrieta and the City of Hemet to identify potential energy savings opportunities. The Partnership also conducted an integrated energy audit at the City of Temecula's Library.
- SoCalGas assisted the City of Murrieta with a boiler replacement project at their City Hall. The City will be eligible for a rebate for the boiler replacement in 2015. This will be the Partnership's first natural gas energy savings project.
- The Partnership distributed SoCalGas collateral to all Partnership cities to display at City Facilities.

- The Partnership participated in several City Holiday Events and promoted EE Rebate information and Energy Savings Tips along with signups for SoCalGas' Energy Efficiency Kits and promotion of SCE's LED Lighting Exchange.
- The Partnership participated in the City of Perris Community Health Fair in April.
- Participated in the City of Norco's Parade of Lights and Winter Festival in December to promote energy efficiency programs and Energy Efficiency Kit signups.
- The Partnership held a Title 24 Workshop on September 10, 2014, where 14 participants from 6 Partnership cities attended.
- Supported the City of Perris with their Kiosk which will promote SoCalGas and SCE's EE Programs.
- The Partnership participated in a planning meeting with SoCalGas and SCE's Core Program Staff for the Energy Savings Assistance Program, Middle Income Direct Install Program, Multi-family and Comprehensive Mobile Home Programs to discuss outreach opportunities throughout Western Riverside County area.

As a result of the Partnership being relatively new to SoCalGas, the Partnership has not achieved the goals of the Partnership; however, it has made great strides in ramping up the Partnership and identifying energy savings opportunities with some of the participating cities.

Third Party Programs

SCG3757 3P-Small Industrial Facility Upgrades Narrative

The Small Industrial Facility Upgrades (SIFU) Program assists SoCalGas industrial customers in becoming more energy efficient and productive through the adoption of existing technologies, including those with low market penetration. The Program offers calculated custom process improvements as well as deemed measures currently offered through the Statewide Industrial Energy Efficiency Program.

The SIFU Program gained a large amount of momentum due to major emphasis to work more closely with Account Executives to provide support to their customers. As a result of these efforts, the program was able to register committed projects that are estimated to go beyond the budgeted therm goal, with projects representing more than half of the therms energy savings installed by the end of 2014.

Due to various difficulties at the facility level, commissioning schedules were delayed as necessary, causing multiple projects to push to an estimated installation in 2015. The program is unable to control facility delays, but will continue to build the pipeline of projects in order to reduce the risk of not meeting therm goals due to schedule slippage at the facility level.

SGC3758 3P-Program for Resource Efficiency in Private and Public Schools Narrative

The Program for Resource Efficiency in Private and Public Schools (PREPPS) is targeted toward qualifying private institutions of learning of all levels as well as public K-12 schools in the SoCalGas service area. The goal of PREPPS is to reduce gas energy costs, greenhouse gas emissions and improve school district facility operations to enhance the learning environment. PREPPS provides school facilities with project opportunity evaluations, on-site energy audits, energy efficiency recommendations, technical services, and cash incentives. Participants can receive cash incentives only or receive incentives in the form of Installation Support (IS) Services as a portion of their total project incentive. Incentives for deemed and calculated measures are equivalent to rates currently offered by SoCal Gas' core energy efficiency programs for the same measures.

In 2014, PREPPS increased outreach to private schools, including colleges and universities. This outreach strategy was implemented in response to Prop 39 which pushed back the near-term planning timeline for public K-12 schools. Measure diversity was also improved from previous years. Most of the measures installed through PREPPS in past years were pool covers. Program year 2014 saw greater volume and diversity with custom projects (primarily on-demand recirculation systems), pool heating measures, and space heating and water heating measures.

PREPPS continued to achieve the goal of increasing enrollment of new participants and achieved a good mix of public and private schools. Public schools largely participated through deemed measures such as pool covers while private schools provided more diversity in terms of measure mix such as storage water heaters, space heating boilers, domestic water heating boilers, and food service equipment. The momentum built in 2014 is expected to carry over into 2015.

SCG3759 3P-On Demand Efficiency Narrative

The On-Demand Efficiency Program (ODE) addresses a method of decreasing the natural gas consumption of central domestic hot water systems with recirculation loops in multifamily buildings while improving occupant satisfaction with the hot water delivery. Demand controls on hot water recirculation systems turn off the recirculation pump when it is not needed, thereby reducing unnecessary heat loss from the loop, reducing the boiler fire time, and thus reducing the natural gas consumption. This program finds potential sites and installs a controller that is appropriate, sustainable, and saves natural gas while maintaining comfort for the occupants. A rebate of \$54 per low-rise dwelling unit and \$33 per high-rise dwelling served by the installed demand controller is available to the customer.

Program achievements were slightly below goal in 2014 due to a decrease in the amount of projects in the program's pipeline. The program installed pump controls serving over 13,000 low-rise dwelling units and more than 2,400 high-rise dwelling units. At year's end, there were over 75 applications for sites awaiting installation.

Program staff attended the Apartment Owners Association trade show in Long Beach and the Apartment Association of Orange County Income Property Management Expo to help with marketing efforts to find more candidate project sites and plumbers. First quarter 2015 will be used to develop stronger marketing efforts to meet program goals by the end of 2015.

SCG3760 3P-HERS Rater Training Advancement Narrative

The HERS Advanced Rater Training Program (ARTP) promotes, develops, and delivers Energy Efficiency training to currently certified Home Energy Rating System (HERS) raters, builders, energy analysts, the trades, students, and others involved in new and retrofit construction in the SoCalGas service territory. The curriculum addresses technical and administrative elements of Home Energy Ratings, EE best practices, and general EE principles. It also offers continuing education related to changes in Title 24 and other code requirements.

During 2014, costs were kept within budget and additional efficiencies were achieved to keep the program efficient and progressive. In summary, 64 classes were delivered in 2014, with an average attendance of 13.8 students per class. The budget plan was for 60 classes and the program goal was an average of 8 students per class. Classes covered 31 different subjects during 23 full day classes and 41 half day classes. Additionally, the program website was updated with new course descriptions, content, and marketing notices. Three new curricula were developed and three were updated during the program year.

Scheduling and operational barriers were experienced at the beginning of 2014 due to the unexpected absence of a key instructor due to illness. Due to scheduling conflicts, it was necessary to cancel these classes. Scheduling later in 2014 made up for the lost classes. There were also attendance challenges with enrollment during the third quarter, mostly due to the high demand for the potential students, HVAC technicians, to be in the field during the hottest months of the year. Attendance levels at the balance of the classes kept the class average above goal.

In order to promote better alignment with the WE&T program, the ARTP made it a priority to present classes for students at both Cal-Poly Pomona and San Luis Obispo college campuses. Classes were also presented at Brownson Technical School in 2014. The biennial California Association of Building Energy Consultants (CABEC) Conference provided another opportunity to showcase the program, with both marketing opportunities and a training presence at the three-day event in San Diego. The ARTP program presented approximately half of the continuing education sessions for the members at the conference. This allowed high visibility, networking, and quality program promotion for the ARTP program.

SCG3761 3P-Multifamily Home Tune-Up Narrative

The Multifamily Home Tune-up Program targets owners and managers of multi-unit residential properties. The program provides and installs energy efficient low-flow showerheads and kitchen/bathroom aerators in Orange, San Bernardino, Riverside, and Imperial Counties.

The Home Tune-up Program installed over 50,000 energy efficient devices at approximately 140 sites and 17,000 apartment units in 2014 while exceeding its goal of installations in hard-to-reach multi-family residential areas. It also conducted approximately 300 building multifamily property audits that identified a comprehensive list of gas, electricity and water savings opportunities available in each property. A review of the audit findings was accompanied by education and training about the benefits of energy efficiency and proper maintenance.

The Program maintained momentum from 2013 into 2014 by leveraging relationships with other direct install contractors and SoCalGas programs in its service area. By strategically sharing leads and contacts, each contractor adds value to their respective program while increasing the ease of participation for property managers and owners. This leads to a synergistic effect which is beneficial in terms of efficiency and overall satisfaction of customers. In 2014, the Home Tune-up Program served approximately 2,500 senior living residential units as a result of leveraging an existing relationship with a major senior living developer.

The Home Tune-up Program also made some changes to the program staffing and targeted sites to meet goals. First, the program reduced its outreach staff to two full-time employees and replaced them with field installers conducting direct in-person outreach and phone follow-ups. This made the program more efficient while maintaining necessary recruitment levels and allowing for two teams to install on the same day at different locations when needed. The program also began to focus more on targeting small-to-medium properties and management firms in hard to reach locations.

SCG3762 3P-Community Language Efficiency Outreach Narrative

The Community Language Efficiency Outreach Program (CLEO) is a highly targeted residential energy efficiency marketing, outreach, education and training program. It specifically targets Vietnamese, Indian, Chinese, Korean, Hispanic, and African American (VICK-HA) SoCalGas customers. CLEO has a unique, 100% in-language strategy which serves a key role in overcoming the English language market barrier as well as targeting hard-to-reach, low and medium income customers.

CLEO markets SoCalGas programs and offers energy efficiency education and training using local ethnic media (radio and newspapers), and community events. These marketing efforts lead to participation in CLEO residential seminars and energy audits. CLEO also targets SoCalGas customers in the areas with high concentrations of Asian, Hispanic and African American customers.

In 2014, the CLEO program provided 31 in-language seminars, 54 information booths at events, 77 radio spots, 49 newspaper ads, and 423 foodservice surveys. Also, CLEO hosted an energy education school program at two elementary schools. Overall, CLEO focused on working with faith-based organizations and community-based organizations, especially in Hispanic communities. This effort resulted in an increase in the number of seminars and information booths hosted in Hispanic communities compared to the previous years. The program also continued to provide outreach to foodservice business customers to educate them on SoCalGas foodservice programs such as rebates and Energy Resource Center workshops.

SCG3763 3P-Multifamily Direct Therm Savings Narrative

The Multi-Family Direct Therm Savings Program (marketed as “*Energy Smart*”) targets owners and managers of multi-unit residential properties. The program encourages participation by providing energy efficient products and installation at no cost to the end use customer. Marketing activities focus primarily on apartment building owners and managers.

In 2014, the Energy Smart Program installed over 75,000 energy efficient devices at over 1,000 sites while meeting customer satisfaction and service delivery goals. Of those installations, there were 40 customer complaints received, and these were resolved within 3-5 business days. In 2014, the Energy Smart Program also exceeded their goals for program delivery in hard-to-reach counties (outside Los Angeles County). A challenge the delivery team faced in 2014 was coordination with other programs targeting the same multifamily complexes in the service territory.

SCG3764 3P-LivingWise™ Narrative

LivingWise® is a school-delivered residential energy savings program that is currently sponsored through collaboration between SoCalGas, SCE, and water agencies. The program provides a proven blend of classroom activities and take-home retrofit and audit projects which students complete as homework assignments with their parents and families. Audit data and installation reports are collected via surveys, which are returned to teachers and forwarded to the LivingWise Program Center for tabulation and storage. LivingWise is used at the sixth grade level in California to best align with State Learning Standards, and is offered to eligible teachers as an elective program. Teacher enrollment is very high, and overall participant program satisfaction (including parents) is excellent.

All LivingWise® program objectives were met, including: participation goals, Diversity Business Enterprise (DBE) spend goal of 30%, and quarterly distribution goals. The program achieved these goals while receiving excellent program ratings from the teachers enrolled in the program.

SCG3765 3P-Manufactured Mobile Home Narrative

The Manufactured Mobile Home Program is designed to provide energy efficient gas measures on a comprehensive basis to manufactured mobile home customers in the SoCalGas service territory. These energy efficient measures include duct test and seal, kitchen and bathroom faucet aerators, and low flow showerheads, in addition to an Imperial Irrigation District shared duct test and seal measure.

The SoCalGas Manufactured Mobile Home Program was delivered to over 9,000 customers in 2014. The program team, together with the SoCalGas Program Advisor, worked to maximize the program budget to provide cost-effective energy savings for SoCalGas customers. Positive customer feedback was received from more than half the customers polled in 2014. By the end of 2014, the program had utilized the entire program budget, and met energy savings and Key Performance Indicator goals.

SCG3766 3P-SaveGas Narrative

The SaveGas Hot Water Control Program provides incentives to hotel customers for installation of proprietary control technology. The controller allows ongoing and long-term control and monitoring of central hot water systems via a proprietary cellular control technology and portal.

In 2014, the program installed the domestic hot water control technology in three hotels for a total of over 1,000 rooms. Since the inception of the SaveGas Hot Water Control Program in 2007 a large percentage of the lodging industry in the territory is now being controlled and monitored by the contractor. The lodging industry in southern California has reached a high degree of saturation for the program technology that was implemented. As a result, the contractor elected not to extend the contract after 2014. Program termination was approved via SoCalGas Advice Letter 4725.

SCG3768 3P-California Sustainability Alliance Narrative

The California Sustainability Alliance (Alliance) Program is designed to increase and accelerate adoption of energy efficiency by packaging it with complementary sustainability measures. The scope of the Alliance includes multiple activities dedicated towards (1) building demand for energy efficiency and environmental sustainability; (2) advancing and promulgating the body of sustainability best practices, tools and techniques; (3) leveraging the collective resources of all partners – public and private, local, state and federal; and (4) developing educational and outreach materials to widely disseminate the business case for sustainability through the body of emerging and existing best practices.

In 2014, the Alliance completed eight projects, in three broad program areas: Green Buildings, Green Local Government and Water Energy. Within these three broad areas, projects took on

several different forms including: pilot program design, technical analysis, guidebook development, and sustainability awards/forums.

During 2014, the Alliance placed more emphasis on pilot program projects. These projects move beyond technical analysis, forums, and guidebook development to produce blueprints for future SoCalGas resource programs. These future program designs offer new thinking related to the delivery of energy efficiency and embody the Alliance's goal of accelerating adoption of energy efficiency by packaging it with sustainability.

The Alliance encountered timeline barriers across multiple projects, including the Green Buildings Award, sustainability planning and integration for restaurants, Climate Fellows pilot, and Industrial wastewater recycling. Despite these barriers, projects still moved forward and were able to accomplish the vast majority of their goals.

SCG3769 3P-Portfolio of the Future (PoF) Narrative

The Portfolio of the Future (PoF) is a non-resource program aimed at filling the gap between existing technology offerings (i.e., measures) in SoCalGas energy efficiency portfolio and new, emerging technologies. PoF seeks to enable the inclusion of emerging natural gas efficiency technologies and new business models to identify candidate natural gas applications in all sectors of SoCalGas' portfolio. This entails identifying, evaluating, and demonstrating new technologies and then working to facilitate their inclusion in SoCalGas' program offerings.

In 2014, PoF continued to identify, evaluate, and develop new technologies for programs. PoF generated eight ideas, completed 10 preliminary analyses, delivered drafts of three business cases, delivered three demonstration reports, assisted SoCalGas with implementation of the Cold Water Default Clothes Washer measure and supported SoCalGas in the California Technical Forum (CalTF) process with the Commercial Dishwashers and Gas Fired Space Heaters.

In 2014, SoCalGas implemented a new internal stage gate process for incorporating new measures and programs. PoF was successful in guiding several measures through the first stages of the process.

The primary indicator of PoF program success is the number of new technologies that are brought into SoCalGas' energy efficiency portfolio, and their estimated incremental savings potential.

SCG3770 3P-PACE Energy Savings Project Narrative

The PACE Energy Savings Project (PACE ESP) is a multi-ethnic outreach program that actively promotes SoCalGas energy efficiency programs. It targets residential and small business customers who belong to the Chinese, Filipino, Korean, Hispanic and Vietnamese communities living in Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties. PACE ESP

conducts its outreach efforts in the native languages of these communities to promote better understanding and increased participation in these programs.

PACE ESP implemented some changes in its deliverables. The program re-allocated funds to extend outreach activities and make contact with additional customers in the targeted communities. PACE also discontinued the physical distribution of EE kits; instead, program staff is gathering information from residential customers who are interested in receiving the EE kits via mail.

PACE stayed within budget and received positive customer satisfaction ratings, while completing all of its major goals and assigned tasks during 2014. The program conducted 11 in-language workshops/seminars and presentations, and participated at 36 ethnic and other community events to meet and exceed goals for these activities. As part of these efforts, PACE ESP made contact with over 700 small business customers, and over 2,700 . Of these customers, they were able to assist more than 1,500 to complete Ways to Save Energy surveys—formerly known as Home Energy & Water Efficiency Surveys. The program also met its original goal of distributing over 3,000 EE kits before that deliverable was replaced by the mailing approach.

SCG3771 3P-Innovative Designs for Energy Efficiency Activities (IDEEA365) Narrative

The Innovative Designs for Energy Efficiency Activities 365 (IDEEA365) program provides opportunities for third-party contractors to propose and implement new programs. This EE solicitation process allows for a “continuous” portfolio cycle to encourage new targeted and innovative technologies, program concepts, and offerings without having to wait for a new program cycle to begin.

The program process creates a mechanism for competitive solicitations for third-party programs that may improve cost-effectiveness and helps achieve deeper retrofit savings. The “continuous” solicitations concept is promoted by offering two unique solicitation types, Targeted and Innovative solicitations. Targeted Solicitations support utility identified program gaps, market needs, and technologies while Innovative solicitations encourage both existing and new service providers to develop and submit innovative program ideas. With the Innovative process, SoCalGas periodically offers an open Request for Abstracts (RFA) to give the providers of energy efficiency programs the opportunity to present their ideas and concepts for possible funding and implementation. In the Innovative process, upon receipt of abstracts, SoCalGas coordinates program selection and review with internal cross functional groups and an active Peer Review Group (PRG) consisting of program stakeholders to provide advisements. After reviews, scoring, and approval by internal and external stakeholders, the selected abstracts move to a second stage which requires more detailed information.

In 2014 the second stage Request for Proposal (RFP) process was replaced with a process where the selected bidders were invited to present their programs to a cross-functional SoCalGas

scoring team, either in person or by webinar. A smaller and more focused set of written documentation was required in addition to the presentation. This approach allowed for a mutually beneficial dialogue to better communicate the proposed program. Stage 2 did require more detailed information regarding measures, cost-effectiveness, marketing, and outreach plans but still shortened the overall solicitation timeline.

For Targeted programs, the solicitation was done in a single stage with only an RFP. Scoring and selection of proposals was completed in the same way for both Innovative and Targeted solicitations. The selected programs then proceed to contracting, completion of internal and regulatory required documentation, and then funded via fund shift from the available IDEEA365 budget. All bids and communications were posted via the statewide Proposal Evaluation and Program Management Application (PEPMA) website, which served as the central point for all program communications with potential bidders.

During the course of the year, revisions to the processes and ‘lessons learned’ from 2013 activities were constantly evaluated and implemented to the extent possible with each new round of solicitations. The ongoing challenge of the IDEEA365 program solicitation process during 2014 was developing and implementing a process that was expedient while still ensuring a consistently ‘level playing field’ with a transparent, methodical evaluation process at all stages. Coordinating and maintaining as much consistency as possible with the other California IOU’s presented some challenges as well.

During 2014 several objectives as detailed in the Program Implementation Plan were achieved and/or continued including:

- Launching of four new third party programs:
 - SCG3793 3P-IDEAA365 Instant Rebates! Point of Sale Food Service Equipment Program
 - SCG3794 3P-IDEAA365 Water Loss Control Program
 - SCG3795 3P-IDEAA365 - Commercial Sustainable Development Program
 - SCG3797 3P-IDEAA365-Energy Advantage Program for Small Business
- The continuous solicitation goal with two new Innovative rounds offered.
- Developing, documenting, and implementing the on-boarding process and procedures needed to bring new programs from selection to customer-interfacing.
- Implementing the mechanism for facilitating fair and competitive solicitations using the two-step RFA and Stage 2 presentation process.
- Utilizing PEPMA, training webinars, and statewide consistency in measures and practices to facilitate greater accessibility to the bidder community.
- On-going program review and process improvement discussions conducted with the SoCalGas IDEEA365 cross functional team, the Peer Review Group (PRG), as well as other stakeholders at the SoCalGas Program Advisory Group (PAG) meeting.

SCG3793 3P-IDEEA365-Instant Rebates! Point of Sale Food Service Equipment Program Narrative

The Instant Rebates! Point-of-Sale Foodservice Rebate Program (Instant Rebates!) was the first program selected from an IDEEA365 Innovative solicitation. It is a resource program that enables all non-residential SoCalGas end-use customers to receive point-of-sale (POS) equipment rebates for eligible, high-efficiency equipment purchases as a debit on their purchase receipt/invoice from participating vendors. Equipment vendors receive a sales incentive for every piece of eligible high-efficiency equipment for which they submit a rebate application; this approach helps offset vendors' additional administrative burden, financial carrying costs of fronting rebates to customers, and overhead associated with stocking and selling more high-efficiency equipment. This philosophy motivates both parties to consider more efficient equipment when it matters most – at the POS.

The launch of Instant Rebates! created a new mid-stream POS rebate channel which increased customer knowledge and uptake of rebate offerings. Program staff rolled out the program to SoCalGas Account Executives (AEs) and piloted AE participation to process Instant Rebates! for a small chain account. Despite delays in launching the program, Instant Rebates! enrolled over 21 vendors throughout SoCalGas territory who, in turn, submitted over 150 units for rebates through the new program. By year's end, the program increased the stocking and upselling of high-efficiency equipment with participating vendors. At least three vendors are stocking high-efficiency units that they previously had not, while others report increasing their stock of certain high-efficiency units to meet demand. Enrolled vendor sales associates report that they upsell more frequently as a result of Instant Rebates!

Vendor customer eligibility verification requirements served as an early barrier, but the issue was resolved by program staff. Initially, vendors were required to look up the customer-provided customer account number and determine eligibility. The Program Implementer collected feedback from enrolled vendors and learned that vendors were not implementing because this process was too difficult to understand, undertake at POS, and train multiple sales representatives to do properly. As a result, Instant Rebates shifted customer verification to the program staff to resolve the issue.

SCG3794 3P-IDEEA365-Water Loss Control Program Narrative

The 3P-IDEEA365 Water Loss Control (WLC) Program was a result of a Targeted IDEEA365 solicitation. The program launched in 2014, and was designed to respond to CPUC Decision 12-05-015 that directed the energy IOUs to conduct "leak-loss detection and remediation, and pressure management services for water entities that are utility customers".⁵ This program was structured to meet the CPUC's directive and the stipulated objectives to enhance understanding

⁵ D.12-05-015, p.285.

about embedded energy savings, avoided costs, and cost-effectiveness of leak detection and remediation programs. The resulting program provided comprehensive water loss control services to the City of Cerritos that included leak detection and pressure management, while Cerritos agreed to repair any leaks found.

Since launching, the WLC program completed leak detection of the entire Cerritos water distribution system and developed a comprehensive Water Loss Control report for Cerritos that included an estimate of “real losses” (leaks) and an estimate of the amount of water and natural gas that could be saved by reducing leaks and reducing pressure. The program also conducted training of Cerritos and other water agencies’ staff in preparation of accurate Water Balances, a best practice that was developed and promulgated by the American Water Works Association. WLC staff created a Water Loss Control website that provides information about types of leaks and water sector best practices for water loss control. Additional educational materials were made available about water and energy savings through water loss control and other types of water management and conservation practices. In addition to these comprehensive WLC services, the program also conducted training of college students and conservation corps interns in the costs and benefits of WLC and field training in acoustic leak detection.

Initial results from the program have identified issues related to the methodology chosen to identify leaks. Acoustic leak detection was found to be imperfect in that Cerritos staff was not able to verify an actual leak at every site at which the technical leak detection subcontractor thought that there was a leak. This reduced the estimated amount of water and energy savings. The program also found that acoustic leak detection does not accurately measure the volume of water saved. Consequently, the leak detection method does not meet the CPUC’s rigor for achieving measurable and verifiable energy savings.

SCG3795 3P-IDEEA365-Commercial Sustainable Development Program Narrative

The Commercial Sustainable Development Program (CSDP) is a new commercial non-resource program which resulted from a Targeted IDEEA365 solicitation. It focuses on passive and low energy strategies to assist the non-residential commercial market in achieving sustainability, ZNE, and improved thermal comfort. The CSDP provides design assistance as well as policy and educational assistance to commercial customers. The program deliverables include white papers, methodologies, metrics, case studies, and workshops on passive design and low energy strategies. In addition, the program is responsible for funding and coordinating a research grant to support a research assistant working to implement passive design and low energy research strategies.

The CSDP program launched in 2014 and has made progress on program goals and deliverables. The program has provided design assistance to three projects in two climate zones; two of the projects are for new construction. While these projects encountered limitations in the ability to influence the passive design, the lessons learned from the experience have provided invaluable

insight on program challenges, and will be informing the white paper outline. In addition, the program will make slight changes in 2015 to the project screening criteria and design assistance services to ensure passive design and natural gas savings for future projects. The program staff has also delivered one of two workshops. The research funded by the CSDP program has been completed and the final report received.

SCG3797 3P-IDEEA365-Energy Advantage Program for Small Business

The Energy Advantage Program for Small Business (EAP) came out of an Innovative IDEEA365 solicitation. It is a non-resource program that partners with the Small Business Association (SBA) 504 Loan Program to offer technical assistance, financial analysis, and rebate and incentives support to small and medium business owners who are already financing capital projects for their facilities. Once referred to the EAP, staff works with the borrower to: 1) evaluate energy efficiency measure options through site audits and design review; 2) model cash flow and return on investment scenarios for measures and measure bundles; and 3) facilitate rebate and incentive applications to secure SoCalGas commitments.

The program officially launched in November, 2014. Since going live, the program began initial outreach to the SBA certified lenders and met with eight lenders certified in California. In addition, two Partnership Agreements were initiated and training completed for these partners. In addition, the program developed the required marketing and operations material.

As EAP was only in the prelaunch stage and had one month in the market, it was too early for any potential barriers to be identified.

SECTION 1 ENERGY SAVINGS

The purpose of this table is to report the annual impacts of the Energy Efficiency portfolio of programs implemented by SoCalGas for the 2014 year. The annual impacts are reported for 2014 in terms of annual and lifecycle energy savings in natural gas savings in MMTh (million therms). The report shows annual savings (Installed Savings) that reflect installed savings, not including commitments. The values in the Installed Savings column include savings from the Low-Income Energy Efficiency Program, and Codes and Standards work (LIEE and C&S savings are broken out as separate line items in Table 8 - Savings by End-Use).

Table 1

Table 1: <i>Electricity and Natural Gas Savings and Demand Reduction</i>						
Annual Results	Installed Savings [1]	CPUC Goal Adopted in D.12-11-015	% of Goal	% of 2-Year Portfolio Goal	Balance	
2013 Energy Savings (GWh) – Annual	3.5					
2014 Energy Savings (GWh) – Annual	11.4					
TOTAL Energy Savings (GWh) - Annual	14.9					
2013 Energy Savings (GWh) – Lifecycle	45					
2014 Energy Savings (GWh) – Lifecycle	144					
TOTAL Energy Savings (GWh) – Lifecycle	189					
2013 Natural Gas Savings (MMth) – Annual [2]	25.9	24.1	107%	55%	21.4	
2014 Natural Gas Savings (MMth) – Annual	27.1	23.2	117%	57%	20.2	
TOTAL Natural Gas Savings (MMth) – Annual	53.0	47.3	112%	112%	(5.7)	
2013 Natural Gas Savings (MMth) – Lifecycle [3]	262					
2014 Natural Gas Savings (MMth) – Lifecycle	291					
TOTAL Natural Gas Savings (MMth) – Lifecycle	553					
2013 Peak Demand savings (MW)	2.22					
2014 Peak Demand savings (MW)	4.10					
TOTAL Peak Demand savings (MW)	6.32					

[1] Results from activity installed in 2013 and 2014 only.

[2] Includes savings associated with Low Income Energy Efficiency and Codes and Standards programs.

[3] Does not include lifecycle savings associated with SoCalREN, Low Income Energy Efficiency, and Codes and Standards programs.

SECTION 2 EMISSION REDUCTIONS

The purpose of this table is to report the annual incremental environmental impacts of the Energy Efficiency portfolio (for both electricity and natural gas) of programs implemented by SoCalGas during the 2014 program year. Parties agreed that the impacts should be in terms of annual and lifecycle tons of CO₂, NO_x, SO_x, and PM₁₀ avoided and should come from the E3 calculator.

Table 2

Table 2: <i>Environmental Impacts</i>								
Annual Results [1][2]	Annual tons of CO2 avoided	Lifecycle tons of CO2 avoided	Annual tons of NOx avoided	Lifecycle tons of NOx avoided	Annual tons of SOx avoided [3]	Lifecycle tons of SOx avoided [3]	Annual tons of PM10 avoided	Lifecycle tons of PM10 avoided
<i>2013-2014 Portfolio Targets [4]</i>	358,097	5,428,087	629,116	9,800,987	N/A	N/A	N/A	N/A
2013-2014 Total	324,882	4,522,269	441,002	6,082,278	-	-	1,799	21,705

[1] Results from activity installed in 2013 and 2014 only.

[2] Environmental impacts do not include any associated with Low Income Energy Efficiency or Codes and Standards programs.

[3] The avoided SOX reductions are not calculated in the E3 calculator. It was determined by E3 that none of the IOUs use coal power on the margin and the energy efficiency savings have impact on the margin only. This is the basis for the E3 analysis as reviewed by all interested parties and approved by the Commission.

[4] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 establishes SoCalGas' gas emission reduction targets for the 2013-2014 program cycle.

SECTION 3 EXPENDITURES

The purpose of this table is to report the annual costs expended by SoCalGas in implementing the 2014 Energy Efficiency portfolio. The report shows the “Total Portfolio Expenditures” broken out into Administrative Costs, Marketing/Advertising/Outreach Costs, and Direct Implementation Costs for the entire portfolio; the next two sets of expenditures represent sub-components of the portfolio already included in the Total Portfolio Expenditures totals: 1. Total Competitive Bid Program Expenditures (sub-component of portfolio), and 2. Total Partnerships (sub-component of portfolio). The last component is “Total EM&V” (separate from portfolio) expenditures will be reported for the IOU and Joint Staff.

Table 3

Table 3:				
<i>Expenditures</i>				
Summary of Portfolio Expenditures	2013-2014 Adopted Program Budget [1]	Cumulative Annual Expenditures	Percent of Portfolio Budget (2-yr)	Percent of Total Annual Expenditures
Total Portfolio Expenditures				
Administrative Costs	\$ 13,361,130	\$ 14,918,020	8.5%	12.6%
Marketing/ Advertising/ Outreach Costs	\$ 12,380,381	\$ 10,630,018	6.1%	9.0%
Direct Implementation Costs	\$ 149,467,546	\$ 92,882,586	53.0%	78.4%
Total Portfolio Expenditures [2][3][4]	\$ 175,209,057	\$ 118,430,624	67.6%	100.0%
<i>Total Competitive Bid Program Expenditures (sub-component of portfolio) [5] [6]</i>				
Administrative Costs	\$ 1,126,014	\$ 2,107,550	1.2%	1.8%
Marketing/ Advertising/ Outreach Costs	\$ 446,736	\$ 1,109,982	0.6%	0.9%
Direct Implementation Costs	\$ 32,225,799	\$ 22,293,753	12.7%	18.8%
Total Competitive Bid Program Expenditures	\$ 33,798,549	\$ 25,511,285	14.6%	21.5%
<i>Total Partnership Program Expenditures (sub-component of portfolio)</i>				
Administrative Costs	\$ 2,372,288	\$ 1,681,492	1.0%	1.4%
Marketing/ Advertising/ Outreach Costs	\$ 1,582,174	\$ 522,378	0.3%	0.4%
Direct Implementation Costs	\$ 5,570,973	\$ 2,697,353	1.5%	2.3%
Total Partnership Program Expenditures	\$ 9,525,434	\$ 4,901,222	2.8%	4.1%
Total EM&V Expenditures				
EM&V IOU	\$ 2,007,947	\$ 716,044	9.8%	63.5%
EM&V JOINT STAFF	\$ 5,293,678	\$ 411,154	5.6%	36.5%
Total EM&V Expenditures	\$ 7,301,624	\$ 1,127,197	15.4%	100.0%

[1] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 contained SoCalGas' annual budgets for the 2013-2014 program cycle.

[2] Does not include the budget or expenditures associated with EM&V.

[3] Includes budget and expenditures associated with SoCalREN.

[4] The SoCalRen - Finance Program budget reflects a reduction of \$225,000 from the originally authorized budget, per D.13-09-044, OP 23.

[5] Includes budget and expenditures associated with SW ME&O.

[6] Competitive Bid program budget and expenditures include customer incentives and allocated SoCalGas expenses.

[7] Includes all Third Party competitively bid programs; does not include those competitively bid programs that are components of Statewide programs.

SECTION 4 COST-EFFECTIVENESS

The purpose of this table is to provide an annual update on the cost-effectiveness of the portfolio of programs being implemented in the 2014 program year. The targets above are at the portfolio level, so an annual average is used in order to compare the current annual estimates of cost-effectiveness with the cost-effectiveness levels that were estimated at the time the portfolios were adopted. The report includes the SoCalGas results and goals.

Table 4

Table 4:									
<i>Cost Effectiveness</i>									
Annual Results	Total Cost to Billpayers (TRC) [1]	Total Savings to Billpayers (TRC)	Net Benefits to Billpayers (TRC) [1]	TRC Ratio	Total Cost to Billpayers (PAC) [1]	PAC Ratio	PAC Cost per kW Saved (\$/kW)	PAC Cost per kWh Saved (\$/kWh)	PAC Cost per therm Saved (\$/therm)
2013-2014 Targets [6]	\$ 270,667,068	\$ 313,105,449	\$ 42,438,381	1.16	\$ 181,080,744	1.73	N/A	N/A	\$0.57 /therm
2013-2014 TOTAL	\$ 215,273,127	\$ 256,628,898	\$ 41,355,771	1.19	\$ 118,071,152	2.17	N/A	N/A	\$0.32 /therm

[1] Results from activity installed in 2013 and 2014 only.

[2] Includes SoCalGas' 2013 shareholder incentive payment of \$3,075,647, submitted in AL 4542 and approved by the Commission on December 11, 2013.

[3] Includes SoCalGas' 2014 shareholder incentive payment of \$5,824,913, submitted in AL 4661 and approved by the Commission on December 18, 2014.

[4] Include costs and benefits associated with Codes and Standards programs.

[5] Includes only costs associated with SoCalREN.

[6] Does not include costs and benefits associated with Low Income Energy Efficiency.

[7] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 established the cost-effectiveness of SoCalGas 2013-2014 portfolio.

SECTION 5 BILL PAYER IMPACTS

The purpose of this table is to report the annual impact of the energy efficiency activities on customer bills relative to the level without the energy efficiency programs, as required by Rule X.3 of the Energy Efficiency Policy Manual version 3, adopted in D.05-04-051.

Table 5

Table 5:				
<i>Ratepayer Impacts</i>				
	Electric Average Rate (Res and Non-Res)	Gas Average Rate (Core and Non-Core)		Average Lifecycle Bill Savings (\$)
2014	\$/kWh	\$/therm	Average First Year Bill Savings (\$)	
SCG		\$1.13	\$ 30,717,004	\$ 330,051,289

[1] SoCalGas' 12-month residential weighted average transportation rate for 2014 is \$0.63911 per therm.

[2] SoCalGas' 12-month average procurement rate in 2014 was \$0.49548.

[3] Ratepayer impacts are derived from 2014 gross savings accomplishments and the average rate.

[4] The average First Year Bill Savings are calculated by the 2014 first year savings multiplied by the Gas Average Rate.

[5] The average Lifecycle Bill Savings are calculated by the 2014 lifecycle savings multiplied by the Gas Average Rate.

SECTION 6 GREEN BUILDING INITIATIVE

The purpose of this table is to record the amount of savings attributable to California's 2014 Energy Efficiency portfolio that contribute to meeting the Governor's Green Building Initiative (GBI) Goal of reducing energy use in state-owned buildings by 20 percent by 2015 (with a 2003 baseline). Expenditures are for program activities that contribute towards GBI goals. Annual GWH, MW, and Million therms are cumulative net values.

Table 6

A	B	C	D	E	F	G	H	I	J	K	
Table 6 :											
<i>Green Building Initiative</i>											
			GWh			MW			MMTh		
2013-2014	Expenditures [1]	Goal	Annual	% of Goal	Goal	Annual	% of Goal	Goal [3]	Annual [2]	% of Goal	
SCG	\$ 7,326,667							44	8.1	18%	

[1] Expenditures reflect incentive payments from activity installed in 2013 and 2014.

[2] Results from activity installed in 2013 and 2014.

[3] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 establishes the GBI targets of SoCalGas' 2013-2014 portfolio.

SECTION 7 SHAREHOLDER PERFORMANCE INCENTIVES

The Efficiency Savings and Performance Incentive (ESPI) mechanism for the 2013-2014 program cycle was approved by the Commission in D.13-09-023, dated September 11, 2013.

In 2014, the Commission awarded SoCalGas energy efficiency earnings of \$5.8 million, representing the earnings award from program year 2012 and the *ex ante* portion of program year 2013.

In 2015, SoCalGas is scheduled to file two Advice Letters requesting authority to collect energy efficiency earnings. On June 30, 2015, SoCalGas will submit an Advice Letter for earnings associated with the *ex ante* portion of program year 2014 and on September 15, 2015, SoCalGas will submit an Advice Letter for earnings associated with the *ex post* portion of program year 2013.

SECTION 8 SAVINGS BY END-USE

The purpose of this table is to show annual portfolio savings by Residential and Non-Residential end-uses and those savings attributable to the LIEE program, and Codes and Standards work.

Table 8

Table 8: <i>Annual Savings By End-Use</i>						
2014	GWH	% of Total	MW	% of Total	MMTh	% of Total
Residential	11.34	100%	4.10	100%	3.92	14%
Appliances	8.13	71%	2.29	56%	0.75	3%
Consumer Electronics	-	0%	-	0%	-	0%
HVAC	2.55	22%	1.56	38%	0.75	3%
Lighting	-	0%	-	0%	-	0%
Pool Pump	-	0%	-	0%	-	0%
Refrigeration	-	0%	-	0%	-	0%
Water Heating	0.42	4%	0.05	1%	2.29	8%
Other	0.24	2%	0.20	5%	0.12	0%
Nonresidential	0.04	0%	-	0%	16.89	62%
HVAC	(0.03)	0%	-	0%	2.37	9%
Lighting	-	0%	-	0%	-	0%
Office	-	0%	-	0%	-	0%
Process	-	0%	-	0%	8.88	33%
Refrigeration	-	0%	-	0%	0.06	0%
Other	0.07	1%	-	0%	5.57	21%
Low Income Energy Efficiency	-	0%	-	0%	3.14	12%
Codes & Standard Energy Savings	-	0%	-	0%	3.12	12%
SCG Annual Portfolio Savings	11.38	100%	4.10	100%	27.07	100%

[1] Results from activity installed in 2014 only.

[2] Includes savings associated with SoCalREN.

SECTION 9 COMMITMENTS

The purpose of this table is to allow the utilities to report commitments for both the near term (installed savings will be produced within the 2014 program year and long term (commitments entered into during the current program cycle but which are not expected to produce installed savings until after December 2015). This information will be useful for the Commission's resource planning purposes by enabling program activities to be linked to a particular funding cycle.

Table 9

Table 9:				
<i>Commitments</i>				
Commitments Made in the Past Year with Expected Implementation by December 2015				
	Committed Funds	Expected Energy Savings		
2014	\$	GWH	MW	MMTh
SCG Total	\$ 11,115,806	-	-	17.52
Commitments Made in the Past Year with Expected Implementation <i>after</i> December 2015				
	Committed Funds	Expected Energy Savings		
2014	\$	GWH	MW	MMTh
SCG Total	\$ 1,115,545	-	-	1.98

[1] Committed funds represent incentive amounts only.

Appendix A – SoCalGas Program Numbers

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3701	SW-CALS-Energy Advisor		
SCG3702	SW-CALS-Plug Load and Appliances		
SCG3703	SW-CALS-Plug Load and Appliances - POS		
SCG3704	SW-CALS-MFEER		
SCG3705	SW-CALS-Energy Upgrade California [®] Home Upgrade Program		
SCG3706	SW-CALS-Residential HVAC		
SCG3707	SW-CALS-Residential New Construction		
SCG3708	SW-COM-Energy Advisor		
SCG3709	SW-COM-Continuous Energy Improvement		
SCG3710	SW-COM-Calculated Incentives		
SCG3711	SW-COM-Deemed Incentives		
SCG3712	SW-COM-Nonresidential HVAC		
SCG3713	SW-IND-Energy Advisor		
SCG3714	SW-IND-Continuous Energy Improvement		
SCG3715	SW-IND-Calculated Incentives		
SCG3716	SW-IND-Deemed Incentives		
SCG3717	SW-AG-Energy Advisor		
SCG3718	SW-AG-Continuous Energy Improvement		
SCG3719	SW-AG-Calculated Incentives		
SCG3720	SW-AG-Deemed Incentives		
SCG3721	SW-ET-Technology Development Support		
SCG3722	SW-ET-Technology Assessment Support		
SCG3723	SW-ET-Technology Introduction Support		

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3724	SW C&S-Building Codes & Compliance Advocacy		
SCG3725	SW C&S-Appliance Standards Advocacy		
SCG3726	SW C&S-Compliance Enhancement		
SCG3727	SW C&S-Reach Codes		
SCG3728	SW C&S-Planning Coordination		
SCG3729	SW-WE&T-Centergies		
SCG3730	SW-WE&T-Connections		
SCG3731	SW-WE&T-Strategic Planning		
SCG3734	SW-IDSM-IDSM		
SCG3735	SW-FIN-On-Bill Financing		
SCG3736	SW-FIN-ARRA-Originated Financing		
SCG3737	SW-FIN-New Financing Offerings		
SCG3738	LInstP-CA Department of Corrections Partnership		
SCG3739	LInstP-California Community College Partnership		
SCG3740	LInstP-UC/CSU/IOU Partnership		
SCG3741	LInstP-State of CA/IOU Partnership		
SCG3742	LGP-Los Angeles County Partnership		
SCG3743	LGP-Kern County Partnership		
SCG3744	LGP-Riverside County Partnership		
SCG3745	LGP-San Bernardino County Partnership		
SCG3746	LGP-Santa Barbara County Partnership		
SCG3747	LGP-South Bay Cities Partnership		
SCG3748	LGP-San Luis Obispo County Partnership		
SCG3749	LGP-San Joaquin Valley Partnership		

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3750	LGP-Orange County Partnership		
SCG3751	LGP-SEEC Partnership		
SCG3752	LGP-Community Energy Partnership		
SCG3753	LGP-Desert Cities Partnership		
SCG3754	LGP-Ventura County Partnership		
SCG3755	LGP-Local Government Energy Efficiency Pilots		
SCG3756	3P-Energy Challenger		May 2013
SCG3757	3P-Small Industrial Facility Upgrades		
SCG3758	3P-PREPS		
SCG3759	3P-On Demand Efficiency		
SCG3760	3P-HERS Rater Training Advancement		
SCG3761	3P-MF Home Tune-Up		
SCG3762	3P-CLEO		
SCG3763	3P-MF Direct Therm Savings		
SCG3764	3P-LivingWise		
SCG3765	3P-Manufactured Mobile Home		
SCG3766	3P-SaveGas		
SCG3768	3P-CA Sustainability Alliance		
SCG3769	3P-PoF		
SCG3770	3P-PACE		
SCG3771	3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)		
SCG3773	LGP-New Partnership Programs		
SCG3774	LGP-LG Regional Resource Placeholder		
SCG3775	CRM		

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3776	LGP-Gateway Cities Partnership		
SCG3777	LGP-San Gabriel Valley COG Partnership		
SCG3778	LGP-City of Santa Ana Partnership		
SCG3779	LGP-West Side Cities Partnership		
SCG3780	LGP-City of Simi Valley Partnership		
SCG3781	LGP-City of Redlands Partnership		
SCG3782	LGP-City of Beaumont Partnership		
SCG3783	LGP-Western Riverside Energy Partnership		
SCG3793	3P-IDEEA365 Instant Rebates! Point of Sale Food Service Equipment Program	March 2014	
SCG3794	3P-IDEEA365 Water Loss Control Program	May 2014	
SCG3795	3P-IDEEA365 - Commercial Sustainable Development Program	August 2014	
SCG3797	3P-IDEEA365-Energy Advantage Program for Small Business	November 2014	

Appendix B.1 – Updated Monthly Report

The Updated Monthly Report can be found on the EEStats website:

<http://eestats.cpuc.ca.gov/Views/Documents.aspx>

Appendix B.2 – Updated Quarterly Report

The Updated Quarterly Report can be found on the EESStats website:

<http://eestats.cpuc.ca.gov/Views/Documents.aspx>

Note: In accordance with the *Assigned Commissioner’s Ruling Clarifying Fund Shifting Rules and Reporting Requirements*, Attachment B, dated December 22, 2011, “The following reports are no longer submitted by the utilities in 2010-2012: E3 output sheets, Quarterly Narratives, and Quarterly Spreadsheets.” Accordingly, these tables have also been discontinued during the 2013 – 2014 program years.

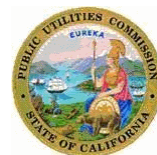
**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and
Costs for 2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-25

SOCALGAS EXHIBIT

SoCalGas 2015 Energy Efficiency Annual Report

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



FILED

5-02-16
04:59 PM

Order Instituting Rulemaking Concerning
Energy Efficiency Rolling Portfolios,
Policies, Programs, Evaluation, and
Related Issues.

Rulemaking 13-11-005
(Filed November 14, 2013)

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)
ENERGY EFFICIENCY PROGRAMS ANNUAL REPORT
2015 RESULTS**

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May 2, 2016

**SOUTHERN CALIFORNIA GAS
COMPANY**

**ENERGY EFFICIENCY PROGRAMS
ANNUAL REPORT**

2015 RESULTS



A  Sempra Energy utility

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2015 ENERGY EFFICIENCY PROGRAM PORTFOLIO SUMMARY

Executive Summary

Southern California Gas Company (SoCalGas) offers a comprehensive suite of conservation and energy efficiency (EE) programs, strategies, and solutions to meet the dynamic energy needs of our customers. In 2015, the third year of the 2013- 2015 cycle, SoCalGas leveraged the programmatic successes achieved in the first two years of the program cycle. SoCalGas further refined its program delivery and implementation in 2015 to actively seek EE opportunities and adapt to its diverse customer base. In 2015, SoCalGas demonstrated the success of its programs by saving customers more than 25.5 million therms, which represents nearly 101% of the energy efficiency goal established by the California Public Utilities Commission (Commission or CPUC). Similarly, SoCalGas achieved over 108% of its 2013-2015 program cycle goal. SoCalGas cost-effectively administered energy efficiency savings to customers, providing ratepayers over \$158 million in resource benefits. In addition, as part of SoCalGas' commitment to help California meet its goal of greenhouse gas emission mitigation, its energy efficiency programs avoided over 196,000 tons of CO₂.

SoCalGas continues to work closely with the Commission and other stakeholders to achieve California's strategic vision and goals to ensure: (1) maximum achievement of all cost-effective and feasible energy efficiency savings in the natural gas sector, (2) programs, strategies, and offerings that provide deep, long-term energy savings and (3) energy efficiency programs that will generate quick and low-cost reductions in greenhouse gas emissions, as adopted in the California Long-Term Energy Efficiency Strategic Plan and Energy Action Plan (CLTEESP or Strategic Plan).

In order to achieve the Commission's aggressive long-term goals, SoCalGas has partnered with municipal electric utilities and water agencies to increase its program reach, enhance cost-effectiveness, and offer comprehensive demand-side management offerings to customers. This approach minimizes lost opportunities, allows for more comprehensive and deeper energy efficiency projects, and increases operational efficiencies allowing for a more streamlined delivery of ratepayer-funded programs.

Notable successes during program year 2015 include the following:

Bringing Groundbreaking Energy Saving Equipment to Customers

SoCalGas and a large appliance manufacturer partnered to bring the first cold water default clothes washer to market in the United States in April 2015. It's now available in stores throughout SoCalGas' service territory. Initial development of this technology happened four years ago where SoCalGas met with appliance manufacturing companies to come up with an energy and money saving solution. Through supplied specifications from SoCalGas, a manufacturer was able to create a cost effective, energy-saving washing machine that encourages consumers to wash laundry in cold water.

Expansion of Local Government Partnerships and Focus on Climate Change

SoCalGas successfully added two new Local Government Partnerships to enhance program offerings in partnership with local communities. The newly added Partnerships include the San Bernardino Regional Energy Partnership and the North Orange County Cities Energy Partnership (NOCC). Of the 233 cities in 12 counties across SoCalGas' service territory, 146 cities and 9 counties participate in partnerships. Going forward, SoCalGas strives to address the needs of its partner cities to go beyond EE and further sustainability and climate action planning.

Supporting Communities through Workforce Education & Training (WE&T)

In 2015, SoCalGas offered educational and training programs to support implementing energy efficiency solutions, and to develop and support the labor force involved in program offerings. The majority of SoCalGas' WE&T programs are held at its showcase facility, the Energy Resource Center (ERC). The WE&T Centergies program conducted over 230 events, including almost 170 technical courses, in total serving more than 12,000 customers. In 2015, SoCalGas WE&T Centergies also expanded Building Operator Certification training sessions and webinar series to commercial building operators and engineers in cooperation with the Los Angeles Department of Water & Power (LADWP), offering two partnered sessions that included LADWP personnel. The WE&T Connections program continued to achieve its EE educational goals by working with community-based organizations, state education agencies, educational stakeholders and in conjunction with third party vendors, providing interactive programs, educational materials, assemblies and teacher workshops correlated to the California Department of Education's content standards. The PEAK Program is provided at schools to empower students with energy management information and hands-on learning. During 2013, the program enrolled 121 schools, including 55 new schools, and reached almost 12,500 students in the SoCalGas / SCE common service territory. A large number of the schools are in underserved communities. During 2015, SoCalGas WE&T Strategic Planning spent a lot of time assessing recommendations on the current statewide program, and preparing for work on a long-term strategic plan for the WE&T program.

Supporting Innovation in Third Party Program Offerings

SoCalGas successfully engaged the vendor community and other stakeholders by soliciting Innovative and Targeted programs through its Innovative Design for Energy Efficiency Activities (IDEEA365) Third Party Program Solicitation Process. Four programs selected in previously offered solicitation rounds finalized program implementation plans in 2015 and launched. SoCalGas is committed to building upon its success in implementing the Commission's vision of continuously adding third party administered programs throughout the year in a fair and equitable manner.

Measure Development through the Emerging Technologies Program (ETP)

The Emerging Technologies Program is charged with contributing to the development of innovative EE technologies, practices and tools, and facilitating deployment into program offerings. Actions taken during 2015 included performing 12 technology assessments, 2 field evaluations, and 2 demonstration showcases with 6 measures now in consideration for future EE programs.

Leadership in the Development of New Finance Programs

The IOUs continued their efforts to develop a set of statewide financing pilot programs that offer scalable and leveraged financing products and test market incentives in the form of credit enhancements and on-bill repayment for attracting private capital. The pilots consist of the following on-bill repayment (OBR) programs: Small Business OBR Loan Program; Small Business OBR Lease Program; Non Residential OBR without Credit Enhancements (CE) Program; Master-Metered Multi-Family OBR Program; and the Residential Energy Finance Line Item Charge (EFLIC) Program. The EFLIC Program is only offered in PG&E's service territory. The pilots also consist of two off-bill programs: Single Family Loan Program (aka Residential Energy Efficiency Loan Assistance Program or REEL) and Off-Bill Small Business Lease Providers Program. The Program Implementation Plans (PIPs) for the pilots were approved by the CPUC in June 2015. SoCalGas coordinated the IOU statewide effort in developing the PIPs.

Effective Program Collaboration (IDSM)

Expanding on SoCalGas' successful launching of joint programs in 2014, SoCalGas launched nine new joint programs with its municipal utility partners in 2015 including programs covering food service, technical assistance and third party implemented offerings. Also, SoCalGas' single point-of-contact strategy for the multifamily sector continued delivering significant results for SoCalGas. In 2015, enrollments numbers climbed into the thousands of units leading to participation in SoCalGas' Home Upgrade program and other EE programs.

Leveraging Proposition 39 Funds into Local Institutions

Continuing off the success of 2013-2014, the California Community Colleges (CCC) were allocated an additional \$31.6 million for the 2014-2015 Fiscal Year (Year 2) and \$36.7 million for the 2015-2016 Fiscal Year (Year 3) for energy efficiency and renewable generation projects through the State's Proposition 39 (Prop 39) funding program. During Year 2, \$30.8 million in Prop 39 funded projects were approved through the CCC Chancellor's Office with all 72 College Districts participating through 224 projects. Combined with Year 1, Prop 39 is estimated to save the CCCs nearly \$9 million in energy costs. The CCC/IOU Partnership and CCC Chancellor's Office continue to support the CCCs through their Year 3 funding efforts with \$8.5 million of funding awaiting approval and disbursement.

Implementation of funding paralleled the CCC/IOU Partnership processes to maximize Prop 39 funds through utility incentives. The CCC/IOU Partnership provided enhanced outreach and hands-on services such as technical support and project development for all the college campuses in the service territory. The CCC Chancellor's Office also continued its annual "Call for Projects" efforts at the beginning of the 2014 and 2015 program years through the CCC/IOU Partnership to identify qualifying project opportunities.

Expanding Support of Residential ZNE

In 2015, SoCalGas finalized a major sponsorship agreement with the creator and developer of the ABC Green Home projects. The ABC Green Homes are Zero Net Energy (ZNE) single family homes that will be built by Habitat for Humanity for disabled United States veterans and their families, and will include a full complement of natural gas appliances. These ZNE projects are designed to demonstrate best practices in affordable high performance housing and will be constructed to meet several certifications including, LEED, Cal Green, Build it Green, California

Advanced Homes, ENERGY STAR, and NAHB Green. To further market ZNE, SoCalGas has published numerous informational advertisements and advertorials to drive ZNE messaging to builders as part of this effort.

Customer Projects & Feedback

SoCalGas is proud of its accomplishments bringing EE solutions to business and residential customers. Company staff works to identify and develop opportunities, and also aid customers through the rebate process. The current economic conditions associated with gas energy use generally translate to higher impact and greater benefit for large volume projects at commercial and industrial facilities. These sectors have naturally developed into the largest contributors to energy savings in the SoCalGas portfolio. Selected noteworthy projects are highlighted below:

- ***A Large Hospital***

SoCalGas has specialized staff that target specific customer segments. For example, SoCalGas influenced a healthcare customer to make improvements when they were upgrading their hospital facilities. SoCalGas worked with the customer on a heating, ventilation, and air conditioning (HVAC) control system upgrade through reconfiguring condenser water piping, implementing chiller sequencing control, and reducing boiler steam pressure whenever the absorption chillers are not operational. This customer saved almost 590,000 therms and received an incentive for this project of nearly \$528,000.

- ***A Popular Restaurant***

Through the Instant Rebates! Point-of-Sale Foodservice Program, SoCalGas partnered with commercial equipment vendors to increase the sales of high efficiency foodservice equipment. A popular restaurant purchased high-efficiency steamers through a participating vendor and received \$14,000 directly off of their sales invoice as a line item discount. These seven steamers will save the customer's stores nearly 26,000 therms and over 1,000,000 gallons of water annually.

- ***Residential Multifamily Community***

SoCalGas is committed to providing safe reliable service including improving the quality of life in the communities SoCalGas serves. SoCalGas' Sustainable Communities effort continued its work with a large multifamily community, culminating in a state-of-the-art community center that is certified LEED platinum. This community center has a comprehensive mix of energy efficiency and self-generation features, including a cogeneration power plant that provides hot water for the swimming pool and electricity to power the building.

- ***ZNE Educational Agency***

In early 2015, SoCalGas launched its Zero Net Energy (ZNE) Pilot for local educational agencies and community colleges. The Pilot assists schools and colleges in retrofitting existing facilities to ZNE by leveraging Proposition 39 (Prop 39) funding and will establish "proof of concept" that ZNE retrofits of schools are feasible across California. This has resulted in one customer finalizing the retrofit design and modeling of a building with 12 EE measures. The gas specific measures are the HVAC system, temperature control, and building envelope.

- ***Project of the Year: Large Commercial Customer***

In 2015, SoCalGas' largest energy efficiency project saved 1.2 million therms. The energy savings come from the construction of a highly efficient regenerative thermal oxidizer (RTO). The RTO leverages heat being exhausted to the atmosphere and transfers it to the incoming gases, allowing incoming gases and volatile organic compounds to be heated to oxidation with little additional energy. SoCalGas worked with this customer from the beginning with help in the design and build of this equipment, and culminating in an energy efficiency incentive of nearly \$324,000.

2015 Program Roster

Continuing off the successes of 2013-2014, these program highlights reflect a fraction of the accomplishments during program year 2015. The 2013-2014 program cycle programs were approved by the Commission on November 8, 2012, pursuant to Decision (D.)12-11-015, which authorized \$179 million in funding over the two-year period for the SoCalGas portfolio of energy efficiency programs. The annual funding levels established in 2013-2014 cycle were extended in 2015 by the Commission on October 16, 2014 in D.14-10-046 to allow the continuation of EE programs in California. These programs include the following:

Statewide Energy Efficiency Programs

- California Statewide Program for Residential Energy Efficiency
- Commercial Energy Efficiency Program
- Industrial Energy Efficiency Program
- Agricultural Energy Efficiency Program
- Emerging Technologies Program
- Codes and Standards Program
- Workforce Education and Training
- Statewide Marketing Education and Outreach
- Statewide Integrated Demand-Side Management
- Energy Efficiency Finance Programs

Government/Institutional Energy Efficiency Partnership Programs

- California Department of Corrections Partnership
- California Community College Partnership
- University of California/California State University/IOU Partnership
- State of California/IOU Partnership
- Los Angeles County Partnership
- Kern County Partnership
- Riverside County Partnership
- San Bernardino County Partnership
- Santa Barbara County Partnership
- South Bay Cities Partnership
- San Luis Obispo County Partnership
- San Joaquin Valley Partnership
- Orange County Partnership

- SEEC Partnership
- Community Energy Partnership
- Desert Cities Partnership
- Ventura County Partnership
- Local Government Energy Efficiency Pilots
- Regional Resource Placeholder
- Gateway Cities Partnership
- San Gabriel Valley COG Partnership
- City of Santa Ana Partnership
- West Side Cities Partnership
- City of Simi Valley Partnership
- City of Redlands Partnership
- City of Beaumont Partnership
- Western Riverside Energy Partnership
- North Orange County Cities Partnership
- San Bernardino Regional Energy Partnership

Third Party Energy Efficiency Programs

- Energy Challenger
- Small Industrial Facility Upgrades
- Program for Resource Efficiency in Private and Public Schools
- On Demand Efficiency
- HERS Rater Training Advancement
- Multifamily Home Tune-Up
- Community Language Efficiency Outreach
- Multifamily Direct Therm Savings
- LivingWise™
- Manufactured Mobile Home
- California Sustainability Alliance
- Portfolio of the Future
- PACE
- Innovative Designs for Energy Efficiency Activities
- Instant Rebates! Point of Sale Food Service Equipment Program
- Water Loss Control Program
- Commercial Sustainable Development Program
- On Demand Efficiency for Campus Housing
- Energy Advantage Program for Small Business
- Connect
- Historical Building Energy Efficiency
- Clear Ice

SoCalGas describes the activities performed and the successes achieved during the 2015 program year in these programs in the section entitled *Program Description and Strategies* below.

Program Descriptions and Strategies

Statewide Program for Residential Energy Efficiency

The Statewide Residential Energy Efficiency sector program is designated as the California Statewide Program for Residential Energy Efficiency (CalSPREE). CalSPREE offers and promotes both specific and comprehensive energy solutions for residential customers. By encouraging adoption of economically viable energy efficiency technologies, practices, and services, CalSPREE employs strategies and tactics to overcome market barriers while delivering services that support the CPUC's Strategic Plan.

CalSPREE's focus 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 investor-owned utilities have employed a number of different residential EE subprograms that are in various stages of maturity and availability across the state.

CalSPREE integrates all of these subprograms to coordinate efforts and increase comprehensiveness of EE measure delivery.

SCG3701 Statewide CalSPREE - Energy Advisor

This program is a continuation of the existing statewide Energy Advisor Program within the residential EE portfolio. Although PG&E, SDG&E, SCE, and SoCalGas share similar program theory, goals, and design elements, each IOU may be implementing a unique tool by a different vendor.

In 2015, the Energy Advisor program continued to help customers understand how and when they used energy. Customers then have the knowledge and available tools to improve their EE, energy use management, and where appropriate, were guided to advancing whole-house energy solutions. The program utilized behavioral outreach initiatives and interactive tools designed to engage and encourage customers to reduce their energy consumption through program recommendations and, as warranted, IDSM opportunities.

In 2015, SoCalGas exceeded its annual goal of 10,000 completed surveys (either online, mail-in, or both). The behavioral goal of 5% residential customer participation was also exceeded by more than 200%. SoCalGas continued collaboration with its Advanced Meter team to explore additional tactics and strategies utilizing bill tracker alerts and Home Energy Reports to continue the participation trend.

By end of 2015, over 120,000 customers were engaged in the online tool suite with some customers advancing to the point of action plan creation (one action plan per account number). Energy Advisor continued to provide survey processing for the PACE Energy Savings Project Program, which provides in-language (Spanish, Chinese, Vietnamese and Korean) outreach to hard-to-reach customers.

SCG3702 Statewide CalSPREE - Plug Load and Appliances

The Plug Load and Appliances (PLA) subprogram merges the previous Home Energy Efficiency Rebate (HEER), Business Consumer Electronics (BCE) and Appliance Recycling (ARP) subprograms. This subprogram develops and builds upon existing relationships with retailers and includes recycling strategies and whole house solutions, plug load efficiency, performance standards, and opportunities for integration with local government, water agencies, and publically owned utilities.

The SoCalGas PLA program achieved success in 2015 through improved and continued efforts with participating retail partners. This included the use of in-store signage, increased program visibility and weekly in-store events with third party retail contractors. In 2015, SoCalGas also managed to increase visibility in hard-to-reach areas through in-store marketing communication and retail store site visits. SoCalGas' PLA program transitioned rebate processing from a third party vendor to an in-house department in 2015, improving both processing time and streamlining check payments. An online application was also made available to help aid in processing. Additionally, SoCalGas introduced select Energy Star[®] certified dishwasher measures and a default cold water clothes washer into the PLA program.

SCG3703 Statewide CalSPREE - Plug Load and Appliances

The Plug Load and Appliance (PLA) program is a merger of the former HEER, BCE, and ARP programs. This subprogram develops and builds upon existing point of sale retailer relationships and includes Responsible Appliance Disposal (RAD) appliance recycling strategies. PLA Point of Sale (POS) offers instant rebates and incentives to customers when they purchase and install Energy Star[®] qualified appliances such as clothes washers. The program has the added benefit of recycling inefficient refrigerators and freezers as well.

In 2015, the statewide PLA team each continued efforts to more effectively and actively recruit and engage both new and existing retail partners. The intent of these efforts was to develop programs and enhance retail store presence in order to increase retailer/customer participation and utility visibility at retail locations. Residential appliance rebate offerings have become the major candidate for future POS program developments. Promotional efforts focused on using consistent statewide point of purchase marketing material and performing weekend local store outreach thereby setting the foundation for new targeted promotions and more retailers to participate in the future.

The SoCalGas PLA program continued to meet and exceed both annual and program cycle goal savings and objectives. Much of this success was due to the Point of Sale program delivered through participating “big box” retailers. Additional in-store events throughout 2015 helped aid

in spreading awareness of the incentive program. SoCalGas outreach representatives visited a minimum of six participating POS stores each weekend from January through early December 2015. As a result, participating “big box” retailers reported consistent sales of qualifying POS appliances during the various 2015 promotions.

SCG3704 Statewide CalSPREE Multifamily EE Rebates

The Multifamily Energy Efficiency Rebates (MFEER) Program offers rebates to multifamily (MF) building owners and managers for installation of qualified EE products in apartment dwelling units and in common areas of apartment complexes, condominiums, and mobile home parks. Energy efficiency measures include insulation, water heating, and space heating. In 2015, SoCalGas continued to use the single point of contact approach to outreach and assisting customers with forms and program information. The relatively low cost of gas compared with the high cost of eligible equipment, resulting in longer payback periods, has proved to be a challenge in generating program interest. For this reason, the single point of contact was expanded through the use of a consultant. The consultant was tasked with using their resources to outreach and enroll customers in the various multifamily programs, resulting in a pipeline being set up for 2016. In addition, SoCalGas continued to outreach to the multifamily sector via tradeshow, events, print ads and coordination with other SoCalGas multifamily programs, such as Energy Savings Assistance, Middle Income Direct Install, and Whole Building MF.

SCG3705 Statewide Energy Upgrade California Home Upgrade

Energy Upgrade California[®] Home Upgrade Program (HUP) uses a holistic approach to identify and correct comfort and energy-related deficiencies in single family detached homes. Contractors employ building science principles and use advanced diagnostic equipment to detect the cause of home performance related problems, and quickly and accurately address them. There are two options to this program, Home Upgrade and the Advanced Home Upgrade. These options allow customers to choose from a variety of measures that best suit both their home and personal needs. Examples of measures used include attic insulation, air sealing, duct testing, heating, ventilation, and air conditioning (HVAC) change out, hot water heaters, pipe wrap, thermostatic shower valves, and combustion safety testing.

By partnering with the three IOUs and two municipalities in 2015, SoCalGas HUP exceeded unit and therm goals in the shared territory with PG&E, SDG&E, SCE, Los Angeles Department of Water and Power (LADWP), and the City of Burbank. In conjunction with the other IOUs, SoCalGas continued to work closely with program participants to identify and resolve application and process challenges through desktop procedure review practices, improved inspection processes, and additional training to contractors. Independent of those efforts, SoCalGas continued its efforts to streamline program reporting requirements, train realtors/appraisers in EE and recruit, and train contractors.

The program continued to face implementation barriers in 2015. As expected, high customer project costs continued to be a barrier for participation. One of these issues that contributed to this is that financing options available to customers of all credit levels was not always available.

There were also not enough contractors in the program to complete the amount of projects expected by the State. The other challenge in implementation was the continuous change experienced by the program to align with Regional Energy Network (REN) and other IOU programs in order to eliminate confusion with customers and contractors within the surrounding territories.

Energy Upgrade California[®] Multifamily (MF HUP) is a joint program for SoCalGas and SCE; it is an extension of the existing statewide program. The primary purpose of the program is to test performance based approaches in the multifamily housing retrofit market by assisting property owners and managers with making informed decisions regarding energy reductions and savings for their properties. It promotes long-term energy benefits through comprehensive EE 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. The program utilizes professional energy consultants to perform energy audits using approved multifamily audit tools and procedures to evaluate potential EE measures based on a least-cost and maximum benefit approach customized to each property's specific needs.

SoCalGas' MF HUP program reached its unit goal for primarily as a result of the use of the single point of contact (SPOC) approach. Property owners embraced the SPOC and the assistance provided by the program consultants. By paying for property audits, the programs managed to remove a large barrier to participation.

The following implementation barriers or issues were encountered: access to investment capital and insufficient return on investment; cost of eligible measures; and delays due to processing as a result of program rules and site visits.

Middle Income Direct Install (MIDI) is a direct install program for customers whose income falls between 201% and 300% of the federal poverty guidelines. It works in collaboration with the Energy Savings Assistance (ESA) program using ESA contractors to initiate leads for MIDI, with a goal of enrolling 2,000 units per year. To close the financial gap, no-cost measures are installed, thereby reducing the total amount of money a customer would need to invest in their property in order to participate in HUP or the MF HUP program.

As designed, the MIDI program was able to serve all eligible customers requesting service in SoCalGas' territory. This was greatly achieved by leveraging the knowledge and experience ESA Program contractors have acquired by providing service to residential customers and applying it to the MIDI-eligible customer segment. Despite this success, the program was not able to achieve its unit goal in 2015 due to the small number of gas measures offered, issues with owner and tenant coordination, and general contractor administrative challenges. The following other implementation barriers or issues were encountered: program documentation and requirements; time required for tenants and/or owners; and contractor infrastructure.

SCG3706 Statewide Residential Upstream HVAC Incentive

The Residential Upstream HVAC Incentive Program design is modeled after the commercial upstream HVAC incentive program. Incentives are provided to upstream market actors for the

sale of high-efficiency residential HVAC systems in IOU service territories, with measures covering air-conditioning units and natural gas furnaces. Manufacturers and distributors are offered incentives on high efficient 96% AFUE and 97% AFUE natural gas furnaces. Through its third party vendor, SoCalGas was able to recruit three distributors to participate in the upstream incentive program. SoCalGas will be looking to add additional manufacturer and distributor participants in 2016.

Initially, SoCalGas experienced delays in implementing the program during 2015 due to the transition of rebate processing from a third party vendor to a new internal rebate processing system. Customer data requirements from the manufacturers and distributors were also an issue due to difficulty involved with obtaining customer information from contractors. The Residential Upstream Program continued to evolve and SoCalGas remained committed to looking for ways to engage and increase participation in the program.

The Residential Quality Installation Program (QI) addresses residential installation practices to ensure that equipment is installed and commissioned above industry standards.

The QI program was successfully launched during the second half of 2015 with eight contractors signing up to participate, delivering a total of nine QI completed jobs during the year. SoCalGas continued to work individually with the Statewide IOU HVAC Committees and the Western HVAC Performance Alliance (WHPA) on all statewide program implementation plans and maintained engagement on existing programs through the use of industry feedback. In addition, SoCalGas continued to work with SCE to determine energy savings and cost-effectiveness of measures by climate zone.

Slow uptake from contractors willing to participate in the program, coupled with the time involved in creating a QI training program, led to implementation delays during the first half of 2015. Cost and Title 24 enforcement proved to be prohibitive program barriers as the added cost of quality installation and permitting requirements led customers to choose a less expensive installation. The Residential QI program continued to evolve and SoCalGas remained committed to identifying strategies to increase contractor participation.

The Residential Quality Maintenance Development Program addresses residential and commercial maintenance practices to ensure that equipment is serviced per industry standards and that maintenance efforts support the long term strategic goal of transforming the trade from commodity-based to quality-based. The program follows the Air Conditioning Contractors of America (ACCA) 4 Maintenance Standard. In 2015, the program continued research efforts to identify viable measures and determine the cost-effectiveness of implementing a Residential Quality Maintenance program.

The SoCalGas Residential Code Compliance Program attempts to drive compliance improvement efforts, focusing on key decision points in the code compliance process that are common for all change-outs, and provides financial incentives to market actors.

The Residential Code Compliance Program was successfully launched during the second half of 2015 and focused on nine cities in the Coachella Valley. SoCalGas managed to recruit six of the

nine cities during the initial launch with the remaining three cities showing strong interest. Although initially slow, customer and distributor program participation increased during the fourth quarter of 2015. The program experienced initial hesitation from the participating cities due to misconceptions regarding the level of involvement required for participation in the program. As a result of the late launch in 2015, the program was unable to enroll distributors within the time frame required to meet the rebate application deadline. Multiple distributors expressed interest to participate in 2016.

SCG3707 Statewide California Advanced Homes

The California Advanced Homes Program (CAHP) is a comprehensive residential new construction concept with a cross-cutting focus on sustainable design and construction, green building practices, EE, and emerging technologies. Through a combination of education, design assistance and financial support, the CAHP works with building and related industries to exceed compliance with the California Code of Regulations, Title 24, Part 6, Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Standards), to prepare builders for changes to the Standards and to create future pathways beyond compliance and traditional energy savings objectives. Participation is open to single-family as well as low-rise and high-rise multi-family residential new construction built in an IOU service area.

CAHP continued its success in 2015, managing to accumulate sufficient energy savings and unit participation to surpass 2013-2015 Program Cycle targets. The residential new construction market continued its success despite a decrease in CAHP enrollment after the implementation of the 2013 California Code of Regulations, Title 24, Part 6, and Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Standards), which was released July 1, 2014. In conjunction with the changes to building code, CAHP launched a new program which better aligns with state efforts to get all new homes to Zero Net Energy (ZNE) by 2020.

The major barrier for 2015 continued to be the ratcheting down on Title 24 standards as the State approaches ZNE goals. Also the measures necessary to reach qualification were more difficult to implement and involve whole building design changes. The statewide CAHP team was addressing these concerns through strategic statewide program efforts geared towards working directly with the builders and design teams to help them reach these targeted measures.

During 2015, the program switched from a “percent better than code” approach to a system modeled on California’s Home Energy Rating System (HERS) design rating, allowing the program to capture all energy end uses within a home’s envelope. Including additional energy uses was crucial for the program as energy savings opportunities were quickly dwindling from Title 24 regulated loads. Additionally, including all energy end uses allowed the program to become a driver in the effort to reach Zero Net Energy for all new homes.

Statewide Commercial Energy Efficiency Program

The Statewide Commercial Energy Efficiency (CEE) 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

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. 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 consists of six core statewide subprogram 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.

SCG3708 Statewide CEE - Energy Advisor

The Commercial Energy Advisor program utilizes outreach initiatives and data driven interactive tools designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

In 2015, the non-residential audit program continued to work towards enhancing the audit tools to incorporate easily identifiable integrated energy savings recommendations when possible. The program also continued to conduct onsite comprehensive assessments that aim to identify therm savings opportunities through the deemed and calculated programs.

SCG3709 Statewide CEE - CEI

Continuous Energy Improvement (CEI) is a non-resource comprehensive energy management program designed to make energy an organizational priority for customers by employing change management and process improvement strategies to energy management resulting in energy efficiency projects, and driving savings. Energy Advisors provide strategic energy management coaching, consulting, and training. Program milestones for each engagement include forming an energy management team, creating a baseline model of energy intensity, conducting organizational and American Society of Heating, Refrigerating and Air-Conditioning Engineer (ASHRAE) Level 1 assessments, creating a prioritized pipeline of measures, setting an energy reduction goal, developing and plan to reach the goal, and adopting a strategic energy management.

One barrier to modeling energy savings in commercial buildings is the potentially high cost of modeling to the relatively low potential savings at these less energy intensive sites. The CEI ongoing measurement and verification (M&V) effort offered an opportunity to demonstrate that valid energy models and savings could be established across multiple, similar sites, thereby reducing costs by aggregating savings. As a result, the program implementer was able to model energy savings by normalizing meter data against multiple variables, including weather, occupancy, calendar variability, and production metrics. Additional work was being conducted to quantify the impact of CEI permeating beyond the original sites engaged, demonstrating that

program influence was both pervasive and sustained. One participant spread energy messaging and implemented energy saving actions at multiple sites beyond the original engagement.

The identification of measures resulting in a pipeline of bankable projects was a valuable component of CEI. In all, 244 projects were identified and prioritized by program participants supported by their energy advisors and from ASHRAE Level 1 and 2 assessments. As a non-resource program that requires a significant time commitment, it was difficult to convince customers of the value of participating.

The most notable change to the program in 2015 was the incorporation of an on-going M&V phase for participants from the previous year. This included collecting and modeling data for baseline regression models and a “light touch” engagement with the customer, tapering back interactions from weekly to monthly and adopting a more hands-off approach that would allow for the collection of information.

In addition to on-going M&V, baseline modeling and data acquisition capable of supporting M&V was integrated into new engagements. Full access to energy and energy driver data was made a prerequisite to participation. This enabled program implementers to establish meaningful energy baseline models using normalized meter data early in the engagement and proved useful in communicating the value and progress of CEI to stakeholders.

An assessment of energy management resources, often referred to as an “organizational assessment” is an integral component of the CEI engagement. This function had been fulfilled with the use of a proprietary assessment tool in previous program cycles. In 2015, the program implementer transitioned to a more flexible and robust assessment tool aligned with the Consortium for Energy Efficiency Minimum Elements of Strategic Energy Management programs.

SCG3710 Statewide CEE - Calculated Incentives

The Calculated Incentives subprogram offers incentives for customized new construction, retrofit and retro-commissioning energy efficiency projects. It also provides comprehensive technical and design assistance. Incentives are paid on the energy savings above and beyond baseline energy performance, which include state-mandated codes, federal-mandated codes, industry accepted performance standards, or other baseline energy performance standards. This program also includes the Savings by Design (SBD) subprogram, which serves the commercial new construction segment. SBD promotes integrated design by providing owner incentives, design team incentives, and design assistance to participants who design spaces that perform at least 10% better than Title 24. This program is offered in collaboration with SCE and LADWP in the respective shared territories.

The Calculated Incentives Program also offers the Retro-Commissioning (RCx) subprogram. The goal of the RCx subprogram is to assist customers in reducing their operating costs through cost-effective energy savings, focused on the identification and implementation of low-cost / no-cost operational improvements and on optimizing how existing equipment operates as an integrated system.

In 2015, through the continued utility partnerships, SCE, the SBD subprogram captured a myriad of project types. In 2015, SoCalGas' SBD participation rates remained steady and the program developed dynamic customer program offerings to serve customers of all sizes. SBD coordinated with a number of internal and external stakeholders to understand the program's successes and possible improvements for re-design. The statewide group collaborated closely to work through any challenging issues that builders, designers or customers faced.

SoCalGas continued its collaboration with both SCE and the LADWP in implementing two RCx programs within the utilities' shared service territories. For these SoCalGas collaborations, both LADWP and SCE act as the "lead utility" in implementing these co-funded programs.

As with previous years, the RCx program has experienced reduced uptake in RCx projects due to the implementation of an approach which requires the customer to contract with their own RCx provider for an audit instead of the audit being conducted by IOU-contracted RCx providers. The change in the program business model was intended to encourage customers to move forward with implementing RCx projects, rather than just taking advantage of a "no cost" RCx audit of their facilities, which historically did not always lead to action on the part of customers. The new RCx program approach was designed to increase the success rate in moving projects from the audit phase to the measure-implementation phase. It also encouraged the RCx provider to be responsible in meeting all program requirements and project timelines in order for deliverables to be approved. These enhancements provided motivation to both the customer and the RCx provider to complete projects in a timely manner.

The Custom Measure Project Archive's parallel review process and program guidance changes continued to be a common issue with customers and trade professionals. The additional time and expense of complying with increasingly complex program requirements was a hurdle for customer participation. SoCalGas participated in the *ex ante* parallel review and incorporated lessons learned into program design during the year. Also in 2015, SoCalGas used a post installation review to "true-up" savings for custom projects and provided training and performed quality control procedures in order to screen out ineligible projects. Continuous review was performed to improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the Energy Division's *ex ante* review team. Despite these efforts, the program did not meet its 2015 savings goals.

SCG3711 Statewide CEE Deemed Incentives

The Commercial Deemed Incentives Subprogram offers rebates to customers in an easy to use mechanism to offset the cost of off-the-shelf energy saving equipment to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit/measure.

The program's objective is to stimulate plumber and contractor participation in energy efficiency rebates. The primary goal of the upstream program is to influence the water heater upselling and stocking of distributors by providing them a rebate directly to them.

In 2015, marketing outreach was enhanced for both food service equipment vendors as well as non-food service equipment. The launch of SoCalGas' TradePro directory has resulted in increased application participation.

The program had several changes that took effect in 2015. One of these was the implementation of a midstream delivery approach. The commercial griddle offering was changed from a per unit rebate to a per square foot rebate to stimulate program participation. The combination oven offering was also changed from a single tier to a three tier incentive structure to help customers overcome cost barriers and realize energy savings by retrofitting or replacing their existing equipment. The pressureless steamer offering was also adjusted to provide a higher incentive to stimulate customer participation.

The Commercial Deemed program exceeded projected 2015 savings goal objectives due to the combination of the Upstream Program and the Midstream Commercial Water Heater Rebate Program. A therm exchange mechanism partnership with SCE was also a valuable savings contributor.

SCG3712 Statewide CEE - Commercial HVAC

The Commercial HVAC subprogram delivers a comprehensive set of midstream and upstream strategies that builds on existing programmatic, educational, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality-driven market. Upstream HVAC Equipment Incentive offers incentives to distributors who sell qualifying high-efficiency commercial HVAC equipment to increase the stocking and promotion of such equipment.

In 2015, the program continued to evaluate new technologies and associated equipment categories such as those with higher tiers for packaged equipment. Additionally, incentive levels were re-balanced based on CPUC dispositions and market feedback for incremental measure costs and category volume.

Commercial Quality Installation (C-QI) addresses commercial installation practices to ensure that equipment is installed and commissioned per industry standards. In 2015, the Commercial HVAC Quality Installation Contractor Education and Customer Awareness programs were based on ACCA standards. ACCA staff and other industry stakeholders in the Western HVAC Performance Alliance collaborated to validate the market transformation groundwork being laid and ensure that quality installation standards could be verified in the field in a sustainable fashion for Commercial HVAC. Continued participation in monthly Western HVAC Performance Alliance subcommittee meetings were held to discuss input and feedback regarding improvement to the C-QI program. Duct distribution system and air balancing savings evaluation also took place in 2015.

Commercial Quality Maintenance (C-QM) addresses commercial maintenance practices to ensure that equipment is serviced per industry standards and that the maintenance efforts support the long-term strategic goal of transforming the trade from commodity-based to quality-based. 2015 saw the continued participation in monthly Western HVAC Performance Alliance

subcommittee meetings. These meetings served as a platform by which input and feedback regarding improvement to the C-QM could be voiced and discussed. Contractor forums were also held to solicit direct input on program design improvement.

Overall, in 2015, SoCalGas continued to evaluate new technologies and other related equipment for the Upstream Equipment Incentive. It also assessed a consultant proposal for the Commercial HVAC Quality Installation Contractor Education and Customer Awareness program based on ACCA standards. SoCalGas also collaborated with ACCA staff and other industry stakeholders in the Western HVAC Performance Alliance to validate the market transformation groundwork being laid and to ensure that QI standards could be verified in the field in a sustainable fashion for Commercial HVAC.

Statewide Industrial Energy Efficiency Program

The Statewide Industrial Energy Efficiency (IEE) Program provides services to improve the energy efficiency of industrial facilities in California. The primary services offered to industrial customers include:

- Energy audits covering EE and demand management opportunities;
- Technical assistance in measure 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 are based on deemed energy savings by per unit of equipment and calculated energy savings by per unit of energy.

The Statewide Industrial Energy Efficiency Program includes four statewide subprogram elements that together comprise the core product and service offerings. Each IOU 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.

SCG3713 Statewide IEE - Energy Advisor

The Industrial Energy Advisor subprogram utilizes outreach initiatives and data driven interactive tools designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

The nonresidential audit program continued to work towards enhancing the audit tools to incorporate easily identifiable integrated energy savings recommendations when possible. The program also continued to target the industrial sector by conducting onsite comprehensive assessments that aim to identify natural gas saving opportunities through the deemed and calculated programs.

SoCalGas continued to work with water organizations, such LADWP and Riverside, to understand how to expand the gas component of water energy efficiency within the respective organizations.

SCG3714 Statewide IEE - CEI

Industrial Continuous Energy Improvement (CEI) subprogram is a consultative service that is aimed at helping industrial customers engage in long-term, strategic energy planning. CEI helps customers better manage energy using a comprehensive approach that addresses technical and management/behavioral improvement opportunities and creates sustainable practices through a high-level commitment from executive-level management.

During the 2015 program period, the Industrial CEI program enrolled six new industrial customers in one-on-one engagements. Industrial sectors participating in the program included metal die casting, corrugated fiberboard manufacturing, roofing tile manufacturing, processed food manufacturing, and metals fabrication. Technical and organizational assessments found opportunities for energy savings through capital improvements and operational changes. The Industrial CEI program assisted each of these customers develop a comprehensive strategic energy management plan. The participants' purchasing process began to include considerations and methodologies to justify energy efficient equipment. The participants worked with the utility account representatives to drive projects identified as part of the CEI program such as adding insulation to steam lines, reclaiming steam condensate, compressed air optimization, adding occupancy sensors, and demand response participation. The identification of measures resulting in a pipeline of bankable and prioritized projects proved to be a valuable component of CEI.

The Industrial CEI program also continued working with seven selected customers from the 2013-2015 Industrial CEI program. Activities included continuing to track energy use using key performance indicators, reviewing and updating their strategic energy plans, and assisting customers implement energy savings measures.

The heightened focus on measurement and verification (M&V) with an emphasis on quantifying savings made establishing valid baseline energy models for every site a high priority. This produced great insights, but came with a set of challenges. Most prominently, identifying potential energy drivers and obtaining accurate data for the baseline periods, now years in the past. Program implementers had to balance available resources against the effort required to conduct additional research. Ongoing M&V with one of the six prior participants at a large industrial site was halted due to the customer's perception that they had no more to gain from the program, and because the program implementer was unable to acquire the requisite data to conduct the baseline analysis.

Baseline modeling and data acquisition capable of supporting M&V was integrated into new engagements. Full access to energy and energy driver data was made a prerequisite to participation. This enabled program implementers to establish meaningful energy baseline models using normalized meter data early in the engagement and proved useful in communicating the value and progress of CEI to stakeholders.

An assessment of energy management resources, often referred to as an “organizational assessment” continued to be an integral component of the CEI engagement. This function had been fulfilled with the use of a proprietary assessment tool in previous program cycles. In 2015 the program transitioned to a more flexible and robust assessment tool aligned with the Consortium for Energy Efficiency Minimum Elements of Strategic Energy Management programs.

Overall, the program assisted customers in implementing energy savings measures and in accessing available resources including deemed rebates, custom energy efficiency incentives, and third party programs. Energy savings measures implemented included traditional equipment retrofits as well as overhead and maintenance (O&M) and behavior-based savings measures. In addition, the program created statistically valid models by leveraging readily available data and industry accepted methods to measure and verify O&M savings not captured by traditional measures.

SCG3715 Statewide IEE - Calculated Incentives

The Industrial Calculated Incentives subprogram offers incentives for customized retrofit and retro-commissioning (RCx) EE projects. The 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.

Heat recovery and boiler measure type projects were large contributors of energy savings for the Calculated Incentives subprogram. Continued activities such as energy audits of facilities, walk through surveys, and technical assistance for this sector resulted in recommendations for EE projects with calculations/estimates of energy savings for exceeding Title 24 code or industry standard practice baselines. Despite these efforts, the program did not meet its 2015 savings goal.

The Calculated Incentive subprogram is as complex as the projects it attempts to influence, due to the unique nature of the projects and the particular needs of the segment it is attempting to serve. The increasing complexity of the program was found to adversely impact participation.

For the overall Calculated Incentive subprogram, SoCalGas participated in the *ex ante* parallel review and incorporated lessons learned into program design. SoCalGas used a Post Installation Review to “true-up” savings for custom projects. SoCalGas provided training and performed quality control procedures in order to screen out ineligible projects. Continuous review was performed to improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the Energy Division’s *ex ante* review team.

SCG3716 Statewide IEE - Deemed Incentives

The Statewide Industrial Deemed Energy Efficiency subprogram provides services to improve the energy efficiency of industrial facilities in California, including offering financial incentives based on deemed energy savings. The energy savings are deemed for measures installed. The program is part of a suite of programs within the Statewide Industrial Energy Efficiency Program. It also features rebates per unit measure for installed energy-saving projects and provides the IOU, 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. The subprogram also offers rebates to customers in an easy-to-use manner to offset the cost of off-the-shelf energy saving equipment.

The Industrial Deemed Energy Efficiency Program directly addressed key market factors that led to higher energy costs for California businesses. By providing a menu of prescribed common measures, this simplified the process of reviewing project proposals and provided a "per-widget" rebate that reduced the cost of retrofitting outdated and inefficient equipment. This element made it attractive for customers to spend money in the short run in order to achieve lower energy costs in the long run. Pipe and tank insulation and steam process boiler measures were the focus for deemed energy savings in 2015 for the industrial sector, however, the program fell short of the projected 2015 savings goal.

Using itemized EE measures was intended to overcome barriers that prevent many business customers from adopting EE alternatives. The barriers were addressed by itemizing common EE 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.

Statewide Agricultural Energy Efficiency Program

The Statewide Agricultural Energy Efficiency (AEE) Program facilitates the delivery of integrated energy management solutions to California's agricultural customers. The program offers a suite of products and services, such as 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 CLTEESP.

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. Due to North American Industry Classification System (NAICS) designations, food processors have traditionally received IOU services through the Industrial program offering. However, there are those facilities with on-site processing that are integrated with 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 subprograms.

SCG3717 Statewide AEE - Energy Advisor

The Agriculture Energy Advisor subprogram utilizes outreach initiatives and data driven interactive tools designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

The nonresidential audit program continues to work towards enhancing the audit tools to incorporate easily identifiable integrated energy savings recommendations when possible. The program also continued to target the agricultural sector by conducting onsite comprehensive assessments that aim to identify gas savings opportunities through the deemed and calculated EE programs.

SCG3718 Statewide AEE - Continuous Energy Improvement

Agricultural Continuous Energy Improvement (CEI) subprogram is a consultative service that is aimed at helping agricultural customers engage in long-term, strategic energy planning. CEI helps customers better manage energy using a comprehensive approach that addresses both technical and management improvement opportunities and creates sustainable practices through a high-level commitment from executive-level management.

The 2015 program did not involve new engagements but continued the review, evaluation, and analysis of the engagements that were begun during 2013-2014. Two agricultural facilities were engaged in a pilot program to determine the issues, needs and priorities of the agricultural sector for energy efficiency. Both of those engagements were at individually owned and managed companies and were focused on improving operations of family-owned farms and facilities. One was involved in citrus (orange) growing while the other was a pistachio grower who also had a dairy operation. Both are on the board of cooperatives which handled the processing and distribution of their orchard crops and both introduced the program facilitators to ways in which cooperative facilities can assist with outreach and education in the agricultural community. Because cooperatives bring together a number of farmers, they represent a significant opportunity for outreach and for sharing of best practices related to energy management.

The two engagements are similar to other agricultural operations involved with growing crops. The availability of water is currently the over-riding consideration for these facilities. Energy is primarily used for water pumping and is currently much less of a concern compared to water.

SCG3719 Statewide AEE - Calculated Incentives

The Agricultural Calculated Incentive subprogram offers incentives for customized retrofit and retro-commissioning energy efficiency projects. The program also provides comprehensive technical and design assistance.

In this sector, water-energy nexus efforts were identified in areas that use natural gas engines as the source to deliver and treat water. Flood-to-drip measures were also identified as viable custom measures to understand the relationship between water and natural gas.

In addition to this work, SoCalGas supported activities such as symposiums and floriculture forums conducted in this sector. SoCalGas also signed a memorandum of understanding with

the Los Angeles Metropolitan Water District to co-manage programs that cover water-energy nexus activities. SoCalGas participated and sponsored numerous water-energy nexus events; one event that stood out was the California Irrigation Institute Conference. The event looked at how water and energy utilities can work together to explore solutions to the drought.

During 2015, SoCalGas utilized a project checklist to further document early involvement in the project development process and standardize verification of project post-installation results. SoCalGas also provided training, and performed quality control procedures in order to screen out ineligible projects. In addition, a team was created to continually review and improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the Energy Division's *ex ante* review team. The program, however, did not meet its 2015 savings goals.

SCG3720 Statewide AEE - Deemed Incentives

The Agricultural Deemed Incentive Subprogram offers rebates to customers in an easy-to-use mechanism to offset the cost of off-the-shelf energy saving equipment.

The program kept focus on replacing existing energy efficient natural gas equipment, and encouraging customers to move up to higher-than-standard efficiency models when purchasing additional equipment. The deemed rebate offering provided 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 or measure. The program also coordinated its activities with SoCalGas account executives and Commercial and Industrial service technicians to present energy efficiency program details to their customers.

The program fell short of the projected 2015 savings goal objectives. Overall the deemed measure selection is small for this customer-base with much of the selection being based on electric water pumping. The most popular incentive measures in the program were the Greenhouse Heat Curtain and Greenhouse Infrared Film. SoCalGas continued to investigate possible deemed options for gas-powered engines.

Statewide Emerging Technologies Program

The Statewide Emerging Technologies Program (ETP) supports the California IOU energy efficiency programs in their achievements of aggressive objectives through three subprograms. The Technology Development Support subprogram supports efforts in increasing technology supply by educating technology developers on technical and programmatic requirements for rebated measures. The Technology Assessment subprogram supports the IOU EE programs by identifying and assessing the performance of emerging EE technologies and solutions that may be offered to customers through the IOU EE programs. The Technology Introduction subprogram supports efforts to introduce technologies to the market by exposing end-users to applications of emerging technologies in real-world settings, and by using third party projects to deploy technologies on a limited scale in the market.

The ETP is focused on identification, assessment, and support for commercialization of energy-reducing technologies for residential, commercial, agricultural and industrial customers. The program is committed to helping achieve California's energy-reduction goals by screening potential technologies, assessing them to validate performance and customer acceptance, performing in-situ demonstrations and recommending the proven “winners” for promotion in IOU energy efficiency programs.

ETP uses a number of tactics to achieve the objectives of its three subprograms. Some of the key tactics are described below, but each tactic may be used to achieve any of the subprogram objectives, and this list is not comprehensive.

In 2015, SoCalGas' ETP initiated or continued significant work on approximately 25 projects, including five Scaled Field Placements and two Demonstration Showcases. Two of the 2015 projects were focused on ZNE or deep retrofit related technologies. Building types addressed in 2015 included residential, low income, multi-family, restaurants, and community centers. Reports on the completed projects will be made available to external stakeholders and the general public via the ETCC website.

SCG3721 Statewide ET - Technology Support

The Technology Development Support (TDS) subprogram provides assistance to private industry in the development or improvement of technologies. Although product development is the domain of private industry, there are opportunities where IOUs can undertake targeted, cost-effective activities that provide value in support of private industry product development efforts. ETP support and guidance can reduce innovator uncertainties and allow them to move forward with promising products. ETP looks for and solicits opportunities to support EE product development, i.e. the process of taking an early-stage technology or concept and transforming it into a saleable product. ETP uses several activities to support technology developers, including, participating in industry, academic and government agency organizations focused on EE technology development and delivery and using leads gained there to work with the developers directly or leveraged with the organizations. Periodically, ETP holds the Technology Resource Incubator Outreach (TRIO) symposium, which provides support and networking for EE and DR entrepreneurs, investors, and universities with the goal of providing participants the necessary perspective and tools to work with IOUs and ultimately introduce new EE measures to the marketplace. ETP may also participate in market and behavioral studies to investigate customer needs in targeted sectors and estimate customer reaction to new technologies and solutions. The key activities ETP engages in include product efficiency and functionality testing, as well as industry communication and collaboration. These activities are often conducted on an ad hoc basis as windows of opportunity arise.

ETP's TDS activities in 2015 included:

- Staying current of statewide HVAC initiatives;
- Collaborating with industry both directly and through partners, including but not limited to, the Western Cooling Efficiency Center, the Gas Technology Institute, Electric Power Research Institute (EPRI), Energy Solutions Center (ESC), and Consortium for Energy Efficiency (CEE), in order to provide targeted support for technology development;

- Collaborating with innovators from universities and other research institutions such as the California Institute of Technology (CalTech)/Department of Energy (DOE) First Look West (FLoW) program and the associated Rocket Fund, whose goal is to provide funding and entrepreneurial education for academic innovators starting cleantech companies;
- Scanning technology innovations and providing technical and commercial advice to help hasten and promote the development and commercialization of new energy saving products;
- Completing a laboratory home test and comparison of the performance and energy savings of a compact versus conventional furnace, to address ZNE technical and market needs;
- Completing three research papers with the University of California at Davis on promising gas emerging technologies, including: polymer bead laundry technology, gas engine heat pump technology and condensing rooftop package HVAC units;
- Collaborating with the Emerging Technologies Coordinating Council (ETCC) and IOUs on various statewide ETP-related activities. Through ETCC, ETP engaged with collaborators who were interested in funding cost-effective EE measures;
- Participating and engaging with industry stakeholders in CEC's Public Interest Energy Research (PIER) solicitations and projects;
- Continuing an active partnership with LADWP in a strategic approach to integrate and leverage electric and gas utility efforts to achieve the state's EE goals;
- Assisting a developer in the advance of a compact gas flowmeter with telemetry intended for cost-effective appliance gas use measurement and potential energy savings and control applications;
- Completing a confidential report on the results of development and testing of a gray water recycling invention intended for market entry by a national chain restaurant.
- Supporting a manufacturer-developer in the development of a retrofit sensor and cloud-based control for improving energy performance of residential water heaters; and
- Assisting a stove manufacturer in testing a new demand control stove product in real restaurant settings to validate savings, gain market acceptance and discover practical design improvement ideas.

SCG3722 Statewide ET - Assessment Support

Through the Technology Assessment Support (TAS) subprogram evaluates energy efficient measures that are new to the market (or underutilized for a given application) for performance claims and overall effectiveness in reducing energy consumption. A key objective of these assessments is the adoption of new measures into SoCalGas' EE portfolio, where assessment data is used to develop the required work papers to introduce new EE measures. Historically, technology assessment has been a core strength of ETP and has been critical to EE program success. ETP assessments may develop and utilize data and information from different sources including: in situ testing (customer or other field sites), laboratory testing, or paper studies used to support assessment findings.

In 2015, SoCalGas' TAS initiated or continued significant work on approximately twelve Technology Assessments, several of which are progressing through the stage gate process to become EE measures. These and additional ETP activities in 2015 included:

- Collaborating with IOU and non-IOU partners and scanning a wide variety of sources to identify suitable assessment candidates;
- Designing and overseeing laboratory and field demonstration technology assessments to gather new technology performance data;
- Producing reports describing TAS results, conclusions and recommendations, and communicating these to internal and external (e.g. the ETCC) stakeholders for use in new EE measures;
- Participating in and providing guidance and input to internal stage gate process used to screen and prioritize measure development for EE incentive programs;
- Completing additional technical studies of prior assessment results for the variable frequency drive hot water recirculation pump controller;
- Providing additional technical support and information to interested parties on the test results of an HVAC fan stop delay, retrofit kit for residential and small commercial HVAC units;
- Providing technical support and direction to the SCG3769 3P-Portfolio of the Future (PoF) program;
- Conducting lab evaluations for a shower drain heat recovery technology;
- Leveraging CEC PIER funding for a low-income housing EE retrofit study in cooperation with EPRI;
- Continuing a field test and an advanced scaled field test of the NEST smart thermostat in single family residences in collaboration with PoF to support its use in future EE incentive programs;
- Initiating a deep retrofit project for a commercial kitchen using multiple emerging technologies to realize integrated benefits including energy and operational savings.
- Leveraging two CEC Pier projects with Fisher-Nickel to showcase restaurant water heating equipment and cooking equipment, to realize integrated benefits, including energy and operational savings.
- Initiating a CEC Program Opportunity Notice (PON) Project with EPRI to demonstrate an industrial low temperature heat recovery system using an Organic Rankine Cycle, an underutilized but mature heat recovery technology;
- Providing technical support to a DOE-funded demonstration of micro-combined heat and power in a restaurant;
- Participated in initial support of a CEC PON Project to understand and improve solar thermal water heating and cost-effectiveness;
- Participating in a project with Navigant, GTI, Nicor and others to assess a residential ozone laundry application, designed to eliminate hot water and detergent use;
- Assessing a commercial laundry dryer retrofitted with a moisture sensor and 2-stage burner controls to reduce energy use;
- Testing various types of tankless water heaters in conjunction with five different smart hot water circulators in laboratory and single family residence environments to determine energy savings and performance;
- Providing technical support to a field demonstration of a heat recovery system from rooftop air conditioners used to preheat hot water in a restaurant environment; and
- Completing field work of a water and energy nexus behavioral study with UC Davis' Center for water-energy efficiency and the City of Burbank.

SCG3723 Statewide ET - Technology Introduction Support

Technology Introduction Support (TIS) subprogram supports the market introduction of new and existing but underutilized technologies to the market, on a limited scale, through several activities. These activities included:

- Scaled Field Placements consist of placing a measure at a number of customer sites as a key step to gain market traction and feedback. Typically, these measures have already undergone an assessment or similar evaluation to reduce risk of failure. Monitoring activities on each scaled field placement are determined as appropriate;
- Demonstration and Showcase (DS) projects, designed to provide key stakeholders the opportunity to carefully examine proven combinations of measures that advance CLTEESP and ZNE goals. DS projects introduce measures to stakeholders at a system level and in real-world settings. Potential customers gain knowledge about applications and installations and the projects help create broader public and technical community exposure;
- Market and behavioral studies are designed to perform targeted research on customer behavior, decision making, and market behavior to gain a qualitative and quantitative understanding of customer perceptions and acceptance of new measures and of market readiness and the potential for new measures; and
- TRIP solicits third-party projects (of up to \$300,000) to deploy emerging technologies on a limited scale to the market.
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In 2015, ETP's TIS activities and projects included:

- Completing a commercial near-ZNE showcase integrating several energy savings and emerging technology applications at a LEED Platinum community center at the Playa Vista commercial and residential complex;
- Completing an additional installation and field test of an EnergyStar Fryer to complete a scaled field placement (17 fryers) enabling market transformation of technology acceptance in the restaurant sector. Using the fryer energy and operational savings results, ETP developed a technical brief to promote the product and increase stakeholder awareness, which resulted in a significant increase in product rebate claims by customers;
- Implementing with GTI a combination hydronic space heating and water heating scaled field placement project in 30 homes;
- Completing the scaled field placement (field work portion) of a commercial space heating boiler reset controller;
- Fully engaging with the statewide ETCC, participating in quarterly meetings and presentations, advising on website management and other technology implementation support activities, and hosting/organizing the ETCC Third Quarter Meeting at the SoCalGas Energy Resource Center; and
- TRIP solicitation to introduce emerging technologies in limited amounts into the market.

Statewide Codes & Standards Program

The Statewide Codes and Standards (C&S) Program saves energy on behalf of ratepayers by influencing standards and code-setting bodies, such as the California Energy Commission (CEC) and the Department of Energy (DOE), to strengthen EE regulations by improving compliance

with existing C&S, assisting local governments to develop ordinances that exceed statewide minimum requirements, and coordinating with other programs and entities to support the State's ambitious policy goals. C&S Program advocacy and compliance improvement activities extend to virtually all buildings and potentially all appliances sold in California.

Key Initiatives

Throughout 2015, SoCalGas collaborated with the Statewide C&S Team to complete work on the 2016 building code cycle, including adopting of 2016 Building Energy Efficiency Standards in June. In addition, SoCalGas commenced research in support of the 2019 code cycle.

SoCalGas supported new appliance efficiency standards at both the state and federal levels. New Title 20 Appliance Efficiency Regulations included water appliances in response to California's drought. New DOE final rules were adopted for three (3) measures in 2015: (1) General Service Fluorescent Lamps; (2) Automatic Commercial Ice Makers; and (3) Single Package Vertical Air Conditioners and Heat Pumps.

In addition, five final terms sheets adopted by DOE Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) Working Groups of which the statewide team was a member: (1) Commercial HVAC products; (2) Commercial Fans and Blowers; (3) Walk-in coolers and freezers; (4) Miscellaneous refrigeration products; and (5) commercial warm air furnaces.

The C&S Program team continued to support compliance improvement education and training for building codes, and expansion into appliance standards.

Successful Program Strategies

Support for state and federal building codes and appliances standards continued to move California towards residential zero net energy (ZNE) by 2020, nonresidential ZNE by 2030, and the Governor's goal to reduce building energy usage by 50 percent.

Compliance improvement activities contributed to Title 24 compliance rates that exceed 100 percent, and compliance rates for appliance standards between 80 percent and 90 percent. Building efficiency and appliance standard advocacy efforts, and higher than expected compliance rates, resulted in significant energy savings attributable to the C&S Program. Net C&S savings were approximately half of total net portfolio savings.

Increased scrutiny on the Codes & Standards Enhancement (CASE) studies required additional data collection. These efforts included field studies, product testing, test procedure creation and Case studies. This resulted in stronger CASE studies and more stringent standards.

Implementation Challenges

Increasing scrutiny by stakeholders to CEC and DOE rulemakings continued to compel increasing rigor to achieve success. Greater rigor was achieved by increasing research (lab testing, field surveys, etc.), which increased costs. The complexity of building codes and the number of appliance standards continued to increase. DOE standards for new product categories continued to increase preemption of state appliance standards and constrain prescriptive

baselines for building codes, thereby limiting opportunities to California to require increased cost-effective savings.

The 2013 Title 24 Code that became effective July 1, 2014, has been difficult to implement due to late availability of software, software glitches and subsequent software updates. In addition, the 2013 version had one of the largest increases in stringency of any previous code cycle. The CEC made the decision early in the 2013 Title 24 Code update to implement a new platform for modeling buildings. This new platform CBECC-Res and CBECC-Com for residential and commercial buildings was a major change for the industry. Title 24 Code complexity necessitated many additional job aides such as fact and trigger sheets to explain code to users. The audience requiring training increased and now includes architects and designers, commissioning agents and acceptance test technicians, electric distribution inspectors. This required an increase in the training modules.

Opportunities Moving Forward

There are several opportunities to improve the quality of advocacy in support of state and federal building codes and appliance standards through increased primary research. In addition to further expansion of Title 24 education and training, significant energy savings may be achieved by expanding support for appliance standards. Looking ahead, code simplification will be increasingly important. New reach codes may be developed based on 2016 building codes now that software has stabilized. In addition to further expansion of Title 24 training, tools, and EnergyCodeAce.com capabilities, significant energy savings may be achieved by continuing to expand support for appliance standards. Involving Compliance Improvement during the initial advocacy stage of code development will result in improved compliance rates and smoother implementation.

SCG3724 Statewide C&S - Building Codes & Compliance Advocacy

The Building Codes Advocacy subprogram primarily targets improvements to Title 24 Building Efficiency Regulations that are periodically updated by the CEC. The subprogram also seeks changes to national building codes that impact California building codes through ASHRAE and other national groups. 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 (e.g., the National Fenestration Rating Council, and the Cool Roof Rating Council). These efforts support the governor's goal to increase building efficiency by 50 percent.

In 2015, the C&S Team commenced preparations for the 2019 code cycle to ready itself for expected CEC proceedings. Activities included developing and coordinating projects that are collecting energy savings, cost-effectiveness, and feasibility information for new heating and cooling technologies. The new technologies under development include hydronic systems and mini-splits as well further improvements to building envelope air quality and water heating. These measures are critical for achieving ZNE-ready low rise residences by 2020.

The subprogram also supported post-adoption prerequisites to improve future implementation of 2016 Title 24 building energy and CALGreen standards. Activities included improvements to

the Performance Method software and development of a software training program, and edits to the CEC Residential and Nonresidential Title 24 Compliance Manual.

During 2015, the subprogram conducted efforts to harmonize state and national building codes. Activities included a major rewrite of ASHRAE Standard 189.1 (Standard for the Design of High Performance Green Buildings) to allow a “dual path” approach where one path is able to allow above federal minimum equipment efficiencies without violating federal preemption law. Proposed lighting control credits for Institutional Tuning for ASHRAE 189.1 in parallel to recommending a similar Institutional Tuning lighting Power Adjustment Factor for the 2016 T-24 standards. Addressing issues raised by stakeholders in the ASHRAE process and approval by the ASHRAE committee assisted in securing CEC staff’s support for this measure. This ASHRAE 189.1 green building standard also adopted bi-level parking lot lighting controls similar to those in the 2013 Title 24 which eased adoption of this measure into ASHRAE Standard 90.1 (Energy Standard for Buildings Except Low-Rise Residential Buildings). The C&S team worked with the national energy code development process to assure that daylighting code requirements are aligned between the two ASHRAE building standards and Title 24. In conjunction with Pacific Northwest National Laboratory (PNNL), the C&S team was involved in developing requirements in ASHRAE 189.1 and 90.1 for card key or occupancy control of lighting, HVAC and ventilation of hotel and motel guest rooms.

SCG3725 Statewide C&S - Appliance Standards Advocacy Narrative

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 and specifications by the DOE, Environmental Protection Agency (EPA) ENERGY STAR[®], and the Federal Trade Commission. Advocacy activities include developing Title 20 code enhancement proposals, participating in the CEC public rulemaking process, submitting comment letters based on IOU research and analysis in federal standards proceedings, and participating in direct negotiations with industry. The program also monitors state and federal legislation and intervenes, as appropriate. During 2015, the C&S program advocated for changes to Title 20 Appliance Efficiency Regulations. Activities included the following:

- Participated in several CEC webinars and workshops regarding “Phase 1”, “Phase 2”, and “Phase 3” topics rulemaking;
- Developed and submitted response to CEC’s invitation to participate and a data request for 18 products: consumer electronics, lighting and water products, commercial clothes dryers, air filter labeling, spas and pool pumps, motors and heaters;
- Completed laboratory testing for several topics, with results submitted as part of the CASE studies. Additional testing pursued for further support of the rulemaking;
- Developed and submitted 1 Title 20 CASE study to the CEC on shower heads; and
- Facilitated industry and advocate stakeholder meetings for twelve topics.

Additionally, C&S advocated for changes to federal appliance standards. Activities included the following:

- Researched and responded to specific issues related to federal rulemaking and specification processes conducted by the DOE, EPA ENERGY STAR®, and the Federal Trade Commission;
- Participated in several stakeholder meetings during rulemakings and specifications process, resulting in 53 rulemaking advocacy letters issued in 2015. The results of these efforts will be determined in future years;
- IOU Advocacy letters issued in previous years influenced rulings on six Federal Measures took effect in 2015: (1) Small Electric Motors; (2) Residential Central Air Conditioners; (3) Residential Clothes Dryers; (4) Residential Clothes Washers; (5) Residential Water Heaters; and (6) Residential Weatherized Gas Furnaces; and
- Participated in DOE’s Appliance Standards and Rulemaking Federal Advisory Committee working groups with DOE, industry, and other stakeholders.

SCG3726 Statewide C&S - Compliance Enhancement

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 C&S 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. Achieving satisfactory compliance with the codes is a crucial requirement for capturing the code related energy savings 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 and provides a solid foundation for future robust advocacy efforts.

During 2015, the subprogram expanded training modalities to increase the depth and breadth of educational offerings and audience reach. This included:

- Decoding Talks: Monthly 90-minute online discussions on specific topics targeted at Building Department Personnel and contractors;
- On-line Self Studies: Provide opportunity for building industry to complete training at their convenience ;
- Virtual Classes: Instructor-led, interactive, web-based classes eliminating travel time and expenses; and
- Customized delivery of traditional classes for larger building departments such as City of LA, and San Francisco in collaboration with BayREN.

Another successful implementation activity was the development and maintenance of tools to aid compliance improvement practitioners in implementing the code including:

- Navigator Ace: Provides a step-by-step guide to the Title 24, Part 6 compliance process;
- Forms Ace: Aids in determining which compliance forms are applicable to your specific project;
- Installation Ace: A “field guide” to assist in identifying proper installation techniques and visual aids for some components commonly installed incorrectly;

- Reference Ace: Helps you navigate the Standards using key word search capabilities, hyperlinked tables and related sections; and
- Crack the Code Workshops: Workshop packages to help Building Departments facilitate trainings for local installation contractors.

The subprogram expanded outreach efforts to increase consumer and building industry’s awareness of code requirements, and the Energy Code Ace website through participation in over 30 industry events reaching more than 31,000 total participants. It also created a host of other outreach resources, including:

- Trigger Sheets: Measure-based sheets that identify and define the code requirements that are triggered when a change is made to a building;
- Fact Sheets: Define the essential requirements, considerations and required forms for specific energy code measures;
- Infographics; and
- Checklists: Provide step-by-step guidance for plans checks and field inspections.

The program streamlined work processes as it developed a new Title 24 Summary Compliance form (NRCC-PRF-01-E) form and transformed more than 20 prescriptive compliance forms to an electronic format using input from practitioners and building departments that reduced complexity and provided guidance regarding the forms required to be submitted for a given building project.

Additional touchpoints with partners included work to finalize and administer 2013 residential and nonresidential Certified Energy Analyst (CEA) exams resulting in over 160 CEAs to date. The program also focused on teaching CASE authors and CEC to apply user-centered design approach when developing 2016 compliance manuals.

SCG3727 Statewide C&S - Reach Codes

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 Reach Codes subprogram provides technical support to local governments that wish to adopt ordinances that exceed statewide Title 24 minimum EE requirements for new buildings, additions, or alterations. Support for local governments includes research and analysis for establishing performance levels and cost-effectiveness relative to Title 24 by Climate Zone, drafting 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.

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 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, National Fenestration Rating Council, Collaborative for High Performance Schools, and the United States Green Building Council. Additionally, the program intervenes in ENERGY

STAR[®] and other voluntary activities to shape future regulations or support coordination with voluntary programs.

The subprogram executed several successful program strategies during 2015. To begin with, the staff worked with local jurisdictions to prepare the way for adoption of codes that exceed 2016 Title 24 as part of the normal three year cycle of local jurisdiction adoption of California Uniform codes. It also initiated preparation of cost-effectiveness studies to support the adoption of Cool Roof Reach Code ordinances by the City of Los Angeles, City of Pasadena, and County of Los Angeles, respectively. The studies will address product cost, energy savings, cost-effectiveness, and GHG reductions to support reach code requirements for residential and nonresidential Cool Roofs in all 16 Climate Zones.

Working with the CEC, the CALGreen ZNE Tier was developed which will be the basis of 2016 Reach Codes including ZNE. Key to the ZNE tier is the Energy Design Rating which calculates the Time Dependent Valuation all energy consumed or exported by the building. The Energy Design Rating is an extension of the Title 24 performance method simulation software, CBECC-res. The C&S team gathered supporting information and participated in algorithm development for this simulation tool.

SCG3728 Statewide C&S - Planning Coordination

The Planning and Coordination subprogram works with the CEC, CPUC, Emerging Technologies, Workforce Education and Training, rebate and other voluntary programs, to conduct strategic planning in support of the Strategic Plan policy goals, including ZNE goals for new construction. As part of the expanded outreach and communications efforts, the C&S Program maintains a C&S collaborative, and continues to facilitate the statewide Compliance Improvement Advisory Group. In addition, the C&S Program maintains regular contact with state and federal code-setting agencies to minimize duplication of efforts and coordinate activities.

During 2015, the Planning and Coordination subprogram conducted tactical planning in support of the CPUC's residential ZNE policy goal. Activities included development of a draft plan, review by CPUC and CEC staff, and revisions to the draft plan based on these inputs. The team also developed a standing statewide cross-functional conference call to improve coordination communication with other groups within the IOU EE portfolio. In addition, the subprogram staff collaborated with the WE&T statewide team on training calendar offerings for building industry community and training for community colleges on 2013 Title 24 code requirements.

Statewide Workforce Education & Training Program

The Statewide Workforce Education and Training (WE&T) Program represents a portfolio of education, training, and workforce development planning and implementation coordinated with the IOUs: PG&E, SCE, SDG&E, and SoCalGas. Education and training are vital components of each of the IOU's energy efficiency portfolio.

SCG3729 Statewide WE&T Centergies

The WE&T Centergies Subprogram 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.

During 2015, SoCalGas WE&T Centergies conducted 184 training/seminar sessions, 100 outreach consultations, and 257 equipment demonstrations. SoCalGas achieved these goals while taking steps to adjust its portfolio offerings to include Integrated Demand-side Management (IDSM) curriculum, identifying partners to expand training experience with more demonstration lab work, and use of more hands-on field tools.

SoCalGas expanded its relationships with local water agencies such as Metropolitan Water district, Department of Water and Power, Anaheim Water and Power on mutual interests of water conservation, energy education and energy efficiency training. SoCalGas also worked closely with several natural gas industry associations to conduct classes targeting plumbers, installers, and repairmen of natural gas equipment to upgrade, advance and increase the quality of energy efficiency knowledge. In 2015, SoCalGas WE&T Centergies expanded the Building Operator Certification training sessions and webinar series to commercial building operators and engineers in cooperation with the Los Angeles Department of Water and Power (LADWP), offering two partnered sessions that included LADWP personnel. Along with the statewide IOUs, relationship building with labor and apprenticeships as part of a more collaborative training strategy began taking shape in 2015.

With 2013 Building Energy Efficiency Standards in effect since 2014, and 2016 standards (Adopted June 2015) ready to go into effect January 2017, an increased number of lecture and hands-on courses were offered through 2015 in support of policy that will rely greatly on increasing code changes to achieve energy savings. These sessions were coordinated with the endorsed support of the SoCalGas statewide Codes & Standards program to target contractors, installers, inspectors and home energy raters to education them on the new residential and commercial Title 24 Energy Efficiency Standards. WE&T intensified Title 24 offerings to provide the broadest reach and access to knowledge and information for compliance. SoCalGas added building science classes in conjunction with the existing Codes & Standards offerings.

In 2015, the IOU statewide WE&T program again offered several hundred seminars and equipment presentations, as well as live cooking demonstrations through the foodservice branded ‘California Energy Wise’ campaign.

SoCalGas and intermediaries such as Los Angeles Job Corp’s Home Building Institute and Los Angeles Trade Technical College continued to connect to provide exposure to their enrolled adults in the areas of energy efficiency, boiler mechanics, water management, landscape, and facilities maintenance. During evening sessions and four-six week intervals, respectively, participants were educated and trained on how to maintain California- friendly landscape, edible gardens, and succulents.

SCG3730 Statewide WE&T Connections

The WE&T Connections Subprogram is organized around downstream and upstream relationships between the IOUs and the educational sector that support workforce development in EE, energy management, and educating students about green careers. The Connections Subprogram seeks to promote understanding of EE, demand-side management, distributed generation and green career awareness along all educational paths.

WE&T Connections achieves its EE educational goals by working with community-based organizations, state education agencies, educational stakeholders and in conjunction with third party vendors, providing interactive programs, educational materials, assemblies and teacher workshops correlated, as appropriate, to the California Department of Education's content standards, infusing knowledge about EE, DSM, DG and career awareness across California.

WE&T Connections PEAK accomplished the following in 2015:

- 121 schools were enrolled in the SoCalGas/SCE territory
- Of these, 88 (73%) were Title-1 or Free or Reduced Price Meals (FRPM) Schools
- 46% of the schools enrolled in PEAK were new schools
- 54% of the schools were returning schools
- 12,427 students were enrolled in the PEAK program
- 73% of the schools were either low income, inner city or urban campuses

The WE&T Connections PowerSave Campus Program was implemented by the Alliance to Save Energy, who operates at 16 University of California and California State University campuses. SoCalGas funded the University of California at Los Angeles (UCLA) campus.

PSC achieved its deliverables, which included: three to five paid interns working per school each semester/quarter; working directly with E3, the largest student environmental group on campus; and hosting 30 sixth grade students for an energy and sustainability tour at UCLA.

At the high school level, IOUs collaborated with local technology and technical education programs to explore partnerships for the development of enhanced K-12 Career Technical Education, such as Montebello Unified School District's Applied Technology Center.

SCG3731 Statewide WE&T- Strategic Planning

The WE&T Planning Subprogram involves the management and execution of several strategic statewide planning tasks and resulting project implementation actions initiated by the Strategic Plan.

During 2015, SoCalGas WE&T Strategic Planning assessed recommendations on the current statewide program, and preparing for work on a long-term strategic plan for the WE&T program. Many of the recommendations addressed required some change or adjustment to IOU WE&T data collection or operations, while others suggested a need for expanded collaboration with both internal and external stakeholders. IOUs began efforts to build strategic alliances with industry and labor apprenticeships in building construction (framers), International Brotherhood of Electrical Workers and International Association of Plumbers and Mechanical Operators.

During 2015, the IOUs changed the model for the WE&T stakeholder engagement taskforce. The new format included more presentation on responses from IOUs to stakeholder recommendations for the purpose of seeking early and upfront feedback on implementation plans. The new structure also provides a means for creating subcommittee workgroups to take deeper and more detailed assessment of proposed implementation plans from IOUs.

SCG3733 Statewide Marketing, Education and Outreach

In Decision 13-12-038, the Commission established the Statewide Marketing, Education and Outreach (ME&O) Program. The Commission directed that the Center for Sustainable Energy (CSE), formerly the California Center of Sustainable Energy (CCSE), would serve as the program administrator and be independently responsible to deliver results of the program. The Commission also adopted “a governance structure that leaves the details of running the statewide marketing campaign to the CSE, but also provides for strong oversight by the Commission and the California Energy Commission (CEC), while also allowing the utilities and others to provide input, advice, and collaboration.”

The Commission identified the IOUs’ responsibilities including: providing information to CSE in a timely manner; participating in the EM&V roadmap for marketing; coordinating with CSE on local and statewide marketing activities; and raising any issues with the semi-annual marketing plans proposed by CSE. The Commission also directed PG&E to serve as the fiscal manager, on behalf of the IOUs, through a contract with CSE without exercising control of, or modifications to, the overall design of the Statewide ME&O program.

In 2015, SoCalGas coordinated with CSE to ensure consistency between the statewide marketing program and the local marketing efforts conducted by SoCalGas. SoCalGas also provided collaborative feedback on campaign strategy, prioritization of marketing topics, and collateral.

SCG3734 Statewide IDSM Program

The California Energy Efficiency Strategic Plan (Strategic Plan) recognizes the integration of demand-side management (DSM) options, including EE, demand response (DR), and distributed generation (DG), as fundamental to achieving California’s strategic energy goals. To support this initiative, the IOUs have identified integrated demand-side management (IDSM) as an important strategic DSM policy priority and have proposed a series of activities, pilots and other programs in response to the Strategic Plan DSM Coordination and Integration Strategy.

A Statewide IDSM Task Force was formed in 2010 and has continued coordinating activities that promote, in a statewide fashion, the strategies identified in the Strategic Plan and the eight program integration directives as follows:

- 1) Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes greenhouse gas (GHG) and water reductions benefits and the potential long-term economic and electric/gas hedging benefits.
- 2) Development of proposed measurement and evaluation protocols for IDSM programs and projects.

- 3) Review IDSM-enabling emerging technologies for potential inclusion in integrated programs.
- 4) Development of cross-utility standardized integrated audit tools using PG&E's developed audits as a starting point.
- 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., evaluation, measurement, and verification, cost-benefit results).
- 6) Development of regular reports on progress and recommendations to the CPUC.
- 7) Organize and oversee internal utility IDSM strategies by establishing internal Integration Teams with staff from EE, DR, DG, marketing, and delivery channels.
- 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 programs are coordinated with EE integrated marketing efforts.

Statewide IDSM:

The following is the current status by the four IOUs of the eight IDSM program directives:

- Further efforts on developing integrated cost-effectiveness and EM&V methodologies are on hold pending direction from the Energy Division.
- The Task Force tracked multiple integrated emerging technologies and reviewed various programs, projects, IDSM Pilots and activities to identify integration efforts and opportunities, as well as to develop best practices.
- The IOUs submitted four, joint quarterly reports for 2015, including an executive summary section, to provide Energy Division staff with updates on the eight IDSM directives. All quarterly reports were uploaded and available for viewing on California Energy Efficiency Statistics Data Portal (EE Stats).
- The statewide IDSM Task Force held regular coordination phone calls.
- The IOUs have developed well established processes ensuring delivery of integrated messaging via marketing, education and outreach to residential and business customers. Delivery of IDSM marketing has become more than just promotion of multiple programs within specific tactics like collateral or websites; it is now a key component in the planning phases of integrated marketing, education and outreach to help provide the right solutions to the right customer, at the right time.
- The IOUs have coordinated on a Statewide basis in several areas:
 - The SW Online Integrated Audits team continues to coordinate to deliver a consistent online integrated audit tool that works with each IOU interface and educates customers on managing their energy use costs.
 - The Onsite Integrated Audits team continues to collaborate to share approaches and best practices and to discuss ongoing collaboration. The IOUs continue to offer onsite integrated audits to small, medium and large customers.

SoCalGas IDSM:

Through a Single-Point-of-Contact (SPOC) strategy, SoCalGas' enrolled the largest multifamily property in California (with more than 4,000 units) in SoCalGas' and LADWP energy efficiency programs, including the Multifamily Home Upgrade Program. The property retrofit included the replacement of all 60-year old boilers with new high efficiency models. This integrated IDSM

project was jointly funded by SoCalGas and LADWP. Through the SPOC, SoCalGas also served multiple large portfolios of multifamily properties, including those operated by the Housing Authority of the City of Los Angeles (HACLA). With SoCalGas' assistance, HACLA properties received multiple gas measures at no cost, and also received water rebates from LADWP. The work done with the utilities culminated in HACLA receiving the "Portfolio of the Year Award" from the Los Angeles Better Buildings Challenge.

SoCalGas maintained its successful relationships with other utilities to deliver IDSM solutions that encompass multiple fuel sources (gas, electricity, and water). To date, the IDSM initiative has delivered 23 joint program agreements. SoCalGas continued working with SCE and PG&E to deliver joint programs and services in the statewide programs. In addition, SoCalGas launched five new joint gas, electricity, and/or water programs with LADWP, one new program with the Metropolitan Water District, one new program with Anaheim Water and Power, and two new programs with Pasadena Water and Power in 2015.

Through its Sustainable Communities effort, SoCalGas continued working with the master-planned Playa Vista development, and many of the properties in Playa Vista were enrolled in SoCalGas' residential and nonresidential new construction programs. The LEED-platinum community center, which also received support from SoCalGas' Emerging Technologies program, was unveiled in August 2015.

SoCalGas' IDSM program continued to work closely with the Energy Savings Assistance (ESA) Program to refine communication and coordination strategy to ensure that customers, particularly multifamily ones, receive comprehensive services and incentives regardless of the occupants' income qualification. The use of SoCalGas' multifamily account executives allowed SoCalGas to serve multifamily portfolios more effectively by helping customers navigate through potential issues and hurdles, such as program qualification and application process. SoCalGas also conducted numerous joint EE and ESA marketing sessions in 2015, including participation in 146 residential events and 38 business events.

SoCalGas continued to expand its capabilities in delivering comprehensive customer solutions via its partnership programs. For example, with the Comprehensive Food Service Program, SoCalGas processed both gas and electric rebates for food service customers in the city of Los Angeles.

SCG3735 Statewide On-Bill Financing

Statewide On-Bill Financing (OBF) offers interest-free, unsecured, on-the-utility-bill loans that work in conjunction with utility energy efficiency programs. It is designed primarily to facilitate the purchase and installation of qualified energy efficiency measures by non-residential customers who may lack up-front capital to invest in real and sustainable long-term energy cost reductions. Loan terms range from up to five years for commercial customers and up to ten years for government agency customers. The eligible loan amount is based on the project cost, less incentives or rebates, up to the loan maximum of the OBF product and within the loan term thresholds. Customer loans are repaid through a fixed monthly installment on their utility bills.

There is no prepayment penalty and loans are not transferable. Partial or non-payment of loans could result in shut-off of utility service.

During 2015, the OBF program continued working with SoCalGas customer representatives and equipment vendors to encourage customers to participate. The OBF program marketing materials were refreshed in various marketing brochures as well as SoCalGas' EE webpage promoting SoCalGas' energy efficiency programs. The OBF program was closely coordinated with the Local Government Partnerships and Institutional Partnerships on a number of local and state government projects. By the end of year, four energy efficiency projects were financed through OBF.

The key implementation barrier for natural gas-only OBF continues to be the long payback periods for natural gas equipment. Project payback periods for most gas projects tend to be much longer than the five -year maximum required for business projects to qualify.

There were no program design changes to the OBF program in 2015. However, in 2013 the OBF Program was reclassified by the California Public Utilities Commission as a resource program. The Commission has indicated more information is necessary to support a work paper that can address energy savings related to Financing Programs, so at this juncture, SoCalGas does not have energy savings to report for 2015. The Commission indicated that actual energy savings will be determined through its evaluation, measurement and verification studies. In 2015, OBF continued to serve as a funding mechanism for other energy efficiency programs and, as such, helped other programs meet their program objectives.

SCG3736 ARRA Originated Financing

The American Recovery and Reinvestment Act (ARRA) Originated Programs utilize ratepayer funds to support the continuation of successful ARRA-funded programs. The ARRA programs were originally designed to encourage the implementation of comprehensive energy efficiency retrofits by providing access to affordable financing options. SoCalGas provided support in 2015 for the following two ARRA continuation finance programs:

- **emPowerSBC:** emPowerSBC is a comprehensive single-family residential financing program administered by the County of Santa Barbara and a joint co-funding effort among PG&E, SCE, and SoCalGas. The program receives funding for various programmatic activities including marketing and workforce training within the Santa Barbara, Ventura, and San Luis Obispo counties (Tri-Counties). Additionally, there is a credit enhancement budget of up to \$1 million for a loan loss reserve (LLR).^[1] emPowerSBC provides unsecured loans for homeowners to implement home energy upgrades resulting in lower energy usage, reduced utility costs, and increased indoor comfort. The program leverages both ARRA and ratepayer-funds to create a public-private partnership among the County, all eight incorporated cities within the

^[1] An LLR provides reimbursement to a financial institution only in the event of a default on a qualifying loan, up to a give percentage on a portfolio of loans. IOUs provide LLR funds and set eligible energy efficiency measures. Financial intuitions provide capital for EE loans.

County, Energy Upgrade California Home Upgrade Program, and two competitively selected local credit unions.

- **The City of Los Angeles:** The ARRA Property Assessed Clean Energy (PACE)/Los Angeles Better Building Challenge (LABBC) Assistance Program was initially launched and funded in 2011 as a joint effort between Los Angeles County and the City of Los Angeles using ARRA grant funds. The City marketed the program, provided free audits, and created a Debt Service Reserve Fund for property owners in the City of Los Angeles using its ARRA funds. The County acted as the Program administrator creating the legal documents and the assessment district, issuing PACE bonds to investors and providing the payment mechanism through the property tax system.

Since 2012, PACE has been implemented jointly with Los Angeles Department of Water and Power (LADWP) as the Energy Efficiency Technical Assistance Program (EETAP), part of the LABBC. LABBC is a part of a national leadership initiative sponsored by the Department of Energy which calls on public and private sector leaders to take action and demonstrate the benefits of modernizing America's existing buildings.

Promoting Commercial PACE is a key element to the success of the LABBC. PACE financing offers another avenue for the commercial, industrial and multi-family property owners within the City of Los Angeles to fund energy efficiency, renewable energy and water-saving improvements on-site. PACE financing is paid back twice a year through an assessment on the property taxes. Financing is tied to the property through the property tax system, and if the property is sold, the repayment obligation transfers to the new owner. PACE financing can fund up to 100% of the project's installed costs, eliminating the need for upfront capital for the project. In 2015, the Program continued to offer PACE workshops to engage with building owners/operators and provided project pre-qualification, application, and development assistance.

SCG3737 New Financing Offerings

The IOUs are currently developing a set of statewide financing pilot programs that offer scalable and leveraged financing products and that test market incentives in the form of credit enhancements and on-bill repayment for attracting private capital.

The pending pilots consist of the following on-bill repayment (OBR) programs: Small Business OBR Loan Program; Small Business OBR Lease Program; Non Residential OBR without Credit Enhancements (CE) Program; Master-Metered Multi-Family OBR Program; and the Residential Energy Finance Line Item Charge (EFLIC) Program. (The EFLIC Program is only offered in PG&E's service territory.) The pilots also consist of two off-bill programs: Single Family Loan Program (a.k.a., Residential Energy Efficiency Loan Assistance Program or REEL) and Off-Bill Small Business Lease Providers Program.

The pilots will include ratepayer-supported credit enhancements (CEs) for residential properties and small businesses. The CEs are expected to provide additional security to third-party lenders and private capital so they can extend or improve credit terms for EE projects.

The Financing Pilots will be administered by the California Alternative Energy and Advance Transportation Financing Authority (CAEATFA). REEL, the first program is scheduled to launch in the 1st Quarter of 2016 and the OBR programs are scheduled to launch late 2016.

SCG3803 California Hub for EE Financing

The California Hub for Energy Efficiency Financing (CHEEF) is designed to support seven new statewide financing pilots. The CHEEF infrastructure coordinates the flow of third-party private capital to fund energy improvements, manage the availability of project, loan, and energy consumption data, and ensure a streamlined process for program participants. Key components of the CHEEF infrastructure includes a Master Servicer responsible for the day-to-day administrative operations of the program, a trustee bank responsible for holding and transferring ratepayer funds used for credit enhancements, a contractor manager that provides quality assurance and control (QA/QC) for finance-only projects, and data manager that will make anonymized and aggregated program data available to the public.

In Decision 13-09-044, the Commission requested the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) to take on the role as CHEEF manager. CAEATFA is responsible for administering the CHEEF which includes developing program regulations for the Financing Pilots, operationalizing program processes and forms, and managing outreach efforts to both contractors and financial institutions. A contract was executed by the IOUs and CAEATFA in September 2014. SoCalGas is the lead utility for the Financing Pilots Program and lead contract administrator for the CHEEF agreement.

In 2015, CAEATFA made significant progress towards building out the CHEEF infrastructure. CAEATFA approved contracts with the Master Servicer in April 2015 and a trustee bank in March 2015. CAEATFA, IOUs, and the Master Servicer worked to develop a comprehensive data exchange protocol that outlines, in detail, file formats, number and types of files to be exchanged, frequency of submissions, procedural requirements, and a secure process to transfer files. CAEATFA and the IOUs opened holding accounts with the trustee banks for ratepayer-funded credit enhancements for the Residential Energy Efficiency Loan (REEL) Assistance Program. Additionally, the IOUs successfully created a new uniform Customer Information Service Request form customized to fit program needs which will allow customers to authorize the release of energy usage data for the life of the underlying loan. During 2015, CAEATFA approved emergency REEL regulations which established programs rules for financial institutions, contractors, and customers to participate. Loan enrollment will proceed after additional IT infrastructure is developed to enable enrollment of participating financial institutions and lenders.

In June 2015, the CPUC issued Decision 15-06-008 in response to a CAEATFA request for program changes. As a result, the Commission approved the pilots to operate for a full 24 months after the enrollment of the first loan for each pilot, removed the competitive bid process requirement for lease providers in the lease pilot, and allowed energy service agreements as an eligible financial product.

During 2015, SoCalGas was actively involved in supporting CAEATFA with establishing the CHEEF infrastructure. SoCalGas helped CAEATFA draft REEL program regulations, create the statewide data exchange protocols, and conduct contractor outreach. SoCalGas managed the CHEEF agreement including administration of quarterly invoicing and reporting activities. SoCalGas led efforts to amend the CHEEF agreement to meet program and administrative objectives.

Institutional Partnerships

Institutional Partnerships are designed to create dynamic and symbiotic working relationships between IOUs, state or local governments and agencies or educational institutions. The objective is to reduce energy usage through facility and equipment improvements, share best practices, and provide education and training to key personnel. The 2015 statewide partnership portfolio focused strongly on supporting the key CLTEESP. The Institutional Partnerships also concentrated on innovative delivery channels and funding mechanisms to meet current economic conditions, and achieve program integration and energy savings.

The 2015 Institutional Partnerships leveraged its past successes and strived to enhance offerings to meet the unique challenges of the institutional partners. SoCalGas has developed a collaborative working relationship with a variety of institutional customers to advance EE. These partnerships enabled customers to focus on conservation, demand response, load shifting, and renewable energy within their facilities. In doing so, the partnerships assist institutional agencies to comply with the state's CLTEESP and specific state mandates.

SCG3738 California Department of Corrections and Rehabilitation/IOU Partnership

The California Department Corrections and Rehabilitation (CDCR)/IOU partnership is a statewide energy efficiency partnership that accomplishes immediate, long-term energy efficiency and establishes a permanent framework for sustainable, long-term comprehensive energy management programs at CDCR institutions served by California's four IOU's.

This partnership capitalizes on the vast opportunities for efficiency improvements and utilizes the resources and expertise of CDCR and IOU staff to ensure a successful and cost-effective partnership. The partnership leverages the existing contractual relationship between CDCR and energy service companies (ESCOs) to develop and implement energy projects in CDCR facilities.

Regular management team meetings and Executive Team meetings among partners are critical in identifying and managing projects, and to proactively addressing any potential partnership challenges. CDCR uses about 58% of the energy consumed by state agencies under the Governor's executive authority; however, CDCR's budget for implementing energy efficiency projects is minimal. With the CDCR/IOU EE Partnership, efficiency projects can be identified and implemented through the On Bill Financing program and incentives for EE measures offered

by the IOUs. Together, the CDCR's ESCO process and the IOUs EE Programs have led to the completion of 92 EE projects and an additional 68 projects under development.

The CDCR Partnership faces ongoing funding challenges for EE projects. On Bill Financing has been and remains the primary source of funding and is supplemented by Special Repairs Project funding, which amounts to 3% of CDCR's assessed needs. CDCR has leveraged CEC Revolving Fund Loans, however, these loans carry interest in the range of 1-3%. CDCR has been working directly with the Energy Division to discuss difficulties encountered advancing projects through the Partnership. A number of projects have been placed on hold until resolution is reached on how the ED conducts its technical review of CDCR projects given that CDCR's unique operating conditions differ significantly from other commercial customers. The partners continued to meet with the Energy Division during the fourth quarter of 2015 and will continue to work with them so that projects may continue to be advanced and implemented.

SCG3739 California Community Colleges/ IOU Energy Efficiency Partnership

The California Community Colleges/Investor Owned Utility Energy Efficiency Partnership (CCC/IOU Partnership) is a unique, statewide coordinated partnership with the California Community Colleges (CCC) and California Community College Chancellor's Office (CCCCO) to achieve immediate and long-term energy savings and peak demand reduction within California's higher education system. The goal of this partnership is to create a permanent framework for sustainable, comprehensive energy management at community college campuses served by California's four IOUs.

SoCalGas and the other IOUs have been able to identify EE retrofit, retro-commissioning, monitoring-based commissioning, new construction and emerging technologies opportunities for implementation at California Community Colleges throughout the State of California.

The partnership has a hierarchical management structure to ensure successful implementation. Continuous coordination among partners, at all management levels, is critical to the partnerships overall success. As a result, the management team meets monthly to conduct business at the management level, whereas the executive team meets quarterly to discuss overall program status and policy issues. The Partnership also has an outreach team that focuses its efforts in several areas including: (1) developing a comprehensive list of technologies, project types, and offerings to be used by team members during campus visits to help generate project ideas; (2) evaluating new project technologies for suitability in the Community College market; and (3) planning and participation in CCC conferences.

The CCC/IOU Partnership has also provided extensive outreach and support services to the districts within the CCC system in support of their efforts to identify, develop, and implement projects funded through Proposition 39 (Prop 39). The CCC/IOU Partnership continued supporting CCCCCO with Prop 39 implementation including assistance with project development, dissemination of critical communications and support for multi-year project planning. In addition, the CCC/IOU Partnership extended its outreach efforts to include the deployment of the Prop 39 ZNE Pilot and enrollment to Environmental Protection Agency's benchmarking tool

Portfolio Manager. The partnership continues its success with all 72 districts throughout California participating in the program.

The management team continued working with the CCC Board of Governors on the Energy and Sustainability Award Program, an annual program that awarded excellence in three categories for 2015: Prop 39 Projects, Facility/Student Initiatives, and the Community College Sustainability Champion. This award program will continue in 2016 to recognize the achievements of the CCCs.

Campus Forums were hosted bi-annually at campuses across the State, serving as a venue for districts to share successes and strategies to overcoming obstacles for projects in EE. The CCC/IOU Partnership participated in many Community College conferences such as the CA Higher Education Sustainability Conference and Community College League of California conferences conducting outreach to a diverse audience of facilities, business officers, administration, and board members. In addition, IOU Energy Resource Centers were utilized to conduct training for CCC staff and EE vendors.

Through the availability of funding from Prop 39, the CCC/IOU Partnership has realized significant success in achieving higher levels of energy efficiency. Active projects initiated in 2015 are anticipated to close in the second half of 2016 and remaining active projects initiated in 2013 and 2014 are anticipated to close within the 2016 as well to keep in line with the CCCCCO's requirements.

However, lack of funding at the campuses to develop and implement projects continued to be a common barrier to fund opportunities outside of Prop 39. Even projects with short payback periods or those financed through OBF still need upfront funding that is difficult to allocate within state-funded institutions. In addition, the CCC continues to lack resources in their facilities and maintenance departments that are devoted full-time to energy management and energy efficiency.

SCG3740 UC/CSU/IOU EE Partnership

The University of California/California State University/Investor Owned Utility (UC/CSU/IOU) EE Partnership is a unique, statewide partnership formed to achieve immediate and long-term energy savings and peak demand reduction within California's higher education system. The partnership supports sustainable, comprehensive energy management at campuses served by California's four IOUs.

The partnership has a hierarchical management structure to ensure successful implementation. Continuous coordination among partners, at all management levels, is critical to the partnerships overall success. As a result, the partnership's management team meets every three weeks to conduct business at the management level and the executive team meets quarterly to discuss overall program status and policy issues. The partnership also has a training and education team that organizes various EE trainings targeted to university campuses. In addition to representatives from each IOU, the UC Office of the President and CSU Chancellor's Office each have members on all three program management teams. Inclusion of all Partnership

stakeholders at the various management levels provides the UC and CSU campuses with support in their efforts to implement EE projects.

The Partnership continued implementation by identifying new EE projects at various campuses. IOUs also worked with campuses to enroll projects in the On Bill Financing program. The management team implemented an enhanced project tracking and scheduling approach, giving UC campuses more direct control and responsibility for detailed construction schedules. The IOUs also worked with the CSU campuses to get new CSU Chancellor's Office-funded projects in the pipeline.

The Training and Education Team held various workshops for campus faculty and staff members, including LEED for Healthcare, Exceeding Title 24 workshops, ASHRAE Level 1 Energy Auditing trainings, Building Operation Certification and Certified Energy Manager courses, and an Energy Performance Benchmarking Forum for new construction projects. Management Team members and campus representatives held a UC/CSU Joint Energy Managers meeting as part of the CA Higher Education Sustainability Conference (CHESC), highlighting campus best practices and Partnership program updates. The Best Practices Awards were presented to campuses at the CHESC, to honor successful and cost-effective projects at campuses that implement green building technologies, sustainable design strategies, and energy-efficient operations. The program also created the Best Practices Case Studies for distribution to various parties, promoting the Partnership's statewide successes.

Title 24 implementation and eligibility for previous baseline drove focus towards those projects and delayed other projects not affected by the new 2013 Title 24 code implementation. Projects selected for Energy Division parallel review were often delayed further as implementation schedules and IOU verification were put on holding pending release of ED review.

SCG3741 State of California/IOU Partnership

The State of California/IOU Partnership is a statewide partnership designed to achieve immediate and long-term energy efficiency savings and to establish a permanent framework for sustainable, comprehensive energy management programs at state facilities served by California's four IOUs. This is accomplished by collaborating with the State's Department of General Services (DGS) in establishing a pool of qualified energy service company (ESCO) to help facilitate implementation of energy efficiency projects. In addition, the revival of the Department of Finance Energy \$Mart program provides financing for project opportunities. This level of engagement and establishment of infrastructure are important successes in achieving immediate results along with long term sustainability.

The State of California/IOU Partnership is a continual and collaborative effort to support the DGS to manage projects for departments without contracting authority. In 2015, the Administrative Office of the Courts joined the partnership and is closely working with the IOUs to implement projects in courthouse buildings.

The Department of General Services (DGS) continued to identify projects for its Statewide Energy Retrofit Program; and with IOU support, ensured that the identified projects included EE and utility incentives as an integral requirement for project proposals.

In 2015, the IOUs attended the Sustainable Building Working Group, a State of California working group that consists of agency sustainability managers, with the task of planning and implementing all aspects of the Governor's Executive Order (B-18-12) related to the Green Building Action Plan. The IOUs attended in a supporting role to ensure that agency needs regarding energy data for benchmarking were met. The IOUs also leveraged this platform for agency outreach.

Local Government Partnership

SoCalGas' Local Government Partnership (LGP) is unique, complex and multi-dimensional partnership with local government customers. First, local governments are a distinct customer segment that operates with their own unique challenges and needs related to EE. Second, local governments also serve as a delivery channel for specific products and services when they serve as LGPs. Finally, local governments have a unique role as leaders of their communities. Increasingly, local governments are interpreting their responsibility for community well-being to include reducing GHG emissions, increasing renewable energy usage, protecting air quality, creating green jobs and making the community more livable and sustainable.

The Government Partnership is designed to serve and support local governments in each of their roles. Depending upon the activity, SoCalGas may play a different role with the local government, ranging from service provider to supporter to equal partner. Governments increasingly engage in strategic planning for GHG reduction not only in their facilities (represented in the municipal GHG inventory) but also in the community (analyzed in the community GHG emissions inventory). Opportunities increase for partnerships with utilities to meet mutual goals of energy reduction. These governments not only coordinate and integrate DSM opportunities in each sector or market they influence, but also effectively leverage and promulgate low-income offerings.

SCG3742 LGP-LA County Partnership

The County of Los Angeles Partnership supports the energy reduction and environmental initiatives described in the Los Angeles County Energy and Environmental Plan, adopted in 2008, and the objectives of the California Long Term Energy Efficiency Strategic Plan. EE projects are focused on county-owned, municipal buildings, and consist of lighting, HVAC, retro-commissioning, steam boilers, and Savings By Design new construction projects at each of the 38 County departments served by Energy Management (County Internal Services Department). Additional efforts with the County Office of Sustainability include program support and coordination for Energy Upgrade California Home Upgrade, and Strategic Plan Solicitation activities that expand the County's Enterprise Energy Management Information System (EEMIS), allowing LA County to receive participating city data for analysis to help the city to better manage their energy usage and support the identification of EE opportunities.

The Partnership collaborated with LA County Internal Services Department (ISD) to capitalize on EE opportunities by working with representatives from the 38 County departments served by ISD for energy management services. The partnership also worked together with ISD, Public Works and the Metropolitan Department of Transportation on strategies to develop energy savings opportunities and strategic implementation forecasts.

The Partnership also completed retro-commissioning and other EE projects at several facilities, successfully contributing gas savings to SoCalGas' core EE programs. The partnership continued to promote EE education and outreach by providing information to LA County departments to encourage increased participation in partnership activities and to identify for EE projects with deeper savings opportunities.

The LA County Partnership also supported the migration of local government data for training and use of EEMIS by over 40 local governments for the development of EE activities.

SCG3743 LGP-Kern Energy Watch Partnership

Kern Energy Watch Partnership brings together County of Kern, the cities of Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco, along with SoCalGas, PG&E, and SCE to increase energy efficiency adoption throughout Kern County. The County of Kern serves as the partner implementer and coordinates EE efforts among the partnering cities.

The Partnership implementer changed in January 2015 from the Kern Council of Governments (Kern COG) to the County of Kern. This change was brought about at the request of Kern COG due to increased staffing constraints. The transition to the County of Kern provided an opportunity to refresh goals of the programs and adapt the outreach efforts to attain those goals.

With the County being new in its role as implementer the majority of 2015 was spent getting up to speed with previous goals and strategies identified by the municipalities, re-introducing Kern Energy Watch to them, and beginning a new dialogue about how Kern Energy Watch can help them to plan and budget for energy efficiency projects, how they can take advantage of incentives and rebates as partnership members, and how they can use energy data to help support their push for energy efficiency in their municipalities.

The partnership continued to work to integrate the energy efficiency message into local government activities in 2015. As an example, the County of Kern declared October as Energy Awareness month and presented a declaration as such in the County's Board of Supervisors meeting. The partnership also met with the County of Kern, 4th District Supervisor, to discuss and plan three community outreach events in the district. The partnership participated in the Statewide Energy Efficiency Forum, the Local Government Commission Forum, and the Central and Coastal Partners Workshop.

Besides the work with the local governments, the partnership also worked to directly address the residential customers in the partnering communities. The County of Kern, with funding from Kern Energy Watch Partnership, produced a 30 minute segment titled, Inside Kern – Kern

Energy Watch, to highlight gas and electric EE projects in each of the utility service areas. The program aired on Kern Government Television in Kern County and served to educate the public on what steps the municipalities have taken towards energy efficiency, but also provide energy efficiency tips for residents as well. The partnership continued to guide residents and small businesses to SoCalGas' EE programs through its website (www.kernenergywatch.com).

SCG3744 LGP-Riverside County Partnership

In 2010, the County of Riverside Partnerships intended to assist the County in achieving its green policy initiatives and formulate an integrated approach to energy efficiency. This collaborative effort aims to build an infrastructure that would efficiently deliver cost-effective EE projects to reduce the “carbon footprint” created by County facilities.

The Partnership improves EE in the County’s municipal facilities, leverages utility resources, customized to the Counties unique needs, to advance EE in the partners’ facilities. The partnership also supports the County in meeting the carbon dioxide reduction requirements efforts of Assembly Bill 32, as well as contributing toward meeting Commission energy savings goals and objectives. As part of these efforts, the partnership hosted two Title 24 Workshops for County staff.

In 2015, Riverside County was provided with a Cool Planet Award in recognition of the energy savings achieved countywide. The partnership was able to retrofit several boilers within the County and developed a pipeline of future EE retrofit opportunities throughout the County. The partnership, however, was challenged to support the County with many energy efficiency retrofits because the County is determining their strategic direction and whether to implement projects through an ESCO. Due to the loss of third party programs the county successfully used in the past, it has been difficult for them to launch new EE projects.

SCG3745 LGP-San Bernardino Co IOU Partnership

The San Bernardino County Partnership is a partnership with the County of San Bernardino, SoCalGas and SCE. The Partnership assists the County in achieving its green policy initiatives to formulate an integrated approach to EE. This is a collaborative effort with the aim of building the infrastructure that will efficiently deliver cost-effective EE projects, thus reducing the “carbon footprint” created by county facilities. County facilities are targeted for retrofits, retro-commissioning (RCx) and new construction elements.

The partnership held monthly meetings to discuss program status, project tracking and overall program implementation and coordination issues. In addition, meetings were held regularly with project managers from various county departments to identify opportunities and provide information available on SoCalGas resources and other core program offerings. The top county facilities with the greatest opportunity for reduction in energy consumption were identified and have been targeted for the retrofit, retro-commissioning (RCx) and new construction elements. Leveraging county management staff from various departments including Special Districts, Sheriff, IT, Library, Fire, and Project Managers in Engineering and Architecture Department, has proven to be an effective means in identifying EE opportunities.

SCG3746 LGP-Santa Barbara County Partnership

There are two distinct partnerships for Santa Barbara County- SCEEP and SBCEW:

South - SCEEP

The South County Energy Efficiency Partnership (SCEEP) includes SoCalGas, SCE, and municipal governments within the County of Santa Barbara -- including Santa Barbara County and the cities of Santa Barbara, Goleta, and Carpinteria. The partnership generates energy savings through identification of municipal EE projects, education, training, marketing, and outreach. Cities complete retrofits of their own facilities and conduct community sweeps as well as outreach to residential and business communities to increase participation in core programs. The partnership acts as a portal for all energy offerings including: low income, CARE, demand response, self-generation and the California Solar Initiative. The partnership provides energy information to all market segments, identifies projects for municipal retrofits, and directs customers to existing EE programs. A local non-profit, the Community Environmental Council, provides administrative and programmatic support to the Partners.

Throughout 2015, SCEEP continued to drive city leaders, residents, and businesses toward EE actions through multiple channels. SCEEP partners participated in several community exhibits and outreach events in 2015. SCEEP also hosted two training sessions for municipal partners, on Title 24 2013 Standards and ASHRAE audits in 2015. SCEEP continued to partner with the countywide Green Business program, a voluntary certification program supported by SCEEP.

In 2015, SCEEP also continued to coordinate with the County's emPowerSBC program, which provides flexible term unsecured loans for up to 15 years for home EE upgrades. Since launching in late 2011, the program has generated 1,100 leads, which led to 150 completed home energy projects and \$2 million submitted in loan applications. Through SCEEP's programs, rebates, and payment structures, such as on bill financing, municipal partners were able to pursue the numerous projects.

The SCEEP partnership achieved the following program objectives outline in the 2015 Partnership Work Plan: identifying and implementing municipal energy efficiency projects; providing technical assistance via trainings and audits; and implementation of direct install programs. The partnership also hosted energy manager meetings and participated in community events.

North - SBCEWP

The Santa Maria Valley Chamber of Commerce is the partnership implementer of the (North) Santa Barbara County Energy Watch Partnership (SBCEWP) program. The purpose of the partnership is to assist municipalities and businesses with retrofit options that identify EE and related-cost savings. Partners include SoCalGas, PG&E, the City of Santa Maria, County of Santa Barbara, and the cities of Guadalupe, Solvang and Buellton.

Santa Barbara County Every Watch Partnership program was successful in delivering the EE message to its partners in 2015. The partnership provided \$20,000 to the City of Buellton for EE upgrades in three facilities and a community-wide awareness program. Additionally, a

community-wide survey was distributed to 1,600 households and businesses. The funds also supported the creation of the Buellton Green Scene website to further promote conservation programs in the community. In April 2015, the Partnership coordinated the completion of EE upgrades to a rural school in Cuyama. In the same month, the partnership co-sponsored the annual Earth Day event in Santa Maria, distributing information to residents and businesses at a street fair and electronics recycling drop-off event. In August 2015, the Partnership sponsored and presented at the business mixer reception to kick off the Santa Maria Valley Chamber of Commerce's annual Business Expo.

Three major projects that included EE upgrades, as well as substantial community outreach, were completed in 2015. Two projects from the 2015 plan will carry over into 2016 due to scheduling conflicts with elected officials and partner agencies.

SCG3747 LGP-South Bay Cities Energy Efficiency Partnership

The South Bay Cities' Energy Efficiency Partnership Program is designed to provide integrated technical and financial assistance to local governments to effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that the South Bay communities are more livable and sustainable. SoCalGas EE programs are designed to encourage the South Bay Cities Council of Governments' (SBCCOG's) 16 cities and Los Angeles County Districts 2 and 4 to increase EE in local governments' facilities and their communities. EE is accomplished through eliminating energy waste, which includes retrofitting municipal facilities as well as providing opportunities for the community to take action in their homes and businesses. The partnership provides marketing, outreach, education, training, and community action to connect the community with opportunities to minimize energy use, while saving money and helping the environment.

During 2015, the Partners met monthly to provide updates regarding projected energy saving projects. The Partners included SoCalGas, SCE, and SBCCOG's other agency partners which consist of West Basin Municipal Water District (West Basin), City of Torrance Water, Los Angeles County Sanitation District, and Los Angeles County Metropolitan Transportation Authority. Inclusion of all of SBCCOG's agency partners allowed for an expanded audience and cross-agency information sharing that led to enhanced joint opportunities in reducing energy use through water conservation, recycling, and transportation.

In 2015, SBCCOG staff continued work on the implementing the adopted energy action plans as cities have been working on their EE projects. SBCCOG staff scheduled and coordinated pre- and post-event support for 143 community exhibits, business meetings, presentations, and workshops throughout the SBCCOG's service area in 2015. Also included in the SBCCOG's service area is the 15th Council District for the City of Los Angeles which SoCalGas customers were provided with gas savings and program information.

Overall, the Partnership continued to have great success in promoting the SoCalGas residential EE Kit program. SBCCOG staff also continued to issue press releases to local papers in the South Bay region; the SBCCOG was very successful in these efforts. SBCCOG incorporated more outreach strategies using social media, such as exchanging re-tweets and sharing partner

information. Lastly, the partnership maintained the vendor cart/kiosk during 2015 and displayed current SoCalGas. Through the Green Building Challenge, the SBCCOG has provided education to over 100 businesses on SoCalGas programs through presentations and information in the online Challenge platform.

West Basin and the SBCCOG have also been helping hotels, restaurants, non-profits and commercial kitchens save water by offering free assessments and devices since 2009. Sites may also be eligible to receive new water-saving devices to replace older, inefficient equipment, such as a pre-rinse sprayer, flow restrictor and faucet aerators. SoCalGas also partnered with West Basin on the program offering access to more resources. Gas equipment was cleaned and calibrated by the SoCalGas' technicians, who accompany SBCCOG staff on visits and have been trained in best practices and impart information on rebates.

SCG3748 LGP-San Luis Obispo County Energy Watch Partnership

San Luis Obispo County Energy Watch (SLOEW) is a partnership with the County of San Luis Obispo (County), participating cities, special districts, SoCalGas and PG&E. SLOEW is a comprehensive program that provides information and energy management service to targeted customers regarding energy use and cost associated with facilities and infrastructure. This information is used to identify, finance, and implement energy and cost savings energy efficiency measures, as well as track building performance. SLOEW also assists with the monitoring and implementation of the County's EnergyWise Plan, which was adopted by the Board of Supervisors in November 2011 and aims to reduce greenhouse gas emissions in accordance with state mandates. The mission of the SLOEW Partnership is to reduce energy use, demand, cost, and decrease greenhouse gas emissions in San Luis Obispo County. The SLOEW Partnership's vision is to be the primary and trusted resource promoting the wise use of energy in San Luis Obispo County.

This is the third year of the SLOEW partnership with the County as lead implementer. Starting in late 2014 and finishing in early 2015, SLOEW re-prioritized the partnership's goals around distinct programs and target customers via a robust strategic action planning process. By serving as customers' "staff extension", SLOEW has positioned itself to manage all aspects of energy efficiency projects including education/outreach, technical/engineering, budgeting/financial, and procurement. Below are a few objectives completed in 2015:

- Completed comprehensive on-site energy assessments for ten participating Special Districts; presented findings and recommendations to district staff;
- Finished final detailed assessment of top ten energy consuming County facilities; presented to Board of Supervisors and gained unanimous approval to move forward with single largest EE retrofit project in the history of the County;
- Completed two phases of a comprehensive and verified inventory and database of County buildings and facilities; provided "Highest Energy User" snapshot reports to participating departments;
- Finished EnergyWise Plan 2016 Update summarizing the County's progress toward implementing measures and outlines the overall trends in energy use and emissions;

- Finalized ClearPath User Guide and Annual Data Collection and Progress Tracking Methods Report;
- Continued work with CivicSpark program;
- Attended and participated in SEEC Forum as well as LGP meetings;
- Finished significant upgrades to County Energy Kiosk;
- Participated in re-development of Rural and Hard To Reach working group addressing challenges faced by implementers in delivering EE services to rural areas; and
- Began development of new Municipal Energy Management Program targeting the seven incorporated cities in the county

SCG3749 LGP–San Joaquin Valley Partnership

The Valley Innovative Energy Watch (VIEW) is a partnership between SoCalGas, PG&E, SCE, and municipalities in the San Joaquin Valley. The partnership identifies EE opportunities in 13 San Joaquin Valley jurisdictions and is implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO). The partnership offers customized incentives for municipal projects and conducts EE training as well as outreach events to promote EE programs. The partnership also provides partnering jurisdictions with assistance on energy benchmarking and the development of energy action plans.

In 2015, the partnership successfully engaged its local government partners and their communities on several fronts. To begin with, the VIEW held eight monthly partnership meetings in 2015 and hosted the “VIEW! the Success Luncheon” in January 2015. VIEW also participated in eight outreach events throughout the partnership territory, including two highly attended rural outreach community events in the unincorporated communities of Home Garden and Allensworth. The VIEW implementer and City of Visalia attended the Statewide Energy Efficiency Collaborative (SEEC) Conference in June 2015. The VIEW also promoted the “Kill-A-Watt Crackdown” program for small businesses throughout the VIEW territory to decrease and manage electric and gas consumption. And finally, the City of Farmersville approved its energy action plan in June 2015.

The VIEW partnership continued to support benchmarking efforts as it completed energy benchmarking for the Cities of Dinuba, Farmersville, Hanford, Lindsay, and Visalia and Kings County. VIEW uses the United States Environmental Protection Agency Energy Star Portfolio Manager (ESPM) to benchmark the local government partners’ energy account data. ESPM underwent a program facelift in June 2013, which stopped automatic data uploads into SoCalGas accounts and caused a glitch with SoCalGas meter sharing. This was remedied and benchmarking SoCalGas accounts has proceeded without further issue.

SCG3750 LGP-Orange County Cities Energy Efficiency Partnership

The Orange County Cities Energy Efficiency Partnership includes the cities of Huntington Beach, Westminster, Fountain Valley, Costa Mesa, and Newport Beach as well as SoCalGas and SCE. Partnership activities focus on implementing EE in municipal facilities specifically, and in the community in whole. The partnership establishes energy savings goals through EE retrofit of

city-owned facilities, funded by partnership technical assistance to identify and scope projects and enhanced incentives. The partnership goals include strategic plan activities, such as climate action planning, code compliance, and reach codes. In addition to identifying and implementing EE retrofits for municipal facilities, the Partnership also funds community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions.

The Orange County Partnership had a number of notable successes in 2015. It was able to complete a water-energy nexus project. The City of Fountain Valley completed a reservoir station project and a water meter project utilizing over 17,000 meters – a mixture of residents and businesses with the Automated Water Infrastructure. The cities of Fountain Valley and Huntington Beach upgraded their medians in order to meet the Governor’s request on the reduction in water usage. The cities of Huntington Beach and Newport Beach both hosted Green Expos. In addition to those events, the City of Huntington Beach hosted three Green Business Workshops related to water conservation, EE, and recycling.

SCG3751 LGP-SEEC Partnership

The Statewide Energy Efficiency Collaborative (SEEC) is an alliance to facilitate action by California cities and counties to reduce greenhouse gas emissions and save energy. The collaborative employs a variety of strategies to catalyze local climate and energy action, including education and tools for energy efficiency and climate action planning, venues for peer-to-peer networking, technical assistance to implement, track and assess the progress of cities and counties, and support and recognition for local agencies participating in the Beacon greenhouse gas emissions and EE programs.

Under the direction of the CPUC, SoCalGas, SCE, PG&E, and SDG&E have agreements with ICLEI – Local Governments for Sustainability, the Institute for Local Government (ILG) and the Local Government Commission (LGC) to provide a coordinated statewide program of workshops, technical assistance, a recognition program, and other means to allow local governments to share best practices associated with energy management. Work performed in this program is coordinated with the statewide local government energy efficiency best practices coordinator, whose contract is also co-funded by the four IOUs.

Statewide Energy Efficiency Collaborative Collective Impact

Over the course of 2015, ICLEI, ILG, LGC, and the Statewide Local Government Energy Efficiency Best Practices Coordinator increased participation in SEEC programs and tools, successfully catalyzing local action to save energy and reduce greenhouse gas emissions.

ICLEI – Local Governments for Sustainability

Over the course of 2015, ICLEI successfully executed and delivered its resources for SEEC which included further enhancing SEEC ClearPath and training local governments, regional agencies and consultants in the cloud-based emissions management tool, as well as developing related tools, user manuals, webinars, in-person trainings, virtual office hours and online training modules.

Institute for Local Government

In early 2015, ILG completed a gap analysis of current and potential Beacon city, county, and champion participants to identify barriers to entry and potential targets/initiatives for 2015 recruitment. The gap analysis was used throughout the year for continuous improvement and to identify geographic areas, community types and other criteria for recruitment focus. In 2015, ILG recruited 13 new Beacon Program participants, bringing the total to 77 cities and counties who are actively participating in the program. In addition, ILG recruited two new champions, bringing the total to 10 regional agencies that are helping support local governments in their achievements. As a result, ILG awarded more than 30 cities and counties with more than 85 Beacon Spotlight Awards that showcase measureable achievements in energy savings, greenhouse gas reduction and documented sustainability best practices. In addition, ILG awarded five full Beacon Awards to four cities and the first county.

In 2015, ILG hosted several events to bring elected officials together to discuss the state of energy efficiency and climate action planning. ILG collected additional best practices in the ten areas of sustainability through its annual call for data, and through ongoing and regular connections with the Beacon Program participants. ILG responded to the training needs of local governments by hosting two regional-specific trainings aimed at providing timely and relevant information on topic areas selected by the local agencies.

Local Government Commission (LGC)

LGC conducted a series of workshops, webinars and a forum that provided both networking and educational opportunities for local governments, including local government partners, on energy efficiency and climate change. LGC reached a total of 630 people in 2015 directly through event participation. LGC also developed and shared key resources to build local government staff capacity and to catalyze their climate and energy initiatives. The work focused on helping to implement the local government chapter of California's Strategic Plan.

LGC also organized a Statewide Local Government Partnership Meeting, an Energy Champions Networking Reception, an elected officials workshop (with 15 local elected officials in attendance), and an internal SEEC Team Meeting in conjunction with the 2015 forum.

Statewide Local Government Energy Efficiency Best Practice Coordinator (Coordinator)

The Coordinator continued contacting and visiting local government partnership program administrators, city staff, and community leaders. The Coordinator used these trips to encourage program innovation and a greater focus on leveraging other State efforts focused on existing building retrofits through AB 758, electro-voltaic deployment, renewables, energy storage, and demand response to help achieve local energy efficiency program goals. Additionally, the Coordinator provided training and consultation services for interns working in the CivicSpark program.

SCG3752 LGP-Community Energy Partnership

In 2015, the Community Energy Partnership (CEP) is a local government partnership focused on achieving energy savings and behavioral change in residential and nonresidential sectors with a primary emphasis on municipal buildings. The CEP supports local governments to implement

local government actions that are identified in the California Energy Efficiency Strategic Plan. This partnership builds upon its successful model of enhancing the leadership role of cities in energy management that was originated as the Irvine Energy Efficiency Initiative and has evolved into the current CEP. It consists of SCE, SoCalGas, and the six cities of Corona, Irvine, Moreno Valley, San Bernardino, Santa Clarita, and Santa Monica as well as the partnership implementer, The Energy Coalition.

In 2015, the partnership conducted many outreach efforts. For example, the partnership sent 12 e-blasts to city and utility partners for partner education and training. It also enhanced energy education and engagement at community outreach events with the addition of a trivia wheel promoting energy efficiency. At these same outreach events, the partnership promoted the Evolve Showerhead rebate. In all, SoCalGas core utility programs were promoted at nine outreach events across five of the CEP's cities. Partner-to-Partner dialogues were also facilitated by organizing an in-person team leaders meeting and peer-to-peer group as well as coordinating partner city attendance at Statewide Energy Efficiency Collaborative forum in Sacramento. Another activity involved the co-branding of water and energy bill inserts and handouts developed by CEP and customized for use by Corona and Irvine.

In 2015, the CEP worked with city and utility partners to identify opportunities for municipal natural gas savings and tracked municipal energy efficiency projects with gas savings potential. However, Corona delayed its methane reclamation project.

SCG3753 LGP-Desert Cities Partnership

The Desert Cities Energy Partnership is a local government partnership comprised of Blythe, Cathedral City, Desert Hot Springs, Indian Wells, Palm Springs, Rancho Mirage, Agua Caliente tribe, La Quinta, Coachella, Indio, SoCalGas, Imperial Irrigation District (IID), and SCE. The program is designed to assist local governments to effectively lead their communities to increase EE, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

The partnership focuses on installing measurable and persistent EE and conservation devices for the benefit of the cities, their constituencies, the State of California, and California IOU ratepayers. Partnership activities primarily focus on implementing energy efficiency measures in municipal facilities. The partnership establishes energy savings goals through city-identified projects, funded by partnership incentives and technical assistance. The partnership also supports city and community EE efforts through marketing and outreach activities.

In 2015, the team met monthly to discuss program goals, milestones, and marketing, training, and EE projects. The partnership also held working group meetings quarterly with the cities to discuss their ongoing projects. The City of Rancho Mirage replaced two boilers with one more efficient one at their City Hall facility as well as multiple energy efficient washing machines at their city fire stations. At the annual Palm Springs Energy Summit, the solar thermal display unit was deployed for attendees to understand the benefits solar thermal.

SCG3754 LGP-Ventura County Partnership

Working in conjunction with SCE and SoCalGas, the Ventura County Regional Energy Alliance (VCREA) continued as the Local Government “implementing partner” for the Ventura County Partnership Program. The partnership coordinated efforts among local entities in the region to undertake energy efficiency projects, train public agency staff, and consider opportunities for long-term strategic energy efficiency planning.

During 2015, the partnership identified five EE projects for four public agencies. The Partnership hosted 20 community events and six program marketing/outreach presentations, in addition to hosting an energy efficiency update workshop in collaboration with Ventura County Office of Education, hosting a “Climate On The Move” workshop, and five holiday light exchange events.

In 2015, the partnership provided technical support to the County of Ventura in support of potential EE retrofit projects that are expected to leverage the On-Bill Financing program. Overall, local governments generally restricted their retrofit activities in 2015 due to uncertain budgets.

Providing marketing and outreach support to residential customers on energy efficient best practices, financing options, and EE programs have proven extremely beneficial. Numerous community events, quarterly newsletters, and regional informational kiosks have all assisted with supporting the needs of residents and education all on efficiency and program availability.

SCG3755 LGP-Local Government Energy Efficiency Pilots

As part of the South Bay Cities Council of Governments (SBCCOG) partnership, the partners introduced a new program in 2014, the Green Buildings Challenge (GBC) program, which officially launched in September 2015. The GBC program engages local property managers and business tenants to adopt sustainability initiatives. Through friendly competition, participants pursue hard-to-reach goals by taking action on selected activities to achieve measurable energy savings results.

With the support of the SBCCOG and the South Bay Environmental Services Center (SBESC), the pilot has educated over 100 businesses on EE incentives, rebates and available programs through presentations and information in the online Challenge platform. By year’s end there were over 45 commercial businesses signed up to take the Challenge. Through GBC’s outreach work, they were able to identify a missed opportunity to support conservation of therms and water by providing aerators in the hotel market at a relatively low cost.

SCG3773 LGP-New Partnership Programs

SoCalGas has the flexibility to seek authority to the CPUC to add new partnerships. These new LGP’s are expected to pursue deep energy retrofits and promote the Energy Upgrade California™ Home Upgrade Program (HUP) program.

In April 2015, SoCalGas received funding approval for two new partnerships, North Orange County Cities and San Bernardino Regional Energy Partnerships. Both Partnerships executed agreements and ramped up implementation during 2015.

SCG3774 LGP-LG Regional Resource Placeholder

SoCalREN is a regional energy network that administers energy efficiency program offerings to municipal customers in SCE and SoCalGas service territories through the Southern California Regional Energy Center (SoCalREC) program. SoCalGas works collaboratively with SoCalREN on program coordination to achieve seamless program offerings and avoid customer confusion. In addition, SoCalGas acts as the lead utility to provide fiscal oversight, day-to-day contract management and overall monitoring of SoCalREN programs.

During 2015, SoCalGas and SoCalREN built on the successful program coordination and leveraging in 2014 to continue the improvement and refinement of the coordination practices. Additionally, SoCalGas successfully developed and launched a secure bill file delivery system designed to provide data to utility manager systems like EEMIS (Enterprise Energy Management and Information System). The utilities and SoCalREN continued regular project coordination and communication through various coordinating committees across many programs.

SCG3776 LGP-Gateway Cities Partnership

The Gateway Cities Partnership (GCELP) is a local government partnership between the Cities of South Gate, Norwalk, and Downey (the “Cities” or “Partners”) along with SCE and SoCalGas. This partnership program raises awareness of EE and complete targeted retrofit and retro-commissioning (RCx) projects in municipal facilities. Cities within the Gateway Cities are the targets of this Program.

Partnership activities focus on addressing energy usage in municipal facilities and in the community as a whole. The partnership places great emphasis on having partners lead their communities by example by first concentrating on their own municipal facilities. This partnership program provides energy education, retrofit and RCx assistance as well as design consultation and energy analysis of new construction and renovation project plans. Analysis of municipal facilities is conducted to identify demand reduction projects with energy conservation measure (ECM) alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit project in each of the targeted cities.

The primary objectives of the Gateway Cities Partnership include:

- Providing specialized energy efficiency offerings to participating local governments, residential and business communities;
- Leveraging their communication infrastructure to inform their local communities about the wide variety of energy efficiency and demand reduction offerings available to them and encourage participation;
- Identifying opportunities for municipal building retrofits, new construction, commissioning and retro commissioning as well as funnel existing energy programs to the partnership participants; and

- Accessing valuable energy efficiency expertise through technical assistance to help identify ECMs, define project scope, estimate project cost, and determine eligible incentives.

The partnership continues to focus on the development of program infrastructure and relationships. To that end, the partnership conducted regular monthly update meetings for the partners throughout 2015. It also participated in community outreach events in Downey, Norwalk, and South Gate. The Gateway Cities Partnership sponsored Building Operator Certification (BOC) Level II educational training for partner cities' facility staff. The Gateway Cities Partnership has also successfully convinced other cities (Lynwood, Lakewood and Signal Hill) in the region to join the partnership.

SCG3777 LGP-San Gabriel Valley Partnership

The San Gabriel Valley Energy Wise Partnership (SGVEWP) is a residential and nonresidential partnership between SoCalGas, SCE and the San Gabriel Valley Council of Governments (SGVCOG) that raises awareness of EE and facilitates retrofit and retro-commissioning projects in city facilities. Cities within the San Gabriel Valley are partner members.

This partnership provides energy education, retrofit assistance, and retro-commissioning as well as design consultation and energy analysis of new construction and renovation project plans. Analysis of city facilities is conducted to identify demand reduction projects alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit project in each of the targeted cities.

The primary objectives of SGVEWP include:

- Providing specialized energy efficiency offerings to San Gabriel Valley local governments, both residential and business communities;
- Leveraging their communication infrastructure to inform their local communities about the wide variety of energy efficiency and demand reduction offerings available to them and encourage participation; and
- Identifying opportunities for municipal building retrofits, new construction, RCx, and commissioning as well as funnel existing energy programs to the partnership participants.

All the partnership activities in 2015 promoted EE projects and programs. The partnership updated its website, www.sgvenergywise.org, to include relevant EE news and events. It also coordinated distribution of information about the Partnership to member agencies by leveraging existing communication channels, including the COG's committee structure.

The partnership was very active in local activities, having attended partner cities' farmers' markets, environmental fairs, Earth Day events, workshops, eco fairs, Chamber of Commerce activities, Green Fairs, Business Expos, business association meetings, Sustainability meetings, family festivals, and Light/EE Kit Exchanges to promote program offerings. In addition to these activities, the partnership also hosted and/or co-hosted Homeowner Educational, Energy Manager, and EE education workshops as well as a training for building officials and code enforcement staff on Energy Savings Assistance (ESA) and Middle Income Direct Install (MIDI) programs.

In other activities, the partnership developed a work plan. It also oversaw the completion of the following EE projects: boiler, two pool heaters, and an HVAC control and space heater system.

SCG3778 LGP-City of Santa Ana Partnership

The Santa Ana Energy Leader Partnership Program is a local government partnership comprised of the City of Santa Ana, SoCalGas and SCE. Partnership activities focus on implementing EE in municipal facilities specifically and promoting EE in the community. The partnership establishes energy savings goals, identifies, scopes, and implements projects for EE retrofits of city-owned facilities. The partnership also funds community education, marketing, and outreach efforts to create awareness. In doing so, it connects residents and businesses with information and opportunities to take action to reduce energy consumption, and includes strategic plan activities such as climate action planning, code compliance and reach code development.

During 2015, the partnership worked to address EE on multiple fronts with its partners. SoCalGas, SCE and the City of Santa Ana met monthly to discuss EE program goals, milestones for marketing, training, and EE projects. The City also featured EE and other SoCalGas and SCE energy efficiency programs in each of its quarterly newsletters. The City also completed the development of an online permitting system which will reduce greenhouse gas emissions due to the reduction and transportation and further promoted demand-side management programs when customers are submitting their applications online.

In 2015, the City completed four pool cover projects and three pool boilers. The city has submitted applications for EE retrofits at 14 additional facilities which are anticipated to be completed in 2016.

SCG3779 LGP-West Side Cities Partnership

The Westside Cities Partnership (WSCP) is a local government partnership with the City of Culver City with The Energy Coalition (TEC) acting as the implementing partner. The WSCP's three core program elements consist of: government facilities EE retrofit, , outreach EE program offerings to the communities, and enhancement of the leadership role of Culver City in energy management.

In 2015, the partnership conducted many outreach efforts. For example, the partnership sent 12 e-blasts to city and utility partners in support of EE education and training. It also enhanced energy education and engagement at community outreach events with the addition of a trivia wheel promoting energy efficiency. At these same outreach events, the partnership promoted the Evolve Showerhead rebate.

The WSCP directly supports municipal energy efficiency projects through project identification and promotion of SoCalGas' EE programs. For example, the partnership has identified energy management systems that can generate natural gas savings which are expected to be realized in 2016.

SCG3780 LGP-City of Simi Valley Partnership

The City of Simi Valley Partnership is a local government partnership between the City of Simi Valley, SoCalGas and SCE. Partnership activities focus on implementing EE in municipal facilities and promoting EE in the community. The partnership establishes energy savings goals for EE retrofit of city-owned facilities, and identifies scopes and implements EE projects.

The Partnership team met on a monthly basis during 2015 to discuss partnership efforts toward achieving energy savings goals, community outreach opportunities, and other pertinent information. In coordination with SCE, SoCalGas worked to get the city to consider retro-commissioning as a dual-fuel EE savings strategy. SoCalGas also sponsored the city's Living Green Expo and attended the Small Business Forum.

On December 31, 2015, City of Simi Valley Partnership merged with the Ventura County Regional Energy Alliance (VCREA) Partnership. This will allow greater collaboration with other local governments in the region.

SCG3781 LGP-City of Redlands Partnership

The Redlands Energy Partnership Program is a local government partnership comprised of the City of Redlands, SoCalGas and SCE. The partnership is designed to assist the City of Redlands to effectively lead their communities to increase EE, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

This partnership focuses on installing measurable and persistent EE and conservation devices for the benefit of the city, their constituencies, the State of California, and California IOU ratepayers. Partnership activities focus on implementing EE in municipal facilities specifically and in the community in whole. The Partnership also supports city and community EE efforts through marketing and outreach funds.

Monthly meetings to discuss potential opportunities were held with Redland's energy champion. The city had plans to move forward with two boilers that were recommended through previous audits. These replacements are expected to occur in 2016.

SCG3782 LGP-City of Beaumont Partnership

The City of Beaumont Energy Partnership is designed to provide integrated technical and financial assistance to help the City of Beaumont effectively lead their community to increase energy efficiency), reduce greenhouse gas emissions, protect air quality, and ensure that their community is more livable and sustainable. The partnership provides performance-based opportunities for the city to demonstrate EE leadership in its communities through energy saving actions, including retrofitting its municipal facilities, as well as providing opportunities for constituents to take action in their homes and businesses.

By implementing measures in its own facilities, the city leads by example as the city and SoCalGas work together to increase community awareness of EE and position the city as leaders in energy management practices. The partnership provides marketing, outreach, education, and training to connect the communities with opportunities to save energy, money and help the environment. The city has the opportunity to leverage the strengths of other partnerships to efficiently deliver energy savings. This partnership allows the city to deliver sustainable energy savings, promote energy efficient lifestyles, and develop an enduring leadership role for the city through its relationships with other program participants, its constituents, and the utility.

During 2015, the participating utilities and the city's energy champion met monthly to discuss potential opportunities for EE and community outreach. One city event was attended where applications for EE starter kits and CARE applications were provided to customers.

Due to the limited number of facilities owned and operated by the city, the opportunities for natural gas savings opportunities are limited. The city had significant financial difficulty over the course of 2015 and investing in EE became low priority. Due to budgetary constraints and resources, the City of Beaumont opted to suspend the partnership into 2016.

SCG3783 LGP-Western Riverside Energy Partnership

The Western Riverside Energy Partnership is a local government partnership comprised of the cities of Calimesa, Canyon Lake, Eastvale, Hemet, Lake Elsinore, Menifee, Murrieta, Norco, Perris, San Jacinto, Temecula, and Wildomar, as well as the implementer, Western Riverside Council of Governments (WRCOG) and SCE.

The Partnership delivers energy savings by implementing EE measures in municipal facilities while concentrating on deep energy retrofits opportunities. It also provides the following: offers marketing, education, and outreach to local governments and their communities; coordinates with core utility EE and demand response programs; and assists with Strategic Planning for participating cities. The Partnership covers an area of over 2,100 square miles in one of the fastest growing areas. Western Riverside County is a large geographical area in Southern California, generally located east of Orange County, south of San Bernardino County, and north of San Diego County.

The partnership delivered various services to the partner cities during 2015. For example, the Partnership conducted monthly and quarterly meetings with their partner cities to discuss program goals, milestones for marketing, training, and EE projects.

SoCalGas also assisted the City of Murrieta with a boiler replacement project at their City Hall which was the Partnership's first natural gas energy savings project. The Partnership promoted EE rebate information and energy savings tips along with signups for SoCalGas' energy efficiency kits.

The Partnership developed an outreach plan to promote the Energy Savings Assistance (ESA) and Middle Income Direct Install (MIDI) Program to the City of Hemet, City of Temecula and City of Murrieta. As a part of this effort, co-branded direct mailers with the partner cities logos

were mailed to approximately 57,000 customers promoting the ESA and MIDI programs. The city events that partnership participated in for ESA/MIDI program was the City of Temecula's Health Fair, City of Hemet's Harvest Festival, City of Murrieta's Fall Festival. At these three events, the partnership engaged the community about the program offerings and provided energy savings tips.

SCG3801 LGP- North Orange County Cities Partnership

The North Orange County Cities Energy Partnership (NOCC) is a local government partnership focused on achieving energy savings and behavioral change in both residential and nonresidential sectors with a focus on municipal buildings. The NOCC supports local governments to implement local government actions that are identified in the California Energy Efficiency Strategic Plan. The NOCC Partnership consists of SoCalGas, SCE, the eight cities of Brea, Buena Park, Fullerton, La Habra, La Palma, Orange, Placentia, and Yorba Linda, plus the implementing partner, The Energy Coalition.

The NOCC partnership was active in in the community in 2015. The program primarily promoted SoCalGas core programs to residents at outreach events. It also tried to enhance energy education and engagement at community outreach events by adding features such as the Trivia Wheel.

The partnership also worked closely with its partners in other areas. Program staff was involved in obtaining facilities and billing data to analyze energy use. Based on this, energy analysis reports were produced for partner cities and presented to the cities in debriefing calls. Other routine partnership tasks included coordinating Partnership orientation meetings with partner cities and facilitating monthly NOCC meetings. The Partnership did face challenges in that there were limited opportunities for energy efficiency audit development due to relatively low natural gas loads at municipal facilities.

SCG3802 LGP- San Bernardino Regional Energy Partnership

The San Bernardino Regional Energy Partnership is a joint partnership with both SoCalGas and SCE with San Bernardino Associated Governments (SANBAG) as the implementer. The Partnership was approved and added to the LGP Program in April 2015.

The goal of the San Bernardino Regional Energy Partnership is to provide an Energy Efficiency (EE) Partnership program to the remaining 14 cities that are not currently participating in other Partnerships with SoCalGas. The Partnership demonstrates deep energy retrofits, focusing on municipal retrofits at the 14 participating jurisdictions which include the cities of Chino, Chino Hills, Fontana, Grand Terrace, Highland, Loma Linda, Montclair, Ontario, Rancho Cucamonga, Rialto, City of Twentynine Palms, Upland, Yucaipa, and Town of Yucca Valley.

The primary objective for the San Bernardino Regional Energy Partnership includes:

- Promote integrated EE through identifying/assisting in the coordination of opportunities for cost-effective implementation of natural gas and electric energy-savings technologies.

- Coordinate community outreach and training efforts to educate consumers and promote programs.
- Identify/offer financial packages that bundle practical utility incentives, with various monetary incentives aimed at improving the participation of residents, businesses and local government agencies.

In October 2015, the Partnership held its kick off meeting with 11 cities in attendance. The Partnerships shared a draft city council resolution with the cities to encourage them in adopting a city council resolution in support of the Partnership. Four cities passed council resolutions to join the Partnership in 2015. The other 10 cities will consider passing council resolutions in 2016.

The Partnership conducted monthly and quarterly meetings with their partner cities to discuss program goals, milestones for marketing, training, and EE projects. The Partnership also participated in meetings with the Regional Energy Network to provide an overview of The Energy Networks Programs with the City of Upland, City of Rancho Cucamonga and City of Rialto. Other activity included conducting interviews with three engineering firms to secure a vendor for technical assistance support for the Partnership.

Third Party Programs

SCG3757 3P-Small Industrial Facility Upgrades

The Small Industrial Facility Upgrades Program assists industrial customers in becoming more energy efficient and productive through the adoption of EE technologies, including those with low market penetration. The program offers proven EE measures offered in both its calculated and deemed program offerings.

In 2015, the program fully committed the available budget resulting in a robust pipeline. This success was driven by relationship building and successful project completions with industrial customers. Customers were reached through a variety of methods, including directly at the plant level, through corporate management, account executives, and equipment suppliers.

Due to various challenges at the customer's facilities, the commissioning schedules commonly slip, causing multiple projects to push out to a 2016 estimated installation.

SGC3758 3P-Program for Resource Efficiency in Private and Public Schools

The Program for Resource Efficiency in Private and Public Schools (PREPPS) is intended to reduce gas energy costs and greenhouse gas emissions as well as improve school district facility operations to enhance the learning environment. The PREPPS targets private institutions of learning of all levels as well as public K-12 schools. PREPPS provides school facilities with project opportunity evaluations, energy efficiency recommendations, technical services, and cash incentives.

PREPPS saw many successes and barriers in 2015. While the program increased the number of Project Implementation Agreements (PIAs) signed by 13% over the previous year, there was a decrease in the number of installed projects and savings compared to prior years. This was due in part to the increase in enrollment of custom projects, which typically take longer to complete. PREPPS projects also increased in the average energy savings per committed project, a full 25% over 2014 levels. Approximately 26% of net therms committed in 2015 came from custom projects, compared to 7% in the previous year. However, the complexity of the custom project process makes smaller projects not cost-effective and, as a result, these projects often get stranded. PREPPS efforts to enhance relationships with several pool vendors, design/build firms, and Prop 39 consultants, and coordination with SCE as well as The Energy Network led to several new projects for 2015 and 2016.

PREPPS continued to achieve the goal of increasing enrollment of new participants through a balanced mix of deemed and custom measures. While the overall achievement of installed energy savings for the year was lower than expected, the program did build a strong pipeline of enrollments and commitments that is expected to carry into 2016.

SCG3759 3P-On Demand Efficiency

The On-Demand Efficiency Program (ODE) addresses a method of decreasing the natural gas consumption of central domestic hot water systems with recirculation loops in multifamily buildings while maintaining occupant satisfaction with the hot water delivery. Demand controls on hot water recirculation systems turn off the recirculation pump when it is not needed, thereby reducing unnecessary heat loss from the loop, reducing the boiler fire time, and thus reducing the natural gas consumption. ODE finds potential sites and installs on-demand controllers that are appropriate for the water heating system, sustainable, save natural gas and electricity, and reduce greenhouse gases by burning less natural gas for water heating while maintaining occupant satisfaction with the hot water delivery.

ODE enjoyed success on three fronts: installations, gross therm savings, and customer surveys. The program responded to an aggressive marketing outreach that occurred in the first and second quarters, resulting in a rapid increase and consistent rate of installations. Over 85% of the controller installations occurred during the second half of the year. The program also enjoyed a dramatic turnaround in customer surveys results conducted.

During 2015, the program made some changes that improved the implementation rates. Marketing outreach was evaluated and adjustments were made including becoming members of apartment associations and advertising in their publications. In addition, both controller manufacturers made changes such that it is no longer necessary to disrupt water service to the building occupants for equipment installation, an attribute that was considered a significant factor in increased installation rates.

SCG3760 3P-HERS Rater Training Advancement

The HERS Advanced Rater Training Program promotes, develops, and delivers training to certified Home Energy Rating System (HERS) raters, energy analysts, HVAC technicians, building department officials, other building trade professionals, residential homeowners, and technical students. The participants are involved in new and existing engineering and construction. The curriculums address technical and administrative elements of energy ratings, energy efficiency standards including changes based on updated Title 24 requirements, and industry best practices.

New classes created in 2015 included: Water Conservation; Proactive HVAC Sales & Service; Title 24, Part 6: Residential: Basics for Plans Examiners and Building Inspectors; Building Science Basics: Hybrid Class; and Introduction to Solar: Hybrid. For 2015, production was steady, ahead of schedule, and successful. Despite the challenges of keeping enrollments high during the summer months and the lack of enrollments for some venues, which necessitated cancellation of the classes, replacement classes were scheduled. Budget management allowed for additional classes to be held, achieving additional efficiencies that allowed the Program not only to meet but to exceed goals.

In 2015, total classes held increased by 8% over 2014. Average students per class in 2015 increased 18% over 2014 attendance. Total number of students in 2015 increased more than 29% over 2014. DBE spend continued to remain strong with a small increase over 2014. To provide more value to attendees, the program continued the process of adding certification for Continuing Education Credits (CEUs) with NATE (North American Technician Excellence). The following Advanced Rater Training classes are NATE certified: Hands-on Refrigerant Charge; HVAC System Airflow & Static Pressure Diagnostics; Introduction to ZNE (Zero Net Energy); Manual J; Manual S; Manual D; Building Energy Science with MI-BEST (5 days); and Proactive Transactions: HVAC Sales & Service Training.

Evolution of the program over the years has allowed the development of relevant and timely curriculum while delivering production in a more efficient manner. In 2015, the program also focused on issues of quality and new segments to serve, while providing the program with extended value by adding larger and extra classes within budget guidelines. Larger classes were limited to venues which are able to accommodate the classes while maintaining a suitable and effective learning environment. Direct contact and hands-on participation continued to be a strong component of the curriculum enabling students to better understand subject matter. In classes such as the Building Energy Science with MI-BEST (Mobile Integrated Building Energy Science Training), class size was strictly limited in order for each student get proper individual attention.

SCG3761 3P-Multifamily Home Tune-Up

The Multifamily Home Tune-up Program targets owners and managers of multi-unit residential properties. The program provides and installs energy efficient low-flow showerheads and kitchen/bathroom aerators in Orange, San Bernardino, Riverside, and Imperial Counties.

In 2015, the program continued its momentum from the previous year by leveraging relationships with other direct install contractors and SoCalGas programs in its service area. The

field staff also absorbed the additional role of seeking new customers to enroll in the program. By year's end, approximately 180 sites and 15,000 apartment units participated in the program with over 55,000 energy efficient devices installed.

The program developed new marketing advertisement placements to reach larger properties while expanding the use of local canvassing to identify and enroll small properties. Program staff participated in trade shows to promote the program to potential property owners and managers. The program also offered energy efficiency education, in a one-on-one setting, to available multifamily tenants during direct install services. The program also conducted over 20 building audits at multifamily properties to property owners and managers identifying a comprehensive list of gas, electricity and water savings opportunities available in each property and delivering education and training about the benefits of efficiency and proper maintenance.

In response to the ongoing California drought, the program began to promote the water savings benefits associated with energy efficiency to property managers. This strategy of water conservation had moderate success, but provided an insight into another marketing tactic to leverage in outreach materials and relationship potential with water districts.

SCG3762 3P-Community Language Efficiency Outreach

The Community Language Efficiency Outreach Program (CLEO) is an energy efficiency marketing, outreach, education and training program specifically targeted to the Vietnamese, Indian, Chinese Korean, Hispanic, and African American (VICK-HA) SoCalGas customers. CLEO has a unique, 100% in-language strategy which serves a key role in overcoming the English-as-a-second language market barrier and targets hard-to-reach, low and medium income customers.

The CLEO program markets SoCalGas programs and offers energy efficiency education and training using local ethnic media (radio and newspapers) and community events. CLEO's marketing efforts garner interest and lead to participation in CLEO seminars and community booths. CLEO also targets SoCalGas customers in the areas with high concentrations of Asian, Hispanic and African American customers.

In 2015, the CLEO program focused on working with faith-based organizations and community-based organizations especially in Hispanic communities. This effort resulted in an increase in the number of seminars and booths hosted in Hispanic communities compared to the previous years. The program also continued to build its momentum and provided outreach to foodservice business customers to educate them on SoCalGas foodservice programs such as rebates and Energy Resource Center workshops. And finally, the CLEO school program garnered a lot of interests from schools; however, the participation was limited by the program budget. Schools that participated in 2015 have asked to be included in coming years.

In 2015, the CLEO provided 30 in-language seminars, 66 booths, 70 radio spots, 45 newspaper ads, and 260 foodservice surveys. Also, program staff hosted an energy education school program at three elementary schools and held two seminars in Tulare to expand the outreach to

underserved, hard-to-reach customers in the Central California area. The CLEO program reached over 15,000 customers through in-language seminars and community booths.

The CLEO program made a few changes to seminars: improved information on seminar location and specific rooms; provided additional training to staff on programs offered by SoCalGas; and changed seminar giveaways to be more relevant to energy efficiency message. These modifications resulted in improved survey scores.

SCG3763 3P-Multifamily Direct Therm Savings

The Multi-Family Direct Therm Savings Program (marketed as “Energy Smart”) targets owners and managers of multi-unit residential properties. The program encourages participation by providing energy efficient products and installation at no cost to the end use customer. Marketing activities focus primarily on apartment building owners and managers.

The Energy Smart Program installed over 80,000 energy efficient devices in 2015. Customer satisfaction and service delivery goals were met in 2015. The Energy Smart Program provided customer service, sales outreach, and field installations in 2015, with over 1,600 sites participating in the program. In 2015, the Energy Smart Program successfully delivered the program in hard to reach counties (outside Los Angeles County). At the end of 2015, the program reached 9.5% of hard to reach customers, exceeding its 5% goal. The program also supported the City of Pasadena’s mandatory ordinance with the installation of energy efficient devices and provided the city with reports to track compliance.

There were no major challenges and implementation barriers in 2015. The only challenge that the delivery team continued to face in 2015 was maintaining a full installation schedule. The Energy Smart Program, Energy Savings Assistance Program contractors and other energy efficiency contractors continued to target the same multi-family complexes in the service territory. Hence, the team received rejections due to customers already receiving energy efficiency devices from another program.

SCG3764 3P-LivingWise®

LivingWise® is a school-delivered residential energy savings program that is currently sponsored through collaboration between SoCalGas, SCE, and additional water agencies. The Program provides a proven blend of classroom activities and take-home retrofit and audit projects which students complete as homework assignments with their parents and families. Energy audit data and installation reports are collected via surveys, which are returned to teachers and forwarded to the LivingWise® Program Center for tabulation and storage. LivingWise® is implemented at the sixth grade level to best align with State Learning Standards, and is offered to eligible teachers as an elective (supplemental) program. Teacher enrollment is very high, and overall participant program satisfaction (including parents) is excellent.

Whenever SoCalGas was paired with SCE as the co-sponsor, the student and teacher educational materials were modified to incorporate Integrated Demand Side Management (IDSMS) concepts and supplemental materials..

All LivingWise[®] program objectives were met including: overall 2015 participation goal of over 35,000 household; achieving quarterly distribution goals; and excellent program ratings reported by participating teachers.

SCG3765 3P-Manufactured Mobile Home

The Manufactured Mobile Home Program (MMHP) is designed to provide energy efficient gas measures on a comprehensive basis to manufactured mobile home SoCalGas customers. These energy efficient measures include duct test and seal, kitchen and bathroom faucet aerators, and low flow showerheads.

In 2015, the MMHP reached over 8,000 customers and exceeded its energy savings goals.. The shared duct test and seal measure, which offered the program a split incentive rate, was discontinued in 2015, due to lack of funding from an energy partner.

SCG3768 3P-California Sustainability Alliance

The California Sustainability Alliance (Alliance) Program is designed to increase and accelerate adoption of energy efficiency by packaging it with complementary sustainability measures (i.e., efficient energy and water use, renewable energy, waste management, and transportation management). In this manner, energy efficiency can be achieved more cost-efficiently, increasing net societal benefits and maximizing benefits to California ratepayers. The scope of the Alliance includes multiple activities dedicated towards: (1) building demand for energy efficiency and environmental sustainability; (2) advancing and promulgating the body of sustainability best practices, tools and techniques; (3) leveraging the collective resources of all partners – public and private, local, state and federal; and (4) developing educational and outreach materials to widely disseminate the business case for sustainability through the body of emerging and existing best practices.

In 2015, the Alliance completed five projects, spread through two broad program areas: Green Buildings and Water Energy. Within these broad program areas, the project took on several different forms including: pilot program design, guidebook development, and sustainability awards/forums. In the last year, the Alliance placed more emphasis on Pilot Program projects, specifically focused on producing blueprints for future SoCalGas resource programs. These future program designs offer new thinking related to the delivery of energy efficiency and embody the Alliance's goal of accelerating the adoption of energy efficiency by packaging it with complementary sustainability measures.

Within the Green Buildings area, the Alliance program completed two pilot program design projects. Both of these projects were focused on developing new programming for SoCalGas. Also, the Green Buildings area completed one Sustainability Award/Forum project, the Blueprint for Functional Sustainability competition for college/university students. The Alliance also completed one guidebook, a Passive Design Handbook. The passive design handbook is directed towards design teams to support their efforts to incorporate passive design solutions in commercial building renovation projects, where passive design is less commonly employed. The

final handbook provides a step-by-step guide to integrating passive solar design strategies in any commercial existing building project.

Within the Water Energy area, the Alliance completed one gap analysis project, an investigation of New Opportunities for Energy Efficiency in California Agriculture. A report was published that combined input from leading growers and expertise that identified opportunities for agricultural programs with the greatest potential for energy and water savings.

SCG3769 3P-Portfolio of the Future (POF)

The Portfolio of the Future (POF) is aimed at filling the gap between existing technologies in SoCalGas' energy efficiency portfolio and new, emerging technologies. POF seeks to enable the inclusion of emerging natural gas efficiency technologies and new business models to identify candidate natural gas applications in all sectors. This entails identifying, evaluating, and demonstrating new technologies and then working to facilitate their inclusion in SoCalGas' program offerings.

The primary indicator of POF program success is the number of new energy efficient technologies that are brought into SoCalGas' energy efficiency portfolio. In 2015, the program exceeded its targets. POF identified and helped introduce the following technologies into SoCalGas' portfolio: cold water default clothes washers and residential EnergyStar gas dryers. In addition, the business planning stage of Innovation Now! was reached for four measures: laminar flow restrictors, recirculation pump time clocks, EnergyStar 2.0+ commercial dishwashers, and integrated rooftop unit water pre-heaters.

SCG3770 3P-PACE Energy Savings Project

The PACE Energy Savings Project (PACE ESP) is a multi-ethnic outreach program that actively promotes the SoCalGas energy efficiency programs to its residential and small business customers. The program targets customers who belong to the Chinese, Filipino, Korean, Hispanic and Vietnamese communities living in Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties. PACE ESP conducts its outreach efforts in the native languages of these communities to promote better understanding and increased participation in these programs.

In 2015, PACE ESP met and exceeded its target goals and tasks while receiving positive customer satisfaction ratings. The positive customer feedback can be directly attributable to the program's outreach specialists that work directly with customers to provide in-language outreach to facilitate access to SoCalGas energy efficiency programs.

PACE ESP conducted 18 in-language workshops/seminars and presentations and participated at 56 ethnic and other community events. As part of these efforts, PACE ESP made contact with over 1,200 small business customers and 3,100 residential customers. This resulted in over 2,200 completed Ways to Save Energy surveys—formerly known as Home Energy & Water Efficiency Surveys. The program also met its original goal of signing up over 1,000 customers to receive free EE kits by mail.

SCG3771 3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)

The Innovative Designs for Energy Efficiency Activities 365 (IDEEA365) program provides opportunities for third-party contractors to propose and implement new programs. This EE solicitation process allows for a “continuous” portfolio cycle to encourage new targeted and innovative technologies, program concepts, and offerings without having to wait for a new program cycle to begin.

The program process creates a mechanism for competitive solicitations for third-party programs that may improve cost-effectiveness and helps achieve deeper retrofit savings. The “continuous” solicitations concept is promoted by offering two unique solicitation types, Targeted and Innovative solicitations. Targeted Solicitations support utility identified program gaps, market needs, and technologies while Innovative solicitations encourage both existing and new service providers to develop and submit innovative program ideas. In the two-stage Innovative process,

SoCalGas periodically offers an open Request for Abstracts (RFA) from which select bidders are invited to participate in a Request for Proposal (RFP) to give the providers of energy efficiency programs the opportunity to present their ideas and concepts for possible funding and implementation. For Targeted programs, the solicitation is done in a single stage with only an RFP. Scoring and selection of proposals is completed in the same way for both Innovative and Targeted solicitations.

During the course of the year, revisions to the processes and ‘lessons learned’ from 2013 and 2014 activities were evaluated and implemented to the extent possible with each new round of solicitations. The ongoing challenge of the IDEEA365 program solicitation process during 2015 was developing and implementing a process that was expedient while still ensuring a consistently ‘level playing field’ with a transparent, methodical evaluation process at all stages.

During 2015, four-IDEEA generated programs were launched as third party programs: SCG3798 3P-IDEEA365 Connect, SCG3796 3P-IDEEA365 ODECH, SCG3800 3P-IDEEA365 - Clear Ice, and SCG3799 3P-IDEEA365-HBEEP. The continuous solicitation goal was met with one new Innovative round offered during the year. Changes and refinement of the internal steps for facilitating new program evaluation and selection were identified as a needed component for future solicitations. In 2015, SoCalGas began a new initiative started to actively identify program gaps and market potential for energy efficiency. This effort is important to more efficiently identify and pursue new EE third party programs.

SCG3793 3P-IDEEA365-Instant Rebates! Point of Sale Food Service Equipment

The Instant Rebates! Point-of-Sale Rebate Program (Instant Rebates!) enables nonresidential customers to receive point-of-sale (POS) rebates for eligible, high-efficiency equipment from participating food service equipment vendors. Equipment vendors may receive a sales incentive for eligible high-efficiency food service equipment purchased by a SoCalGas customer. Sales

incentives is a mid-stream strategy designed to offset vendors' administrative burden, financial carrying costs of fronting rebates to customers, and overhead associated with stocking and selling more high-efficiency equipment.

The program grew substantially in 2015, as it enrolled and trained eleven new vendors in 2015. In addition, six vendors increased their stock of high-efficiency units to meet growing demand. This resulted in the program more than tripling its original annual savings goal.

Much of the program growth can be attributed to the expansion to include additional market channels, including: (1) forming a partnership with the San Gabriel Valley (SGV) Council of Governments to distribute Instant Rebates! information to Chambers of Commerce in 31 cities and to SoCalGas customers via their Go-Green SGV Business Program; (2) presenting Instant Rebates! information to end-use customers, manufacturers, market reps, and vendors at the SoCalGas Foodservice Expo; (3) presenting at the annual KLH Marketing, Inc. Oktoberfest event to end-use customers, manufacturers, market representatives, and vendors; and (4) discussing contract sales and special order items with existing vendors to access market potential.

The program also significantly improved incentive payment processing time from 14 days down to only six days. The program also launched a promotional steamer initiative and conducted targeted outreach to bakery vendors to increase participation for high-impact measures (e.g., steamers and double-rack ovens).

SCG3794 3P-IDEEA365-Water Loss Control

The Water Loss Control (WLC) Program provides leak-loss detection and remediation, and pressure management services for water entities. This program was structured to build a customer understanding about the potential embedded energy savings, avoided costs, and cost-effectiveness of leak detection and remediation programs.

In 2015, the program provided comprehensive water loss control services to the City of Cerritos that included leak detection and pressure management while Cerritos agreed to repair any leaks found. The program also completed a water audit and component analysis to the City of Cerritos on its water distribution system. The scope of technical assistance included training city water department staff on how to prepare various components of the water audit, such as: reviewing and validating water meters, input data, and billed metered authorized consumption; assessing customer meter under-registration; and calculating the apparent volume of water losses. Technical assistance also included conducting pressure management field tests and analyzing the results.

The program also completed a case study documenting the energy costs and benefits of water loss control for the City of Cerritos' water distribution system. The case study included an assessment of the energy efficiency potential achievable by reducing leaks in the City's water distribution system, and the challenges associated with measuring the amount of water saved (and thereby, the amount of energy saved) by repairing leaks in water distribution systems.

Program staff also conducted a hot water workshop with SoCalGas water agency customers to identify potential opportunities for collaboration on programs and measures for saving hot water. Other accomplishments in this area included the development of a strategic investment plan for a SoCalGas Hot Water Savings Initiative and a water-energy whitepaper: Saving Energy and Water in County Correctional and Detention Facilities. And finally, the program identified opportunities for saving hot water through cost-effective marketing, education and outreach in fitness clubs. The program also leveraged their relation with students and interns to have them complete a water-energy program stakeholder map and communications/messaging plan.

SCG3795 3P-IDEEA365-Commercial Sustainable Development

The Commercial Sustainable Development Program (CSDP) provides design assistance as well as policy and educational assistance to commercial customers. It focuses on passive and low energy strategies to assist the commercial customer in achieving sustainability, Zero Net Energy (ZNE), and improved thermal comfort. The program deliverables include: white papers; methodologies; metrics; case studies; and workshops on passive design and low energy strategies. In addition, the program is responsible for funding and coordinating a research grant to support a research assistant working to implement passive design and low energy research strategies.

During 2015, the program modified the design assistance support services to be more refined and focused on passive envelope design, water efficiency, and low-energy HVAC systems. The research conducted under a grant to the University of Southern California was also concluded in 2015.

SCG3796 3PP-IDEEA365-On-Demand Efficiency for Campus Housing (ODECH)

The On-Demand Efficiency for Campus Housing Program (ODECH) addresses a method of decreasing the natural gas consumption of central domestic hot water systems with recirculation loops in campus housing buildings while maintaining occupant satisfaction with the hot water delivery. Demand controls on hot water recirculation systems turn off the recirculation pump when it is not needed, thereby reducing unnecessary heat loss from the loop, reducing the boiler fire time, and thus reducing the natural gas consumption. ODECH finds potential sites and installs on-demand controllers that are appropriate for the water heating system, sustainable, save natural gas and electricity and reduce greenhouse gases by burning less natural gas for water heating while maintaining occupant satisfaction with the hot water delivery.

The ODECH program had a slow ramp up period due to the unique customer access challenges within the campus housing segment. To overcome this challenge, the program coordinated with the decision makers in the campus housing arena to address their specific needs including: limited access to the campus for installations; holiday schedules and vacations; and the large numbers of controllers that needed to be installed in a short period of time.

The on-demand controller manufacturer provided additional capabilities to the controller with new sensor technology. The new technology did not require an in-line flow switch as the

previous models required. Because the new sensing technology allowed for external sensors attached to the plumbing pipes, the need to disrupt water service to install an in-line flow switch was eliminated. This was a very important operational barrier faced by the campus housing operators which the program overcame.

SCG3797 3P-IDEEA365-Energy Advantage Program for Small Business

The Energy Advantage Program (EAP) for Small Business is designed to educate small and medium business customers about energy savings opportunities. To encourage customer installation of energy efficiency projects, EAP helps the customer leverage other SoCalGas rebates and incentives programs.

During 2015, EAP conducted outreach to the targeted regional lender community, which led to the education of 20 vendors and enrollment of 11 lenders as marketing partners in the program. As a result, the program exceeded the targeted number of marketing partner outreach touchpoints and enrollments. The program also successfully enrolled over 25 small and medium business customers into EAP, including hotels, restaurants, assisted living, agriculture, commercial, and manufacturing facilities.

While the original EAP program was designed to leverage referrals from small business lenders during their active loan process, the program discovered that many lenders perceived too much risk of delays with such referrals. In response, EAP is re-educating lenders and building relationships by generating referrals from lenders after a borrower's loan closes. With the possibility of the SBA 504 Refinance Program relaunching in mid-2016, EAP anticipates receiving more projects from lenders.

SCG3798 3P-IDEEA365-Connect

The Connect Program is an innovative energy efficiency commercial outreach and improvement approach aimed at driving greater uptake of efficiency improvements and reducing split incentive barriers in existing commercial buildings. The program allows resource-constrained property managers to understand where efficiency opportunities exist. Analyses of customer-specific natural gas cost and usage data and on-site energy building assessment are used to brief the customer on energy efficiency opportunities within the commercial building.

A key feature of this program is the innovative customer outreach strategy that leverages the property management company's ongoing relationships with the building owners and tenants to facilitate communication with the key decision makers - owners and/or tenants, depending on the lease structure. The Connect program also provides lease analytics, building performance analytics and advisory support services for the buildings that participate. This a key feature in convincing the property owners and tenants to pursue energy efficiency opportunities.

The Connect Program focuses on the deployment of gas measures in office, retail, mixed-use, healthcare, and light industrial spaces within SoCalGas' territory. Program promotes the full

suite of existing SoCalGas energy efficiency programs and tracks to completion customer energy efficiency projects.

The program officially launched in 2015. After the ramp up period, the program completed five building assessments, comprising 2.7 million sq. ft. made up of office, retail, and mixed-used spaces which resulted in four business cases representing 13 EE measures.

SCG3799 3P-IDEEA365-Historical Building Energy Efficiency

The Historic Building Energy Efficiency Program (HBEEP) is a residential outreach program focused on energy efficient upgrades to historic single-family homes. HBEEP's model is designed to assist homeowners of historic buildings learn how restoration and preservation activities can be combined with energy efficiency upgrades. HBEEP addresses a gap in targeting a unique building portfolio that includes older single family homes located in designated historic building districts within the SoCalGas service territory. This customer base is typically constrained by specific building alteration guidelines aimed to preserve neighborhoods with distinct architectural and cultural characteristics. The program strategy is to initially target owners/buyers of pre-1940 homes located in designated historic building districts such as the City of Los Angeles' designated Historic Preservation Overlay Zones (HPOZs) and enroll these customers in SoCalGas' energy efficiency rebate and incentive programs (e.g., Home Upgrade/Advanced Home Upgrade Programs).

In 2015, HBEEP was successfully launched and program ramp-up activities were effectively executed. The program received positive feedback from the participating contractors regarding the HBEEP training that has allowed each contractor to better serve HBEEP's target customer base. In addition to remaining on target to achieve program objectives, the program received positive customer feedback regarding the program's customized approach to assessing individual energy needs and providing guidance on navigating available energy efficiency rebate and incentive programs to offset project costs.

The overarching goal is to guide customers to installation of energy efficient measures by overcoming barriers faced by customers. One such barrier is the presence of hazardous materials (i.e., possible asbestos containing materials (PACM)) and other health and safety concerns (e.g., knob and tube wiring) which can prevent a comprehensive energy assessment from being conducted. The program addressed these barriers by providing customers with resources to remediate or address the health and safety concerns.

SCG3800 3P-IDEEA365-Clear Ice

Clear Ice is a turnkey gas savings energy efficiency program for SoCalGas customers' new and existing ice rinks. It offers a calculated incentive on an industrial vortex technology called REALICE. With this technology, water used for ice making and resurfacing no longer needs to be heated to from 120°F – 150°F and ambient un-heated water at approximately 60°F can be used.

REALICE is a relatively new technology in the United States and there is a need to conduct targeted and repeated communications to each rink's decision makers including both rink operators and rink owners. One key market barrier is to modify an entrenched behavior by the rink operators. Operators normal practice is to use water heated to from 120°F - 150°F for ice resurfacing. To modify this behavior, technical description of how the technology works, why it works, how much is saved, and who else is using it are key messages are presented to the rink operators.

The program offering launched in the second half of 2015. The program developed a list of all rinks in the SoCalGas' service territory cross referenced to SoCalGas' customer representatives. By the end of the year, the first customer enrolled in the Clear Ice program

SECTION 1 ENERGY SAVINGS

The purpose of this table is to report the annual impacts of the Energy Efficiency portfolio of programs implemented by SoCalGas for the 2015 year. The annual impacts are reported for 2015 in terms of annual and lifecycle energy savings in natural gas savings in MMTh (million therms). The report shows annual savings (Installed Savings) that reflect installed savings, not including commitments. The values in the Installed Savings column include savings from the Low-Income Energy Efficiency Program, and Codes and Standards work (LIEE and C&S savings are broken out as separate line items in Table 8 - Savings by End-Use).

Table 1

Table 1:						
<i>Electricity and Natural Gas Savings and Demand Reduction</i>						
Annual Results	Installed Savings [1]	CPUC Goal Adopted in D.12-11-015 & D.14-10-046		% of Goal	% of 3-Year Portfolio Goal	Balance
2013 Energy Savings (GWh) – Annual	3.5					
2014 Energy Savings (GWh) – Annual	11.4					
2015 Energy Savings (GWh) – Annual	13.5					
TOTAL Energy Savings (GWh) - Annual	28.5					
2013 Energy Savings (GWh) – Lifecycle	45					
2014 Energy Savings (GWh) – Lifecycle	144					
2015 Energy Savings (GWh) – Lifecycle	181					
TOTAL Energy Savings (GWh) – Lifecycle	371					
2013 Natural Gas Savings (MMth) – Annual [2]	25.9	24.1	107%	36% -	46.7	
2014 Natural Gas Savings (MMth) – Annual	27.1	23.2	117%	37% -	45.5	
2015 Natural Gas Savings (MMth) – Annual	25.5	25.3	101%	35% -	44.5	
TOTAL Natural Gas Savings (MMth) – Annual	78.5	72.6	108%	108%	5.9	
2013 Natural Gas Savings (MMth) – Lifecycle [3]	262					
2014 Natural Gas Savings (MMth) – Lifecycle	291					
2015 Natural Gas Savings (MMth) – Lifecycle	161					
TOTAL Natural Gas Savings (MMth) – Lifecycle	713					
2013 Peak Demand savings (MW)	2.22					
2014 Peak Demand savings (MW)	4.10					
2015 Peak Demand savings (MW)	6.68					
TOTAL Peak Demand savings (MW)	13.00					

[1] Results from activity installed in 2013, 2014, and 2015.

[2] Includes savings associated with Low Income Energy Efficiency and Codes and Standards programs.

[3] Does not include lifecycle savings associated with SoCalREN, Low Income Energy Efficiency and Codes and Standards programs.

SECTION 2 EMISSION REDUCTIONS

The purpose of this table is to report the annual incremental environmental impacts of the Energy Efficiency portfolio (for both electricity and natural gas) of programs implemented by SoCalGas during the 2015 program year. Parties agreed that the impacts should be in terms of annual and lifecycle tons of CO₂, NO_x, SO_x, and PM₁₀ avoided and should come from the E3 calculator.

Table 2

Table 2:								
<i>Environmental Impacts</i>								
Annual Results [1][2]	Annual tons of CO2 avoided	Lifecycle tons of CO2 avoided	Annual tons of NOx avoided	Lifecycle tons of NOx avoided	Annual tons of SOx avoided [3]	Lifecycle tons of SOx avoided [3]	Annual tons of PM10 avoided	Lifecycle tons of PM10 avoided
<i>2013-2015 Portfolio Targets [4]</i>	565,730	8,580,674	1,021,526	15,710,255	N/A	N/A	N/A	N/A
Total 2013-2015 Portfolio	521,121	7,684,246	738,023	10,887,520	-	-	2,944	38,243

[1] Results from activity installed in 2013, 2014, & 2015.

[2] Environmental impacts do not include any associated with Low Income Energy Efficiency.

[3] The avoided SOX reductions are not calculated in the E3 calculator. It was determined by E3 that none of the IOUs use coal power on the margin and the energy efficiency savings have impact on the margin only. This is the basis for the E3 analysis as reviewed by all interested parties and approved by the Commission.

[4] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 established SoCalGas' gas emission reduction targets for the 2013-2014 program cycle. SoCalGas' Compliance Advice Letter 4725 approved by the Commission on January 26, 2015 established SoCalGas' gas emission reduction target for the 2015 program year.

SECTION 3 EXPENDITURES

The purpose of this table is to report the annual costs expended by SoCalGas in implementing the 2015 Energy Efficiency portfolio. The report shows the “Total Portfolio Expenditures” broken out into Administrative Costs, Marketing/Advertising/Outreach Costs, and Direct Implementation Costs for the entire portfolio; the next two sets of expenditures represent sub-components of the portfolio already included in the Total Portfolio Expenditures totals: 1. Total Competitive Bid Program Expenditures (sub-component of portfolio), and 2. Total Partnerships (sub-component of portfolio). The last component is “Total EM&V” (separate from portfolio) expenditures will be reported for the IOU and Joint Staff.

Table 3

Table 3:					
<i>Expenditures</i>					
	2013-2015 Adopted Program Budget [1]	Cumulative Annual Expenditures	Percent of Portfolio Budget (3-yr)	Percent of Total Annual Expenditures	
Summary of Portfolio Expenditures					
Total Portfolio Expenditures					
Administrative Costs	\$ 21,495,623	\$ 22,466,538	8.8%	12.1%	
Marketing/ Advertising/ Outreach Costs	\$ 17,799,520	\$ 17,984,832	7.0%	9.7%	
Direct Implementation Costs	\$ 216,269,487	\$ 145,372,173	56.9%	78.2%	
Total Portfolio Expenditures [2][3][4]	\$ 255,564,630	\$ 185,823,543	72.7%	100.0%	
<i>Total Competitive Bid Program Expenditures (sub-component of portfolio) [5] [6]</i>					
Administrative Costs	\$ 2,441,305	\$ 3,429,971	1.3%	1.8%	
Marketing/ Advertising/ Outreach Costs	\$ 1,090,083	\$ 1,782,257	0.7%	1.0%	
Direct Implementation Costs	\$ 46,642,879	\$ 36,171,543	14.2%	19.5%	
Total Competitive Bid Program Expenditures	\$ 50,174,267	\$ 41,383,771	16.2%	22.3%	
<i>Total Partnership Program Expenditures (sub-component of portfolio)</i>					
Administrative Costs	\$ 3,156,914	\$ 2,487,642	1.0%	1.3%	
Marketing/ Advertising/ Outreach Costs	\$ 2,047,438	\$ 799,766	0.3%	0.4%	
Direct Implementation Costs	\$ 7,816,903	\$ 4,570,684	1.8%	2.5%	
Total Partnership Program Expenditures	\$ 13,021,255	\$ 7,858,092	3.1%	4.2%	
Total EM&V Expenditures					
EM&V IOU	\$ 2,928,627	\$ 1,329,120	12.5%	40.6%	
EM&V JOINT STAFF	\$ 7,720,925	\$ 1,948,036	18.3%	59.4%	
Total EM&V Expenditures	\$ 10,649,551	\$ 3,277,156	30.8%	100.0%	

[1] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 contained SoCalGas' annual budgets for the 2013-2014 program cycle. Advice Letter 4725 filed December 15, 2014 and approved by the Commission January 26, 2015 contained annual budgets for 2015.

[2] Does not include the budget or expenditures associated with EM&V.

[3] Includes budget and expenditures associated with SoCalREN.

[4] The SoCalRen - Finance Program budget reflects a reduction of \$225,000 from the originally authorized budget, per D.13-09-044, OP 23.

[5] Includes budget and expenditures associated with SW ME&O.

[6] Competitive Bid program budget and expenditures include customer incentives and allocated SoCalGas expenses.

[7] Includes all Third Party competitively bid programs; does not include those competitively bid programs that are components of Statewide programs.

SECTION 4 COST-EFFECTIVENESS

The purpose of this table is to provide an annual update on the cost-effectiveness of the portfolio of programs being implemented in the 2015 program year. The targets above are at the portfolio level, so an annual average is used in order to compare the current annual estimates of cost-effectiveness with the cost-effectiveness levels that were estimated at the time the portfolios were adopted. The report includes the SoCalGas results and goals.

Table 4

Table 4:									
<i>Cost Effectiveness</i>									
Annual Results	Total Cost to Billpayers (TRC) [1]	Total Savings to Billpayers (TRC)	Net Benefits to Billpayers (TRC) [1]	TRC Ratio	Total Cost to Billpayers (PAC) [1]	PAC Ratio	PAC Cost per kW Saved (\$/kW)	PAC Cost per kWh Saved (\$/kWh)	PAC Cost per therm Saved (\$/therm)
2013-2015 Targets [8]	\$ 415,526,813	\$ 496,548,136	\$ 81,021,323	1.19	\$ 274,130,139	1.81	N/A	N/A	\$0.55 /therm
2013-2015 TOTAL	\$ 345,377,786	\$ 414,716,830	\$ 69,339,044	1.20	\$ 187,169,306	2.22	N/A	N/A	\$0.31 /therm

[1] Results from activity installed in 2013, 2014, & 2015.

[2] Includes SoCalGas' 2013 shareholder incentive payment of \$3,075,647, submitted in AL 4542 and approved by the Commission on December 11, 2013.

[3] Includes SoCalGas' 2014 shareholder incentive payment of \$5,824,913, submitted in AL 4661 and approved by the Commission on December 18, 2014.

[4] Includes SoCalGas' 2015 shareholder incentive payment of \$4,153,869, submitted in AL 4826 & AL 4859 and approved by the Commission on December 3, 2015.

[5] Include costs and benefits associated with Codes and Standards programs.

[6] Includes only costs associated with SoCalREN.

[7] Does not include costs and benefits associated with Low Income Energy Efficiency.

[8] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 established the cost-effectiveness of SoCalGas' 2013-2014 portfolio. SoCalGas' Compliance Advice Letter 4725 approved by the Commission on January 26, 2015 established the cost-effectiveness of SoCalGas' 2015 program year.

SECTION 5 BILL PAYER IMPACTS

The purpose of this table is to report the annual impact of the energy efficiency activities on customer bills relative to the level without the energy efficiency programs, as required by Rule X.3 of the Energy Efficiency Policy Manual version 3, adopted in D.05-04-051.

Table 5

Table 5:				
<i>Ratepayer Impacts</i>				
2015	Electric Average Rate (Res and Non-Res) \$/kWh	Gas Average Rate (Core and Non-Core) \$/therm	Average Lifecycle Bill Savings (\$)	
			Average First Year Bill Savings (\$)	
SCG		\$1.04	\$ 26,425,492	\$ 166,848,917

[1] SoCalGas' 12-month residential weighted average transportation rate for 2015 is \$0.71629 per therm.

[2] SoCalGas' 12-month average procurement rate in 2015 was \$0.32047.

[3] Ratepayer impacts are derived from 2015 gross savings accomplishments and the average rate.

[4] The average First Year Bill Savings are calculated by the 2015 first year savings multiplied by the Gas Average Rate.

[5] The average Lifecycle Bill Savings are calculated by the 2015 lifecycle savings multiplied by the Gas Average Rate.

SECTION 6 GREEN BUILDING INITIATIVE

The purpose of this table is to record the amount of savings attributable to California's 2015 Energy Efficiency portfolio that contribute to meeting the Governor's Green Building Initiative (GBI) Goal of reducing energy use in state-owned buildings by 20 percent by 2015 (with a 2003 baseline). Expenditures are for program activities that contribute towards GBI goals. Annual GWH, MW, and Million therms are cumulative net values.

Table 6

Table 6 :										
<i>Green Building Initiative</i>										
2015	Expenditures [1]	GWh			MW			MMTh		
		Goal	Annual	% of Goal	Goal	Annual	% of Goal	Goal	Annual [2]	% of Goal
SCG	\$ 5,534,628								5.1	

[1] Expenditures reflect incentive payments from activity installed in 2015 only.

[2] Results from activity installed in 2015 only.

SECTION 7 SHAREHOLDER PERFORMANCE INCENTIVES

The Risk/Reward Incentive Mechanism (RRIM), was established by the Commission in D.07-09-043 and further modified by D.08-01-042, D.08-12-059, D.09-12-045, D.10-12-049, D.11-12-036, D.12-12-032, and D.13-09-023. In D.13-09-023, the RRIM was superseded by the Efficiency Savings and Performance Incentive (ESPI) mechanism.

In 2015, the Commission awarded SoCalGas an earnings amount of \$4.15 million, calculated from the results of the 2013 and 2014 program period.

SECTION 8 SAVINGS BY END-USE

The purpose of this table is to show annual portfolio savings by Residential and Non-Residential end-uses and those savings attributable to the LIEE program, and Codes and Standards work.

Table 8

Table 8: <i>Annual Savings By End-Use</i>						
2015	GWH	% of Total	MW	% of Total	MMTh	% of Total
Residential	13.51	100%	6.68	100%	4.48	18%
Appliances	5.88	43%	1.84	28%	0.69	3%
Consumer Electronics	-	0%	-	0%	-	0%
HVAC	6.78	50%	4.63	69%	0.75	3%
Lighting	-	0%	-	0%	-	0%
Pool Pump	-	0%	-	0%	-	0%
Refrigeration	-	0%	-	0%	-	0%
Water Heating	0.69	5%	0.08	1%	2.91	11%
Other	0.16	1%	0.13	2%	0.12	0%
Nonresidential	0.03	0%	0.00	0%	10.35	41%
HVAC	(0.06)	0%	-	0%	1.61	6%
Lighting	-	0%	-	0%	-	0%
Office	-	0%	-	0%	-	0%
Process	-	0%	-	0%	4.66	18%
Refrigeration	-	0%	-	0%	0.16	1%
Other	0.09	1%	0.00	0%	3.93	15%
Low Income Energy Efficiency	-	0%	-	0%	1.57	6%
Codes & Standard Energy Savings	-	0%	-	0%	9.09	36%
SCG Annual Portfolio Savings	13.54	100%	6.68	100%	25.49	100%

[1] Results from activity installed in 2015 only.

[2] Includes savings associated with SoCalREN.

SECTION 9 COMMITMENTS

The purpose of this table is to allow the utilities to report commitments for both the near term (installed savings will be produced within the 2015 program year and long term (commitments entered into during the current program cycle but which are not expected to produce installed savings until after December 2015). This information will be useful for the Commission's resource planning purposes by enabling program activities to be linked to a particular funding cycle.

Table 9

Table 9:				
<i>Commitments</i>				
Commitments Made in the Past Year with Expected Implementation by December 2016				
	Committed Funds	Expected Energy Savings		
2015	\$	GWH	MW	MMTh
SCG Total	\$ 11,594,271	-	-	13.94
Commitments Made in the Past Year with Expected Implementation <i>after</i> December 2016				
	Committed Funds	Expected Energy Savings		
2015	\$	GWH	MW	MMTh
SCG Total	\$ 1,990,106	-	-	2.41

[1] Committed funds represent incentive amounts only.

Appendix A – SoCalGas Program Numbers

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3701	SW-CALS-Energy Advisor		
SCG3702	SW-CALS-Plug Load and Appliances		
SCG3703	SW-CALS-Plug Load and Appliances - POS		
SCG3704	SW-CALS-MFEER		
SCG3705	SW-CALS-Energy Upgrade California Home Upgrade Program		
SCG3706	SW-CALS-Residential HVAC		
SCG3707	SW-CALS-RNC		
SCG3708	SW-COM-Energy Advisor		
SCG3709	SW-COM-CEI		
SCG3710	SW-COM-Calculated Incentives		
SCG3711	SW-COM-Deemed Incentives		
SCG3712	SW-COM-NonRes HVAC		
SCG3713	SW-IND-Energy Advisor		
SCG3714	SW-IND-CEI		
SCG3715	SW-IND-Calculated Incentives		
SCG3716	SW-IND-Deemed Incentives		
SCG3717	SW-AG-Energy Advisor		
SCG3718	SW-AG-CEI		
SCG3719	SW-AG-Calculated Incentives		
SCG3720	SW-AG-Deemed Incentives		
SCG3721	SW-ET-Technology Development Support		
SCG3722	SW-ET-Technology Assessment Support		
SCG3723	SW-ET-Technology Introduction Support		
SCG3724	SW C&S-Building Codes & Compliance Advocacy		
SCG3725	SW C&S-Appliance Standards Advocacy		
SCG3726	SW C&S-Compliance Enhancement		
SCG3727	SW C&S-Reach Codes		
SCG3728	SW C&S-Planning Coordination		
SCG3729	SW-WE&T-Centergies		
SCG3730	SW-WE&T-Connections		
SCG3731	SW-WE&T-Strategic Planning		
SCG3734	SW-IDSM-IDSM		
SCG3735	SW-FIN-On-Bill Financing		
SCG3736	SW-FIN-ARRA-Originated Financing		
SCG3737	SW-FIN-New Financing Offerings		
SCG3738	LInstP-CA Department of Corrections Partnership		
SCG3739	LInstP-California Community College Partnership		
SCG3740	LInstP-UC/CSU/IOU Partnership		
SCG3741	LInstP-State of CA/IOU Partnership		
SCG3742	LGP-LA Co Partnership		
SCG3743	LGP-Kern Co Partnership		
SCG3744	LGP-Riverside Co Partnership		
SCG3745	LGP-San Bernardino Co Partnership		

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3746	LGP-Santa Barbara Co Partnership		
SCG3747	LGP-South Bay Cities Partnership		
SCG3748	LGP-San Luis Obispo Co Partnership		
SCG3749	LGP-San Joaquin Valley Partnership		
SCG3750	LGP-Orange Co Partnership		
SCG3751	LGP-SEEC Partnership		
SCG3752	LGP-Community Energy Partnership		
SCG3753	LGP-Desert Cities Partnership		
SCG3754	LGP-Ventura County Partnership		
SCG3755	LGP-Local Government Energy Efficiency Pilots		
SCG3756	3P-Energy Challenger		May 2013
SCG3757	3P-Small Industrial Facility Upgrades		
SCG3758	3P-PREPS		
SCG3759	3P-On Demand Efficiency		
SCG3760	3P-HERS Rater Training Advancement		
SCG3761	3P-MF Home Tune-Up		
SCG3762	3P-CLEO		
SCG3763	3P-MF Direct Therm Savings		
SCG3764	3P-LivingWise		
SCG3765	3P-Manufactured Mobile Home		
SCG3766	3P-SaveGas		January 2015
SCG3768	3P-CA Sustainability Alliance		
SCG3769	3P-PoF		
SCG3770	3P-PACE		
SCG3771	3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)		
SCG3773	LGP-New Partnership Programs		
SCG3774	LGP-LG Regional Resource Placeholder		
SCG3775	CRM		
SCG3776	LGP-Gateway Cities Partnership		
SCG3777	LGP-San Gabriel Valley COG Partnership		
SCG3778	LGP-City of Santa Ana Partnership		
SCG3779	LGP-West Side Cities Partnership		
SCG3780	LGP-City of Simi Valley Partnership		
SCG3781	LGP-City of Redlands Partnership		
SCG3782	LGP-City of Beaumont Partnership		
SCG3783	LGP-Western Riverside Energy Partnership		
SCG3793	3P - IDEEA365 - Instant Rebates! Point of Sale Food Service Equipment Program	March 2014	
SCG3794	3P - IDEEA365 Water Loss Control Program	May 2014	
SCG3795	3P-IDEEA365 - Commercial Sustainable Development Program	August 2014	
SCG3796	3P-IDEEA365-On Demand Efficiency for Campus Housing	March 2015	
SCG3797	3P-IDEEA365-Energy Advantage Program for Small Business	November 2014	
SCG3798	3P-IDEEA365-Connect	March 2015	

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3799	3P-IDEEA365-Historical Building Energy Efficiency	August 2015	
SCG3800	3P-IDEEA365-Clear Ice	August 2015	
SCG3801	LGP - North Orange County Cities Partnership	April 2015	
SCG3802	LGP - San Bernardino Regional Energy Partnership	April 2015	
SCG3803	SW-FIN-California Hub for EE Financing	October 2014	

Appendix B.1 – Updated Monthly Report

The Updated Monthly Report can be found on the EEStats website:
<http://eestats.cpuc.ca.gov/Views/Documents.aspx>

Appendix B.2 – Updated Quarterly Report

The Updated Quarterly Report can be found on the EESStats website:
<http://eestats.cpuc.ca.gov/Views/Documents.aspx>

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-26

SOCALGAS EXHIBIT

SoCalGas 2016 Energy Efficiency Annual Report

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



FILED
05/25/17
04:59 PM

Order Instituting Rulemaking Concerning
Energy Efficiency Rolling Portfolios,
Policies, Programs, Evaluation, and
Related Issues.

Rulemaking 13-11-005
(Filed November 14, 2013)

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)
ENERGY EFFICIENCY PROGRAMS 2016 ANNUAL REPORT**

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May 24, 2017

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Concerning
Energy Efficiency Rolling Portfolios,
Policies, Programs, Evaluation, and
Related Issues.

Rulemaking 13-11-005
(Filed November 14, 2013)

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) ENERGY EFFICIENCY
PROGRAMS 2016 ANNUAL REPORT**

Southern California Gas Company (SoCalGas) submits its 2016 Annual Report for energy efficiency programs and accomplishments. The Annual Report is prepared in accordance with the Administrative Law Judge’s Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues (August 8, 2007), issued in Rulemaking 06-04-010 (Ruling).¹ The Ruling requires “. . . each utility to file its annual report on May 1 of the year following the end of a given program year.”² The Annual Report is attached and will be uploaded and available for viewing on the California Public Utilities Commission’s Energy Efficiency Statistics Application (EESTATs) website.

Respectfully submitted on behalf of SoCalGas,

By: /s/ Johnny J. Pong
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May 24, 2017

¹ Per the Ruling, filing and serving the Annual Report would apply to successor proceedings, which includes this docket. *See* Ruling, p. 4 (OP 2).

² *Id.* The attached Annual Report completely supersedes the version which was served on May 1, 2017.

ATTACHMENT

**SOUTHERN CALIFORNIA GAS
COMPANY**

**ENERGY EFFICIENCY PROGRAMS
ANNUAL REPORT**

2016 RESULTS



A  Sempra Energy utility

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2016 ENERGY EFFICIENCY PROGRAM PORTFOLIO SUMMARY

Executive Summary

At Southern California Gas Company (SoCalGas), sustainability and being a responsible environmental steward is a fundamental part of doing business. SoCalGas actively works to reduce the environmental impact of our operational practices, as well as help our customers reduce their impact by showing them how to use energy more efficiently. SoCalGas accomplishes this by offering a comprehensive suite of conservation and energy efficiency (EE) programs, strategies, and solutions to meet the dynamic energy needs of our customers. In 2016, SoCalGas leveraged the programmatic successes achieved in the 2013-2015 program cycle. SoCalGas further refined its program delivery and implementation in 2016 to actively seek EE opportunities and adapt to its diverse customer base. In 2016, SoCalGas demonstrated the success of its programs by saving customers more than 35.9 million therms, which represents nearly 124% of the energy efficiency goal established by the California Public Utilities Commission (Commission or CPUC). SoCalGas cost-effectively administered EE savings to customers, providing ratepayers over \$288 million in resource benefits. In addition, as part of SoCalGas' commitment to help California meet its goal of greenhouse gas emission mitigation, its EE programs avoided nearly 360,000 tons of carbon dioxide (CO₂).

SoCalGas continues to work closely with the Commission and other stakeholders to achieve California's strategic vision and goals to ensure: (1) maximum achievement of all cost-effective and feasible energy efficiency savings in the natural gas sector, (2) programs, strategies, and offerings that provide deep, long-term energy savings, and (3) energy efficiency programs that will generate quick and low-cost reductions in greenhouse gas emissions, as adopted in the California Long-Term Energy Efficiency Strategic Plan and Energy Action Plan (CLTEESP or Strategic Plan).

In order to achieve the Commission's aggressive long-term goals, SoCalGas has partnered with municipal electric utilities and water agencies to increase its program reach, enhance cost-effectiveness, and offer comprehensive demand-side management offerings to customers. This approach minimizes lost opportunities, allows for more comprehensive and deeper energy efficiency projects, and increases operational efficiencies allowing for a more streamlined delivery of ratepayer-funded programs.

Notable successes during program year 2016 include the following:

HOPPs Approved for Institutional Partners

Through the Institutional Partnerships team, SoCalGas filed a High Opportunity Projects and Programs (HOPPs) – Metered and Performance-Based Retrofits (MPBR) Program. SoCalGas' MPBR Program was a response to the Energy Division's request for "pay for performance" type of program in light of the passage of Assembly Bill (AB) 802 and Senate Bill (SB) 350. MPBR is intended to assist public sector customers in retrofitting existing facilities and incorporating innovative monitoring-based commissioning (MBCx). Three projects were identified through the Institutional Partnerships.

Instant Rebates Delivery of High-efficiency Appliances

In 2016, convection oven sales were almost 100% high-efficiency models, up from 50% prior to offering instant rebates. Participating foodservice vendors noted that since they joined the Instant Rebates Program, nine out of ten low-to-mid range fryer sales were high-efficiency. Prior to the program, participating vendors were primarily selling used equipment to their mostly small-business clientele base. Since participating in the program, they now offer high-efficiency equipment at a price that is competitive with standard models, granting customers access to high-efficiency equipment that would have otherwise been out of their price range.

Prominent Hotel Chain Invests in Energy-Efficient Water Heaters

Through the Point-of-Sale Commercial Water Heater Rebate Program, SoCalGas partnered with local distributors to sell high-efficiency storage and tankless water heaters to SoCalGas business customers in a streamlined process that is easier for all parties involved. Since 2015, SoCalGas' coordination with this hotel chain resulted in their purchase of over 70 water heaters through the Midstream Program, equating to nearly \$70,000 in incentives and approximately 132,627,000 therms saved over the life span of the equipment life.

Airline Food Service Demonstration Results – Energy Savings & Better Production

SoCalGas sponsored a project and worked with Fisher-Nickel, a division of Frontier Energy, and the California Energy Commission to demonstrate that significant savings can be achieved in a mission critical commercial/industrial kitchen preparing high volume, high quality airline meals. Approximately 9,200 therms per year savings were realized by upgrading five cooking appliances to the highest emerging technology energy efficiency standards.

Deep Retrofit for a Low-Income Housing, near-Zero Net Energy Demonstration

SoCalGas sponsored a project and worked with Electric Power Research Institute (EPRI) and the California Energy Commission to explore and test energy savings opportunities and obstacles in a typical Southern California low-income multifamily residential setting. In a common system that serves 28 units, solar evacuated tubes were added to assist and replace old boilers. With buried piping insulation improvements, preliminary results have shown significant savings, in excess of 65%, or 89 therms per year savings for each unit.

Leveraging SoCalGas' Advanced Meter Infrastructure to Address California's Water Concerns

In 2016, SoCalGas partnered with San Gabriel Valley Water Company and California American Water to launch two separate Water-Energy Nexus Advanced Meter Infrastructure (AMI) pilots to successfully achieve the following program goals: (1) network piggybacking, (2) combined utility data analytics for hot water leak detection, and (3) determining energy savings from reduced water loss.

Supporting Innovation in Third Party Program Offerings

SoCalGas is committed to building upon its success in implementing the Commission's vision of continuously adding third party-administered programs throughout the year in a fair and equitable manner. A new third party program selected via an Innovative Design for Energy Efficiency Activities (IDEEA365) solicitation finalized its program implementation plan and launched in 2016.

Leadership in the Development of New Finance Programs

The California Investor-Owned Utilities (IOUs) continued their efforts to develop a set of statewide financing pilot programs that offer scalable and leveraged financing products and test market incentives in the form of credit enhancements and on-bill repayment (OBR) for attracting private capital. The pilots consist of the following OBR programs: Small Business OBR Loan Program; Small Business OBR Lease Program; Non Residential OBR without Credit Enhancements (CE) Program; Master-Metered Multi-Family OBR Program; and the Residential Energy Finance Line Item Charge (EFLIC) Program. The EFLIC Program is only offered in PG&E's service territory. The pilots also consist of two off-bill programs: Single Family Loan Program (aka Residential Energy Efficiency Loan Assistance Program or REEL) and Off-Bill Small Business Lease Providers Program. During 2016, SoCalGas was actively involved and took a lead role in supporting California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) with launching the REEL program, successfully developed, engaged in the development of the commercial pilots, and assisted with securing additional administrative budget for CAEATFA through comments and support. Additionally, SoCalGas managed the California Hub for Energy Efficiency Financing (CHEEF) agreement including administration of quarterly invoicing and reporting activities and led efforts to amend the CHEEF agreement to meet program and administrative objectives.

Effective Collaborations of Programs

SoCalGas continued program collaboration efforts among different programs, as well as externally with municipalities and IOUs to ensure integration of natural gas/electric/water efficiency, solar, demand response, and advanced metering offerings. SoCalGas' single point-of-contact (SPOC) strategy for the multi-family sector delivered significant energy savings results. In 2016, SoCalGas enrolled over 6,000 multi-family units in the low-income Energy Savings Assistance (ESA) Program, Energy Efficiency Multifamily Rebate Program, and On-Demand

Efficiency Program. Leveraging the SPOC strategy also resulted in enrolling the single largest residential retrofit project in the SoCalGas' Multifamily Energy Upgrade California Program.

Project of the Year: Residential Multifamily Programs

Working together with a property owner and Los Angeles Department of Water and Power (LADWP), SoCalGas coordinated one of the largest residential energy efficiency retrofit projects in California. The property, one of the largest residential properties served by SoCalGas, houses over 11,000 residents and is comprised of high-rise towers and garden-style apartments as well as common-areas (i.e., garages, swimming pools, offices and maintenance yards). The project yielded the most energy savings (annual savings of 275,000 therms and 8,500 kWh) and financial incentives ever for a SoCalGas residential energy efficiency program. This project's success creates a road map for other property owners to follow, and illustrates what is possible when property owners, utilities and contractors collaborate closely to achieve the common goal of energy efficiency. As a result, the project was nominated for the LA Better Building Challenge residential project of the year.

2016 Program Roster

Continuing off the successes of 2015, these program highlights reflect a fraction of the accomplishments during program year 2016. Pursuant to Decision (D.) 14-10-046, SoCalGas was authorized \$83.6 million in funding for the SoCalGas portfolio of energy efficiency programs. The annual funding levels established in the 2013-2014 cycle were extended in 2016 by D.14-10-046 to allow the continuation of EE programs in California.

These programs include the following:

Statewide Energy Efficiency Programs

- California Statewide Program for Residential Energy Efficiency
- Commercial Energy Efficiency Program
- Industrial Energy Efficiency Program
- Agricultural Energy Efficiency Program
- Emerging Technologies Program
- Codes and Standards Program
- Workforce Education and Training
- Statewide Marketing Education and Outreach
- Statewide Integrated Demand-Side Management (IDSMS)
- Energy Efficiency Finance Programs

Government/Institutional Energy Efficiency Partnership Programs

- California Department of Corrections Partnership
- California Community College Partnership
- University of California/California State University/IOU Partnership
- State of California/IOU Partnership
- Los Angeles County Partnership
- Kern County Partnership

- Riverside County Partnership
- San Bernardino County Partnership
- Santa Barbara County Partnership
- South Bay Cities Partnership
- San Luis Obispo County Partnership
- San Joaquin Valley Partnership
- Orange County Partnership
- SEEC Partnership
- Community Energy Partnership
- Desert Cities Partnership
- Ventura County Partnership
- Local Government Energy Efficiency Pilots
- New Partnerships Programs
- Regional Resource Placeholder
- Gateway Cities Partnership
- San Gabriel Valley COG Partnership
- City of Santa Ana Partnership
- West Side Cities Partnership
- City of Simi Valley Partnership
- City of Redlands Partnership
- City of Beaumont Partnership
- Western Riverside Energy Partnership
- North Orange County Cities Partnership
- San Bernardino Regional Energy Partnership

Third Party Energy Efficiency Programs

- Small Industrial Facility Upgrades
- Program for Resource Efficiency in Private and Public Schools
- On Demand Efficiency
- HERS Rater Training Advancement
- Multifamily Home Tune-Up
- Community Language Efficiency Outreach
- Multifamily Direct Therm Savings
- LivingWise™
- Manufactured Mobile Home
- California Sustainability Alliance
- Portfolio of the Future
- PACE
- Innovative Designs for Energy Efficiency Activities
- Instant Rebates! Point of Sale Food Service Equipment Program
- Water Loss Control Program
- Commercial Sustainable Development Program

- On Demand Efficiency for Campus Housing
- Energy Advantage Program for Small Business
- Connect
- Historical Building Energy Efficiency
- Clear Ice
- On-Premise Ozone Laundry

SoCalGas describes the activities performed and the successes achieved during the 2016 program year in these programs in the section entitled *Program Description and Strategies* below.

Program Descriptions and Strategies

Statewide Program for Residential Energy Efficiency

The Statewide Residential Energy Efficiency sector program is designated as the California Statewide Program for Residential Energy Efficiency (CalSPREE). CalSPREE offers and promotes both specific and comprehensive energy solutions for residential customers. By encouraging adoption of economically viable energy efficiency technologies, practices, and services, CalSPREE employs strategies and tactics to overcome market barriers while delivering services that support the CPUC's Strategic Plan.

CalSPREE's focus 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 IOUs - consisting of SoCalGas, San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE), and Pacific Gas and Electric Company (PG&E) - have implemented a number of different residential EE subprograms that are in various stages of maturity and availability across the state. CalSPREE integrates all of these subprograms to coordinate efforts and increase comprehensiveness of EE measure delivery.

The CalSPREE includes seven statewide subprogram elements that together comprise the core product and service offerings. These subprograms are: Energy Advisor, Plug Load and Appliances, Plug Load and Appliances Point of Sale, Multifamily Energy Efficiency Rebates, Energy Upgrade California Home Upgrade Program, Residential Heating, Ventilation, and Air Conditioning, and California Advanced Homes Program.

SCG3701 Statewide CalSPREE - Energy Advisor

The SoCalGas Residential Energy Advisor subprogram is a continuation of the existing statewide Energy Advisor subprogram within the residential energy efficiency portfolio. Although the IOUs share similar program theories, goals and design elements, each IOU may be implementing a unique tool by a different vendor.

In 2016, the SoCalGas Residential Energy Advisor subprogram continued to help customers understand how and when they have been using energy. Customers have the knowledge and tools available to improve their energy efficiency, energy use management, and where appropriate, will be guided to advancing whole-house energy solutions. The subprogram utilizes behavioral outreach initiatives and interactive tools designed to engage and encourage customers to reduce their energy consumption through subprogram recommendations and, as warranted, IDSM opportunities.

In 2016, SoCalGas Residential Energy Advisor subprogram exceeded its program goal by successfully completing 10,000 completed surveys (either online or printed). Year-end 2016 results include over 6,000 online surveys and 7,800 printed surveys.

The SoCalGas Residential Energy Advisor subprogram continued to provide survey processing for the third party SCG3770 PACE Energy Savings Project Program, which provides in-language (Spanish, Chinese, Vietnamese, and Korean) outreach to hard-to-reach customers. Additionally, SoCalGas piloted a short, visually-focused print survey to test the response rate, effectiveness, and customer satisfaction of a more visual survey format versus the heavy text booklet survey. Approximately 10,000 pilot surveys were mailed out, with no incentive provided (e.g. EE Kit or other free item). A customer feedback card was included to evaluate customer opinions of the format. The mailing resulted in a 17.9% response rate, a 10.9% increase from the traditionally used booklet, text-only survey. Customer feedback was positive and overall satisfaction was extremely high, indicating that the surveys were easy to follow and that the visuals made answering questions quick. SoCalGas plans to test this survey again with a larger mailing in 2017, coupled with a promotion of an energy efficiency kit to drive a higher response rate.

SCG3702 Statewide CalSPREE - Plug Load and Appliances

The SoCalGas Residential Plug Load and Appliances (PLA) subprogram consists of the Home Energy Efficiency Rebate (HEER), Business Consumer Electronics (BCE) and Appliance Recycling (ARP). The SoCalGas Residential PLA subprogram develops and builds upon existing relationships with retailers and includes 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 IDSM subprogram.

The SoCalGas Residential PLA subprogram achieved success in 2016 through improved and continued efforts with participating retail partners. This included the use of in-store signage, increased program visibility and weekly in-store events with third party retail contractors. In

2016, the SoCalGas Residential PLA subprogram also managed to increase visibility in hard-to-reach areas through in-store marketing communication and retail store site visits. The success of these efforts is attributed to multiple marketing and outreach campaigns which contributed to the SoCalGas Residential PLA subprogram meeting or exceeding its respective Program Implementation Plan (PIP) forecasts. The online application aided in application processing.

The SoCalGas Residential PLA subprogram introduced multiple measure rebates in 2016 including the smart thermostat rebate; natural gas dryer rebate; and the thermostatic tub spout rebate. However, the PLA subprogram experienced delays with in-store marketing and rebate application materials in the beginning of 2016. The PLA subprogram did not meet overall subprogram objectives for 2016.

SCG3703 Statewide CalSPREE - Plug Load and Appliances Point of Sale

The SoCalGas Residential PLA Point of Sale (POS) subprogram is a merger of the former HEER, BCE, and ARP. This SoCalGas Residential PLA POS subprogram develops and builds upon existing point of sale retailer relationships and includes Responsible Appliance Disposal (RAD) appliance recycling strategies. PLA POS offers instant rebates and incentives to customers when they purchase and install Energy Star[®] qualified appliances such as clothes washers. The subprogram has the added benefit of recycling inefficient refrigerators and freezers, as well.

In 2016, the statewide Residential PLA team each continued efforts to more effectively and actively recruit new and engage with existing retail partners in developing programs and enhance retail store presence. The goal is to increase retailer/customer participation and utility visibility at retail locations. Residential appliance rebate offerings have become the major contenders for future Residential PLA POS subprogram developments and additional programs are being evaluated. Promotions focused on using consistent POP marketing material statewide and weekend local store outreach, setting the foundation for new targeted promotions and more retailers to participate in the future.

The SoCalGas Residential PLA POS subprogram exceeded both annual and program cycle goal savings and objectives in 2016. Much of the continued success was due in part to the continuing Residential PLA POS subprogram with the participating “big box” retailer and continued in-store events throughout 2016 that helped aid in awareness of the rebate program.

SCG3704 Statewide CalSPREE - Multifamily EE Rebates

The SoCalGas Residential Multifamily Energy Efficiency Rebates (MFEER) subprogram offers rebates to multifamily building owners and managers for installation of qualified energy efficiency products in apartment dwelling units and in common areas of apartment complexes, condominiums and mobile home parks. Energy efficiency measures include insulation, water heating and space heating.

In 2016, SoCalGas Residential MFEER subprogram continued to use the Single Point of Contact (SPOC) to outreach and assist customers with measure information, completing forms and information regarding the various multifamily subprograms. The SPOC was augmented by the use of the whole building consultant. The consultant was tasked with using their resources to outreach and enroll customer in the SoCalGas Residential multifamily subprograms including MFEER. This resulted in property owners submitting multiple applications for multiple properties. In addition, SoCalGas continued to outreach to the multifamily sector via tradeshows, events, print ads and coordination with other SoCalGas Residential MF subprograms.

The SoCalGas Residential MFEER subprogram changes in 2016 included expansion of the SPOC with a whole building consultant to assist with coordination of other multifamily energy efficiency programs in an effort to increase program participation and benefits to customers. The consultant brings a wealth of multifamily experience in addition to customer contacts that can drive participation. A temporary incentive increase for central water heating systems was offered in an effort to increase participation as well. The SoCalGas Residential MFEER subprogram also added a central system tank-less measure and a condensing central system water heater to the mix of measures. The SoCalGas Residential MFEER subprogram met and exceeded its 2016 therm savings goal.

SCG3705 Statewide CalSPREE - Energy Upgrade California Home Upgrade

The SoCalGas Residential Energy Upgrade California® Home Upgrade Program (HUP) 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 single family detached homes. Contractors employ building science principles and use sophisticated diagnostic equipment to detect the cause of home performance related problems, and quickly and accurately address them. The SoCalGas Residential HUP promotes both a Basic and Advanced path to retrofitting, allowing the customer to choose from a variety of measures that best suit their home and personal needs.

By partnering with the three IOUs and two municipalities, SoCalGas Residential HUP exceeded their unit and therm goal by over 500% in 2016 with joint programs in the shared territory with PG&E, SCE, SDG&E, LADWP, and the City of Burbank. SoCalGas continued its efforts to streamline program reporting requirements, train realtors/appraisers in EE and recruit and train contractors. Building on 2016 improvements, the IOUs have continued to work closely with program participants to identify and resolve application and process challenges through desktop procedure review practices, improved inspection processes and additional training to contractors.

The SoCalGas Residential HUP subprogram barriers in 2016 included: the high cost of projects to customers; lack of budget to handle growth of the program; and continuous changes to the program to align with Regional Energy Network (REN) and other IOU programs in order to

eliminate confusion with customers and contractors within the surrounding territories. The subprogram exceeded its unit and therm savings goals for 2016.

Energy Upgrade California® Multifamily

Within SoCalGas Residential HUP includes the Energy Upgrade California® Multifamily (multifamily Whole Building), which is an evaluation subprogram for SCE and SoCalGas as an extension of the existing statewide subprogram. The primary purpose is to test performance based approaches in the multifamily housing retrofit market by assisting property owners and managers with making informed decisions regarding energy reductions and savings for their properties. The multifamily Whole Building subprogram promotes long-term energy benefits through comprehensive EE 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. The subprogram utilizes professional energy consultants to perform energy audits using approved multifamily audit tools and procedures to evaluate potential EE measures based on a least cost, maximum benefit approach customized to each property's specific needs.

The SoCalGas Residential Multifamily Whole Building project completed all projects and reached its unit goal for 2016. The SPOC helped move properties along the participation process. Property owners have embraced the SPOC as well as the assistance provided by the Program consultants. By paying for the property audits the programs removed a rather large barrier to participation. Energy assessment provided an accurate rebate of the final rebate, thus allowing property owners to make informed decisions.

In 2016, the multifamily Whole Building subprogram barriers included, access to investment capital and insufficient return on investment; cost of eligible measures; delays due to processing as a result of program rules to programs rules (CAZ/CAS, Safety, etc.); and the oversight required, making the process cumbersome and labor-intensive.

Middle Income Direct Install

The SoCalGas Middle Income Direct Install (MIDI) is a direct install program for customers whose income falls between 201% and 300% of the federal poverty guidelines. MIDI works in collaboration with the income qualified Energy Savings Assistance Program (ESA) using the ESA contractors to initiate leads for MIDI, with a goal of 2,000 units per year. To close the financial gap, no-cost measures are installed, reducing the total amount of money a customer would need to invest in their property in order to participate in HUP or the multifamily HUP Pilot.

MIDI works as designed, and has been able to serve all eligible customers requesting service in SoCalGas territory. Using ESA contractors has allowed MIDI to work with all IOUs which in turns allows the MIDI to serve all eligible customers.

SCG3706 Statewide CalSPREE - Residential Upstream HVAC

The SoCalGas Residential Upstream Heating, Ventilation and Air Conditioning (HVAC) subprogram is modeled after the commercial upstream HVAC subprogram. Incentives are provided to upstream market actors for the sale of high-efficiency residential HVAC systems in the IOU service territory. By offering equipment incentives upstream, the subprogram maximizes the opportunities to influence the purchase decision and transformation of the furnace market through the supply chain.

SoCalGas, through its third party vendor, recruited three distributors to participate in the SoCalGas Residential Upstream HVAC subprogram. Customer data requirements from the manufacturers and distributors were an issue due to the difficulty involved with obtaining customer information from contractors. Nevertheless, the SoCalGas Residential Upstream HVAC subprogram continued to evolve and SoCalGas remained committed to looking for ways to engage and increase participation in the program. SoCalGas will be looking to add additional manufacturer and distributor participants in 2017.

The Residential Quality Installation (QI) subprogram provides incentives to SoCalGas customers for the installation of high efficiency gas furnaces when installed to Energy Star[®] HVAC Quality Installation specifications by a participating contractor. The Residential QI subprogram continued to grow with significant program participation in 2016 compared to 2015. A total of eight contractors signed up to participate in the program with additional contractors expected to participate in 2017. In addition, SoCalGas continues to work with SCE to determine energy savings and cost-effectiveness of measures by climate zone for the residential QI subprogram.

The high cost of equipment and Title 24 enforcement proved to be prohibitive program barriers as the added cost of quality installation and permitting requirements led customers to choose a less expensive installation over a quality installation. The Residential QI rebate amounts may not be high enough to offset the cost of the equipment. The Residential QI subprogram is constantly evolving and SoCalGas continues to look for ways to engage contractor participation in the subprogram.

SCG3707 Statewide CalSPREE - California Advanced Homes

The SoCalGas California Advanced Homes Program (CAHP) is a comprehensive residential new construction subprogram concept with a cross-cutting focus on sustainable design and construction, green building practices, energy efficiency, and emerging technologies. Through a combination of education, design assistance and financial support, the CAHP works with building and related industries to exceed compliance with the California Code of Regulations, Title 24, Part 6, Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Standards), to prepare builders for changes to the Standards and to create future pathways beyond compliance and traditional energy savings objectives. Participation is open to single-family as well as low-rise and high-rise multi-family residential new construction built in an IOU service territory.

For 2016, CAHP was another successful year due to the accumulation of sufficient energy savings and project and unit participation to surpass 2016 program goals. The residential new construction market has continued its success as seen from 2013, 2014, and 2015. The CAHP met its program objectives in 2016.

The major barrier for 2016 continued to be the increasing Title 24 standards as the State approaches Zero Net Energy (ZNE) goals. It is becoming progressively more difficult for builders to exceed code requirements by a sizable margin and the base case energy allowance for residential units is becoming so low that allowable claimed savings are quickly diminishing. Also, the measures necessary to reach qualification are currently more difficult to implement and involve whole building design changes. The statewide CAHP team is addressing these concerns through strategic statewide program efforts that will be geared towards working directly with the builders and design teams to help them reach these targets.

Statewide Commercial Energy Efficiency Program

The Statewide Commercial Energy Efficiency (CEE) 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 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. 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 CEE Program consists of six core statewide subprogram 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, Mid-Stream Water Heating Rebates, Commercial Direct Install, and local government partnerships that have close ties to Business Improvement Districts.

SCG3708 Statewide CEE - Energy Advisor

The SoCalGas Commercial Energy Advisor (CEA) subprogram utilizes outreach initiatives and data driven interactive tools designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

The CEA subprogram met its yearly audit goals of reaching and providing feedback to 790 customers to achieve energy efficiency and take advantage of EE program offerings. SoCalGas will enhance its current CEA subprogram and energy efficiency product offerings in 2017. CEA will continue to deliver value audit reports to the customer, reporting will evolve to include all energy efficiency offerings, not limited to equipment-based.

Customers are reluctant to act and commit to energy efficiency if not persuaded by any other enforcement than simply being energy-efficient. Natural gas continues to be an inexpensive conduit of energy and ranks low in customers' equipment upgrade policies.

SCG3709 Statewide CEE – Continuous Energy Improvement

The SoCalGas Commercial Continuous Energy Improvement (CEI) is subprogram designed to make energy an organizational priority for customers by employing change management and process improvement strategies to energy management, resulting in energy efficiency projects and driving savings. CEI Energy Advisors provide strategic energy management coaching, consulting, and training. Program milestones for each engagement include forming an energy management team, creating a baseline model of energy intensity, conducting organizational and ASHRAE Level 1 and/or 2 assessments, creating a prioritized pipeline of measures, setting an energy reduction goal, developing a plan to reach the goal, and adopting strategic energy management principles as part of a standard operational practice.

A valuable component of CEI is the identification of EE measures resulting in a pipeline of bankable projects. In 2016, 525 projects were identified through ASHRAE Level 1 and 2 assessments and data analytics. These projects, with significant potential savings, were prioritized by program participants supported by their CEI Energy Advisors.

The CEI Energy Advisors surveyed assigned account executives and received positive feedback regarding the SoCalGas Commercial CEI subprogram. Account executives cited that the SoCalGas Commercial CEI subprogram strengthened the customer/utility relationship, increased customer/utility communication, and increased customer awareness of energy efficiency programs. One account executive mentioned that the customer is now partnering with the utility to discuss and consider energy efficiency when they were not engaged before.

The CEI Energy Advisors maintained minimal contact with the previous year's CEI participants; however, it was noted that the customers continued to strategically manage energy in 2016. Given access to their data, the CEI Energy Advisors were able to model energy savings by normalizing metered data against multiple variables including weather, occupancy, and calendar variability.

Several participants experienced turnover at the Energy Champion position in 2016. Energy Champions are instrumental in leading the operations of CEI, and they are often managing this effort in addition to their regular jobs. The loss of an Energy Champion can slow or halt the progress of CEI as it did with 2016 participants. It can take significant time to recover from the loss of an Energy Champion, especially when they occupied key positions in the company. This can be mitigated with succession planning activities such as assigning a co-champion at the beginning of the engagement.

In anticipation and preparation of the future roll-out of a resource-based Strategic Energy Management (SEM) program, reporting formats were streamlined and updated to more easily identify utility influence on customer decisions to implement projects.

The most notable change to the SoCalGas Commercial CEI subprogram in 2016 was the incorporation of data analytics into the assessment process. Data analytics capabilities were utilized to perform remote audits of a large multi-site participant. This approach allowed the CEI Energy Advisor to gather actionable information for a broad number of buildings. The effort generated energy baselines for each site, as well as 473 actionable measures made up of 163 capital recommendations and 310 operational/behavioral recommendations.

SCG3710 Statewide CEE - Calculated Incentives

The SoCalGas Commercial Calculated Incentives subprogram offers incentives for customized new construction, retrofit and retro-commissioning energy efficiency projects. It also provides comprehensive technical and design assistance. Incentives are paid on the energy savings above and beyond baseline energy performance, which include state-mandated codes, federal-mandated codes, industry accepted performance standards, or other baseline energy performance standards.

The SoCalGas Commercial Calculated Incentives subprogram includes the Savings by Design (SBD) offering, which serves the commercial new construction segment. SBD promotes integrated design by providing owner incentives, design team incentives, and design assistance to participants who design spaces that perform at least 10% better than Title 24. SBD is offered in collaboration with SCE and LADWP in the respective shared territories.

In 2016, through the continued utility partnerships, the SBD subprogram captured a variety of project types. In 2016, SoCalGas' SBD participation rates increased. SBD coordinated with a number of internal and external stakeholders to understand the program's successes and possible improvements for re-design. The statewide group collaborated closely to work through any challenging issues that builders, designers or customers faced.

The SoCalGas Commercial Calculated Incentives subprogram also offers the Retro-Commissioning (RCx) subprogram. The goal of the RCx subprogram is to assist customers in reducing their operating costs through cost-effective energy savings, focused on the identification and implementation of low-cost / no-cost operational improvements and on optimizing how existing equipment operates as an integrated system.

SoCalGas continued its collaboration with both SCE and the LADWP in implementing two RCx programs within the utilities' shared service territories. For these SoCalGas collaborations, both LADWP and SCE act as the "lead utility" in implementing these co-funded programs.

As with previous years, the RCx subprogram has experienced reduced uptake in RCx projects due to the implementation of an approach which requires the customer to contract with their own RCx provider for an audit instead of the audit being conducted by IOU-contracted RCx providers. The change in the subprogram business model was intended to encourage customers to move forward with implementing RCx projects, rather than just taking advantage of a "no cost" RCx audit of their facilities, which historically did not always lead to action on the part of customers. The new RCx subprogram approach was designed to increase the success rate in

moving projects from the audit phase to the measure-implementation phase. The new model's intent was to place more onus on the RCx Provider as a means of motivating them to take the next step with the customer in implementing measures, thereby increasing the conversion rate of RCx audits to the actual implementation of RCx energy saving measures; however, there continues to be a notable decline in RCx activity using this business model.

The CPUC Energy Division's *ex ante* parallel review process and program guidance changes continued to be a common issue with customers and trade professionals. The additional time and expense of complying with increasingly complex program requirements was a hurdle for customer participation. SoCalGas participated in the *ex ante* parallel review and incorporated lessons learned into program design during the year. SoCalGas continued use of a post installation review to "true-up" savings for custom projects and provided training and performed quality control procedures in order to screen out ineligible projects.

SoCalGas provided training and performed quality control procedures in order to screen out ineligible projects. Continuous review was performed to improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the CPUC *ex ante* review process.

SCG3711 Statewide CEE - Deemed Incentives

The SoCalGas Commercial Deemed Incentives subprogram offers rebates to customers in an easy to use mechanism to offset the cost of off-the-shelf energy saving equipment to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit for measure.

The SoCalGas Commercial Deemed Incentives subprogram also offers distributor and manufacturer incentives that aim to eliminate incremental initial cost to the customer via a midstream approach. The subprogram's objective is to assist SoCalGas customers in saving money and energy. The SoCalGas Commercial Deemed Incentives subprogram at the same time educates and motivates SoCalGas customers' plumbers and contractors about the benefits of participating in energy efficiency rebate programs. The primary goal of the Commercial Midstream Water Heater Distributor Rebate program is to increase water heater purchases by having distributors stock and sell high efficiency water heaters; have equipment readily available for SoCalGas customers at a discounted price; and provide the distributor a rebate directly for their efforts.

In 2016, marketing outreach for both food service equipment vendors as well as non-food service equipment in conjunction with SoCalGas' TradePro directory continues to contribute to increased program participation.

Since transitioning to the Midstream methodology for the water heaters, significant success was gained:

- More than twice the amount of water heaters was rebated than what was expected to be allocated towards the 2016 goal.
- Partnering with the distributors reduced the upfront cost to the customer versus the customer filling out an application and waiting for a rebate payment in the mail.
- Encouraged distributors to sell higher efficiency water heaters to customers, year-end results indicated an increase in the amount of rebates for water heaters with a 90% or higher efficiency.
- Achieved stronger relationships between the customers, plumbers, contractors, SoCalGas representatives, and distributors, as well being consistent with outreach and marketing efforts among all parties involved.

New measures - laminar flow restrictors and ozone laundry systems - were added to the program in 2016 with good uptake.

The SoCalGas Commercial Deemed Incentives subprogram exceeded projected 2016 savings goal objectives due to the combination of the Midstream Water Heater Distributor Rebate Program and to the marketing efforts of the food service outreach as well as the activities of Trade Pro directory. The therm exchange mechanism partnership with SCE was also a valuable savings contributor.

SCG3712 Statewide CEE - Commercial HVAC

The SoCalGas Commercial HVAC subprogram delivers a comprehensive set of midstream and upstream strategies that builds on existing programmatic, educational, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality-driven market.

The Commercial Upstream HVAC Equipment Incentive offers incentives for Commercial Quality Installation (C-QI) and Commercial Quality Maintenance (C-QM) to distributors who sell qualifying high-efficiency commercial HVAC equipment to increase the stocking and promotion of such equipment.

C-QI addresses commercial installation practices to ensure that equipment is installed and commissioned per industry standards and also attempts to minimize losses and inefficiencies that can exist at key sub-system level points below the HVAC unit itself. The Commercial HVAC Quality Installation Contractor Education and Customer Awareness programs were based on Air Conditioning Contractors of America (ACCA) standards. ACCA staff and other industry stakeholders in the Western HVAC Performance Alliance (WHPA) collaborated to validate the market transformation groundwork being laid and ensure that quality installation standards could be verified in the field in a sustainable fashion for Commercial HVAC.

C-QM addresses commercial maintenance practices to ensure that equipment is serviced per industry standards and that the maintenance efforts support the long-term strategic goal of transforming the trade from commodity-based to quality-based. C-QM promotes increased quality levels in HVAC maintenance through the use of ACCA standards.

Throughout 2016, SoCalGas worked with the Statewide IOU HVAC program teams individually and through the WHPA on improving elements of the Commercial HVAC programs including the development of statewide C-QM work papers and coordinating efforts on Workforce, Education and Training (WE&T), and inspection requirements, further reducing the administrative burden.

Further enhancing stakeholder collaboration, SoCalGas participated in the WE&T HVAC Sector Strategy kick off where best practice regarding current program design and training strategies were shared across IOU's. These efforts also yielded a WHPA QM User Guide for ACCA and ASHRAE and further investigation of performance-based program design and development.

The collaboration of IOUs across multiple WHPA committees plotted a successful course to meet the HVAC Long Term Strategic Plan and market transformation goals in 2016. Although great progress has been made, there were still challenges encountered including the unapproved Database for Energy Efficient Resources (DEER) 2016 work paper updates that have the potential to lower total resource costs and decrease energy savings and addressing the development of new work papers to capture unitary equipment not included in DEER. Finally, there has been progress made ensuring that there is seamless alignment with AB 802.

In order to adapt to market forces and regulatory requirements, SoCalGas continued to evaluate and adjust elements of the program such as introducing tiers to further promote high efficiency units. In addition, SoCalGas worked with the IOU statewide team to review and align incentives for consistency and to achieve continuity across program offerings. A key deliverable identified was the need to develop a matrix to integrate program design, engineering, Evaluation Measurement and Verification (EM&V), and WE&T.

SCG3805 Statewide CEE - Direct Install Incentives

The SoCalGas Commercial Direct Install (CDI) subprogram delivers no-cost or low-cost energy efficiency equipment retrofits to small and medium-sized commercial businesses throughout SoCalGas' service territory. The retrofits are to be completed through installation contractors to reduce energy and water usage, and result in resource savings for public and private commercial customers. The subprogram targets these customers in a staged delivery approach that provides program services in specific geographic areas allowing for a more concentrated, directed, and comprehensive program.

SoCalGas was approved to launch the CDI subprogram in the second quarter of 2016. SoCalGas took a three-fold approach to implementing the program. SoCalGas partnered with SCE's CDI subprogram in joint service territories to leverage existing infrastructure and integrate natural gas energy efficiency measures to ensure comprehensive energy efficiency solutions for customers.

SoCalGas also partnered with LADWP's CDI subprogram in joint service territories to leverage existing infrastructures and incorporate natural gas energy efficiency measures to ensure comprehensive demand-side management solutions for customers.

Lastly, SoCalGas conducted a competitive solicitation for a CDI program that would target specific high-usage, underserved segments of the commercial market including businesses in low-income communities that may not have funds to pursue energy efficiency upgrades. This approach consists of having one contractor install measures in the targeted segments, such as, but not limited to the lodging and healthcare segments.

Statewide Industrial Energy Efficiency Program

The Statewide Industrial Energy Efficiency (IEE) Program provides services to improve the energy efficiency of industrial facilities in California. The primary services offered to industrial customers include:

- Energy audits covering EE and demand management opportunities;
- Technical assistance in measure 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 are based on deemed energy savings by per unit of equipment and calculated energy savings by per unit of energy.

The Statewide IEE Program includes four statewide subprogram elements that together comprise the core product and service offerings. Each IOU 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.

SCG3713 Statewide IEE - Energy Advisor

The SoCalGas Industrial Energy Advisor (IEA) subprogram utilizes outreach initiatives and data driven interactive tools designed to engage and motivate customers to reduce their energy consumption through personalized program recommendations.

The SoCalGas IEA subprogram met its yearly audit of reaching and providing feedback to 445 customers to achieve energy efficiency and take advantage of EE program offerings. SoCalGas will enhance its current subprogram and energy efficiency product offerings in 2017. IEA will continue to deliver valuable audit reports to customers, and reporting will evolve to include all energy efficiency offerings, not limited to equipment-based.

Customers are reluctant to act and commit to energy efficiency if not persuaded by any other enforcement than simply being energy efficient. Although air quality agencies provide a beneficial support to equipment upgrade, the proportionality between combustion efficiency and

energy efficiency can prevent choosing an energy efficient option. Natural gas continues to be an inexpensive conduit of energy and ranks low in customers' equipment upgrade policies.

SCG3714 Statewide IEE - CEI

The SoCalGas Industrial Continuous Energy Improvement (CEI) subprogram is a consultative service that is aimed at helping industrial customers engage in long-term, strategic energy planning. SoCalGas Industrial CEI helps customers better manage energy using a comprehensive approach that addresses both technical and behavioral and operational improvement opportunities and creates sustainable practices through a high-level commitment from executive-level management.

The SoCalGas Industrial CEI Energy Advisors provide strategic energy management coaching, consulting, and training. Services offered as part of the CEI subprogram involve organizational and technical assessments of customers' energy management practices, long-term strategic energy planning, action plan implementation, quantifying energy savings, and updating of plans to provide continuous improvement.

A valuable component of CEI is the identification of measures resulting in a pipeline of bankable projects. In 2016, 127 projects were identified through ASHRAE Level 1 and/or 2 assessments and prioritized by program participants supported by their Energy Advisors.

The Industrial CEI Energy Advisors surveyed assigned account executives and received positive feedback regarding the program. Account executives cited that the CEI subprogram strengthened the customer/utility relationship, increased customer/utility communication, increased customer awareness of energy efficiency programs, and increased their understanding of overall customer needs. One account executive cited that CEI provides support in documenting utility influence on the customer decision to move forward with energy efficiency projects.

During 2016, the SoCalGas Industrial CEI subprogram continued CEI engagements with ten customers who enrolled in the program in 2015 or earlier. These customers represented different industrial sectors. Extended "light touch" Measurement & Verification (M&V) CEI assistance was provided to these customers including continued tracking of energy use key performance indicators (KPIs), review and updating of strategic energy management plans, and helping customers follow through with EE project implementation. A total of 30 additional energy saving measures were identified and added to these extended "light-touch" customers' Project Trackers.

In 2016, utility account executives were instrumental in the recruitment of every industrial participant. This is the first time that the program was able to rely exclusively on this preferred recruiting channel. The vital nature of utility account executives in promoting CEI to their customers is evidence of a more mature market that is ready to embrace strategic energy management.

One participant that excelled in CEI was able to document and implement energy management standard procedures that will be in place beyond the CEI engagement. They now routinely find and repair steam and compressed air leaks, and they implement equipment start-up and shutdown procedures where they used to leave machinery turned on, even when the facility was not in production. These efforts resulted in significant energy savings with additional natural gas measures currently in the approval process.

Some participants had difficulty maintaining CEI momentum because of pending business changes. CEI activities are often deprioritized in the face of major business changes. In addition, the complexity and variability of industrial processes complicates establishing a consistent baseline period for use in quantifying improvements and energy savings. Frequent changes and variability in production activities can impact tracking of energy use and the ability to quantify energy savings. Customers typically have limited resources available to document changes in production operations that impact energy use.

There is a need for energy sub-metering and improved process monitoring automation to facilitate the collection of energy and production variables that will allow energy-related improvements to be quantified. In anticipation and preparation of the future roll-out of a resource-based Industrial Strategic Energy Management (SEM) program, reporting formats were streamlined and updated to more easily identify utility influence on customer decisions to implement projects.

Based on feedback of some previous years' program participants, a "light touch" measurement and verification consulting service was engaged. This assisted customers in maintaining their CEI activities and monitoring customers' persistence in applying CEI principles in their operations as well as extended post-engagement monitoring.

SCG3715 Statewide IEE - Calculated Incentives

The SoCalGas Industrial Calculated Incentives subprogram offers incentives for customized retrofit EE projects. The subprogram features incentives based on calculated energy savings for measures installed as recommended by comprehensive technical and design assistance for customized and integrated energy efficiency/demand response initiatives in new construction and retrofit projects. SoCalGas continues to use a post installation review to "true-up" savings for custom projects.

Heat recovery and boiler measure type projects continue to be large contributors of energy savings for the SoCalGas Industrial Calculated Incentives subprogram. On-going activities such as energy audits of facilities, walk through surveys, and technical assistance for this sector resulted in recommendations for EE projects with calculations/estimates of energy savings for exceeding Title 24 code or industry standard practice baselines.

The SoCalGas Industrial Calculated Incentive subprogram is as complex as the projects it attempts to influence, due to the unique nature of the projects and the particular needs of the segment it is attempting to serve. The increasing complexity of the subprogram was found to

adversely impact participation. For the overall Calculated Incentive subprogram, SoCalGas participated in the *ex ante* parallel review and incorporated lessons learned into program design.

SoCalGas provided training and performed quality control procedures in order to screen out ineligible projects. Continuous review was performed to improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the Energy Division's *ex ante* review team.

SCG3716 Statewide IEE - Deemed Incentives

The SoCalGas Industrial Deemed Incentives subprogram provides services to improve the energy efficiency of industrial facilities in California, including offering financial incentives based on deemed energy savings. The energy savings are deemed for measures installed. The subprogram is part of a suite of programs within the Statewide Industrial Energy Efficiency Program. It also features rebates per unit measure for installed energy-saving projects and provides the IOU, 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. The subprogram also offers rebates to customers in an easy-to-use manner to offset the cost of off-the-shelf energy saving equipment.

The SoCalGas Industrial Deemed Incentives subprogram directly addressed key market factors that led to higher energy costs for California businesses. By providing a menu of prescribed common measures, this simplified the process of reviewing project proposals and provided a per EE measure rebate that reduced the cost of retrofitting outdated and inefficient equipment. This element made it attractive for customers to spend money in the short run to achieve lower energy costs in the long run.

Pipe and tank insulation and steam process boiler measures were the focus for deemed energy savings in 2016 for the industrial sector, however, the subprogram fell slightly short of the projected 2016 savings goal.

Statewide Agricultural Energy Efficiency Program

The Statewide Agricultural Energy Efficiency (AEE) Program facilitates the delivery of integrated energy management solutions to California's agricultural customers. The program offers a suite of products and services, such as 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 CLTEESP.

The Statewide AEE 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. Due to North American Industry Classification System (NAICS) designations, food processors have traditionally received IOU services through the Industrial program offering. However, there are those facilities with on-site processing that

are integrated with 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 subprograms.

SCG3717 Statewide AEE - Energy Advisor

The SoCalGas Agricultural Energy Advisor subprogram brings together services that support customer education and participation in energy efficiency, and energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

The SoCalGas Agricultural Energy Advisor subprogram met its yearly audit goals of reaching and providing feedback to 445 customers to achieve energy efficiency and take advantage of EE program offerings. SoCalGas will enhance its current program and energy efficiency product offerings in 2017. The Agricultural Energy Advisor will continue to deliver value audit reports to the customer, reporting will evolve to include all energy efficiency offerings, not limited to equipment based.

Customers are reluctant to act and commit to energy efficiency if not persuaded by any other enforcement than simply being energy efficient. Although air quality agencies provide a beneficial support to equipment upgrade, the proportionality between combustion efficiency and energy efficiency prevent the choosing of an energy efficient option. The seasonal application of natural gas equipment for the agricultural sector provides a barrier on rate of return, and timing of upgrades while adhering to program and CPUC guidelines. Support and flexibility from governing bodies would help engage the agricultural sector by providing leniency on custom project implementation, and extending their respective industry standard practice implementation. Natural gas continues to be an inexpensive conduit of energy and ranks low in customer's equipment upgrade policies.

SCG3718 Statewide AEE - Continuous Energy Improvement

The SoCalGas Agricultural Continuous Energy Improvement (CEI) subprogram is a consultative service that is aimed at helping agricultural customers engage in long-term, strategic energy planning. SoCalGas Agricultural CEI subprogram helps customers better manage energy using a comprehensive approach that addresses both technical and management improvement opportunities and creates sustainable practices through a high-level commitment from executive-level management.

Due to the on-going California drought conditions in the first half of 2016, agricultural customers were less inclined to enroll in the program; however, some customers contacted at the annual agricultural show indicated that once their water resource issues were resolved, they would be interested in signing up for the SoCalGas Agricultural CEI subprogram in the future.

Since natural gas is primarily used for water pumping and is currently much less of a concern compared to water availability.

The 2016 SoCalGas Agricultural CEI subprogram did not deliver new engagements but a review of enrollment obstacles and additional research into alternative agricultural forums to reach and motivate customers were identified and will be used to inform future outreach. Based upon feedback from two agricultural facilities which were engaged in a prior year's pilot program to determine the issues, addressing the drought issue was a priority for the first half of 2016.

The SoCalGas Agricultural CEI evaluated better outreach methods for agricultural customers to sign up for future program enrollment opportunities. Since cooperatives bring together a number of farmers, they represent a significant opportunity for outreach and for sharing of best practices related to energy management.

SCG3719 Statewide AEE - Calculated Incentives

The SoCalGas Agricultural Calculated Incentive subprogram offers incentives for customized retrofit and retro-commissioning energy efficiency projects. The subprogram also provides comprehensive technical and design assistance.

The SoCalGas Agricultural Calculated Incentive subprogram is as complex as the projects it attempts to influence, due to the unique nature of the projects and the particular needs of the segment it is attempting to serve. The increasing complexity of the subprogram was found to adversely impact participation. For the overall Calculated Incentive subprogram, SoCalGas participated in the *ex ante* review process and incorporated lessons learned into program design. Dispositions limiting participation of large greenhouses and the natural gas engine pump measure used by farmers to pump water both adversely impacted program participation.

The SoCalGas Agricultural Calculated Incentives subprogram provided training and performed quality control procedures in order to screen out ineligible projects. Continuous review was performed to improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the Energy Division's *ex ante* review team.

SCG3720 Statewide AEE - Deemed Incentives

The SoCalGas Agricultural Deemed Incentive subprogram offers rebates to customers in an easy-to-use mechanism to offset the cost of off-the-shelf energy saving equipment.

The subprogram kept focus on replacing existing energy efficient natural gas equipment, and encouraging customers to move up to higher-than-standard efficiency models when purchasing additional equipment. The deemed rebate offering provided 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 or

measure. The subprogram also coordinated its activities with SoCalGas account executives and Commercial and Industrial service technicians to present energy efficiency program details to their customers.

The subprogram exceeded the projected 2016 savings goal objectives. The program attributes its success to the successful delivery of the greenhouse curtain measure which had the internal incentive caps removed to encourage greater participation.

Overall the deemed measure selection is small for this customer-base with much of the selection being based on electric water pumping. The most popular incentive measures in the program were the Greenhouse Heat Curtain and Greenhouse Infrared Film. SoCalGas continued to investigate possible deemed options for gas-powered engines.

Statewide Emerging Technologies Program

The Statewide Emerging Technologies Program (ETP) supports the California IOU Energy Efficiency (EE) programs and helps California meet its energy reduction goals by identifying and screening potential technologies, assessing them to validate performance and customer acceptance, performing in-situ demonstrations and publishing the results of these activities. Well performing technology is recommended for inclusion in investor owned utility (IOU) customer education and rebate programs for wide use by utility customers.

Emerging Technology (ET) activities are implemented through three subprograms:

- The Technology Development Support (TDS) subprogram, which seeks to increase technology supply by educating technology developers on technical and programmatic requirements of rebate measures
- The Technology Assessment Support (TAS) subprogram, which identifies and assesses the actual performance of emerging EE technologies with the goal of increasing the number of measures offered by EE programs.
- The Technology Introduction Support (TIS) subprogram, which helps introduce existing energy-saving technologies that are not already widely embraced by the consumers through demonstration showcases, scaled field demonstrations, and market and behavioral studies, which expose end-users to these technologies in real-world settings. ETP may also use third parties to deploy technologies on a limited scale in the market.

ETP uses a number of tactics to achieve the objectives of its three subprograms. Some of the key tactics are described below, but each tactic may be used to achieve any of the subprogram objectives, and this list is not comprehensive.

ETP efforts in 2016 resulted in the delivery of three potential measures for the EE Customer programs for development into deemed rebates/incentives. They are the advanced thermostat, Rheem H₂AC Rooftop unit that features heat recovery, and the dual setpoint boiler reset controller for combination services. ETP also successfully collaborated with the Portfolio of the Future (PoF) third party program, which resulted in additional progress overall on EE measurement development. ETP continues to work through the challenges of stringent codes &

standards development, technology availability and affordability to customers, as well as the change in paradigm from single technology assessments to integrated “holistic” systems.

Looking to the future, the SoCalGas ETP initiated significant work to manage, plan and implement all activities required to host the 2017 Emerging Technology Summit.

SCG3721 Statewide ET – Technology Development Support

The SoCalGas Technology Development Support (TDS) subprogram provides assistance to private industry in the development or improvement of technologies. Although product development is the domain of private industry, there are opportunities where IOUs can undertake targeted, cost-effective activities that provide value in support of private industry product development efforts. ETP support and guidance can reduce innovator uncertainties and allow them to move forward with promising products. ETP looks for and solicits opportunities to support EE product development, i.e. the process of taking an early-stage technology or concept and transforming it into a saleable product.

ETP uses several activities to support technology developers including:

- Participating in industry, academic and government agency organizations that are also focused on EE technology development and delivery and using leads gained there to work with the developers directly or leveraged with the organizations.
- Periodically participating in a Technology Resource Incubator Outreach (TRIO) symposium, which provides support and networking for EE and DR entrepreneurs, investors, and universities with the goal of providing participants the necessary perspective and tools to work with IOUs and ultimately introduce new EE measures to the marketplace.
- Participating in market and behavioral studies to investigate customer needs in targeted sectors and estimate customer reaction to new technologies and solutions. The key activities in which ETP engages is in product efficiency and functionality testing, as well as communication and collaboration with industries. These activities are often conducted on an ad hoc basis, as windows of opportunity arise.

SoCalGas ETP’s TDS strategies employed and activities conducted in 2016 include:

- Staying abreast of statewide ZNE and HVAC initiatives.
- Collaborating with the Emerging Technologies Coordinating Council (ETCC) on various program activities, including: a TRIO Symposium and Roundtable event hosted by SCE, a First Look West (FLoW) upstream incubator review and judging event and roundtable hosted at Caltech, a Rocket Fund upstream incubator Finalist Interviews hosted by SCE that included an ET Open Forum on early stage technologies, and a CEC EPIC/PIER-ETP Alignment meeting hosted at the UC Davis Data Center.
- Collaborating with industry directly and through industry and academic partners, such as, but not limited to, the Western Cooling Efficiency Center (WCEC), Center for Water-Energy Efficiency (CWEE), the Gas Technology Institute (GTI), Electric Power

Research Institute (EPRI), Energy Solutions Center (ESC), American Council for an Energy Efficient Economy, and Consortium for Energy Efficiency (CEE), in order to provide targeted support for technology development.

- Collaborating with and providing technical advice to innovators from universities and other research institutions such as the California Technical Institute (CalTech) and Department of Energy (DOE) FloW program and the associated Rocket Fund, whose goal is to provide funding and entrepreneurial education for academic innovators starting clean technology companies. This included designating one of the ETCC Open Forums to include these startup companies and establishing with other ETCC members a \$125,000 fund designed to help support these companies on their road to commercialization.
- Participating and engaging with industry stakeholders in CEC's Public Interest Energy Research (PIER) solicitations and projects. Collaborated with six external parties and SoCalGas EE program stakeholders in developing RFP responses, and completed five commitment letters to support various projects, including a demonstration of a low NOx compact furnace for CA tight home construction and ZNE homes. Four projects were chosen by CEC for PIER support.
- Continuing an active partnership with LADWP in a strategic approach to integrate and leverage electric and gas utility efforts to achieve California's energy efficiency goals in the city of Los Angeles. LADWP and SoCalGas collaborated on the completion of the Playa Vista near-ZNE demonstration project, integrating combined heat and power, photovoltaic, and EE measures.
- Assisting a developer of a compact gas flowmeter with telemetry intended for cost-effective appliance gas use measurement for potential energy savings and control applications, including collaborating with SoCalGas in-house gas metering experts and the Cal Poly Pomona engineering faculty. This emerging product was included in two of the CEC proposals noted above, with one receiving CEC PIER funding.

SCG3722 Statewide ET – Technology Assessment Support

Through the Technology Assessment Support subprogram (TAS), ETP evaluates energy efficient measures that are new to the market (or underutilized for a given application) for performance claims and overall effectiveness in reducing energy consumption. A key objective of these assessments is the adoption of new measures into SoCalGas' EE portfolio, where assessment data is used to develop the required workpapers to introduce new EE measures. Historically, technology assessment is a core strength of ETP and has been critical to EE program success. ETP assessments may develop and utilize data/information from different sources including: in situ testing (customer or other field sites), laboratory testing, or paper studies used to support assessment findings.

In 2016, SoCalGas' ETP employed the following strategies and select activities for the TAS subprogram:

- Collaborating with IOU and non-IOU partners and scanning a wide variety of sources to identify suitable assessment candidates.

- Using the statewide database to report project activities on a quarterly basis, and employing a subset of the database to share with the CEE ETC consortium to exchange ideas and to leverage co-funding opportunities.
- Participating in and supporting four ET quarterly meetings held by the ETCC, focused on agricultural, commercial, residential, and data center topics, respectively.
- Participating in and supporting an ET Open Forum on market ready technologies hosted by PG&E.
- Participating in and supported two ET Advisory Council meetings hosted by SCE and SDG&E.
- Employing the E-Source data search capabilities to identify and evaluate new products and their potential for consideration for deemed measures, to avoid duplication of testing.
- SoCalGas ET researched and evaluated test reports on a tub-spout water stop technology that were produced by other utilities that were sufficient for SoCalGas' new measure team was able to use for workpaper development without the need for additional testing.
- Designing and overseeing laboratory and field demonstration technology assessments to gather new technology performance data.
- Producing reports describing TAS results, conclusions and recommendations, and communicating these to internal and external stakeholders for use in new EE measures.
- Transferring assessment results to, participating with and providing guidance and input to Customer Program's Innovation Now! stage-gate process for work paper development, including:
 - NEST thermostat, field tests
 - M2G boiler reset controller, scaled field testing
 - Rheem H2AC air to water heat recovery, field testing
 - Comparison of dual set point boiler controllers for combination service, field testing
 - Tub spout paper research
- Coordinating assessments and sharing technology information through the quarterly meetings of the ETCC, and participating in an ETCC Open Forum, where developers of new technologies have an opportunity to highlight their products to the ETP.
- Successfully identifying technologies and verified savings and benefits to IOU programs.
- Providing technical support and direction to Navigant Consulting Inc.'s Portfolio of the Future third-party program.
- Project managing and leveraging CEC PIER funding for an ongoing low-income housing EE retrofit study in cooperation with EPRI, LINC, and SCE, a project that was selected for later presentation in a CEC sponsored webinar on ZNE technologies and progress.
- Project managing an ongoing and CEC PIER-funded deep retrofit project for commercial kitchen water heating using multiple emerging technologies to assess integrated benefits including energy and operational savings, now led by Fisher-Nickel Inc. under Frontier Energy and GTI.
- Project-managing a CEC PIER funded project to showcase commercial kitchen cooking equipment to assess integrated benefits, including energy and operational savings, led by Fisher-Nickel Inc. under Frontier Energy and GTI.
- Starting a CEC PIER funded project to demonstrate an industrial low-temperature heat recovery system using an Organic Rankine Cycle (ORC), led by EPRI.

- Project managing a CEC funded project to understand and improve solar thermal water heating and cost effectiveness, led by the University of California at Davis.
- Continuing a water and energy nexus behavioral study with UC Davis' Center for Water-Energy Efficiency and the City of Burbank.

SCG3723 Statewide ET - Technology Introduction Support

Technology Introduction Support (TIS) subprogram supports the market introduction of new and existing, but underutilized, technologies to the market, on a limited scale, through several activities, including:

- Scaled Field Placements (SFP), which consist of placing a measure at a number of customer sites as a key step to gain market traction and feedback. Typically, these measures have already undergone an assessment or similar evaluation to reduce risk of failure. Monitoring activities on each scaled field placement are determined as appropriate.
- Demonstration and Showcase (DS) projects, designed to provide key stakeholders the opportunity to "kick the tires" on proven combinations of measures that advance CLTEESP and ZNE goals. DS projects introduce measures to stakeholders at a system level and in real-world settings. Potential customers gain knowledge about applications and installations, and the projects help create broader public and technical community exposure and increased market knowledge. Key attributes of DS projects are that they are open to stakeholders and highlight a systems approach rather than an individual technology approach.
- Market and behavioral studies are designed to perform targeted research on customer behavior, decision making, and market behavior to gain a qualitative and quantitative understanding of customer perceptions and acceptance of new measures and of market readiness and the potential for the new measures.
- Technology Resource Innovation Program (TRIP) solicits third-party projects (of up to \$300,000) to deploy emerging technologies on a limited scale to the market.

In 2016, SoCalGas' ETP employed the following strategies and select activities for the TIS subprogram:

- Conducting residential ZNE demonstrations in partnership with home builders supporting the advancement of state goals, including a commercial near-ZNE showcase integrating several energy savings and emerging technology applications at a LEED Platinum community center at Playa Vista. Developed an annual report white paper for presentation at a future industry conference; conducted two public outreach tours (e.g. Greenbuild LA) and presented initial results in a poster session at the 2016 American Council for an Energy-Efficient Economy (ACEEE) Summer Study conference.
- Performing primary and secondary research, as necessary, to gain market insight.
- Coordinating with the statewide ETCC stakeholders.
- Identifying and screening several technologies to support the AB793 initiative and used in the development of proposed action plans.

- Engaging with the ETCC by participating in quarterly meetings and presentations, advising on website management and other technology implementation support activities.
- Soliciting third party programs through the TRIP solicitation to introduce emerging technologies in limited amounts into the market – SoCalGas scanned the opportunities, did not find a good fit to hold its own solicitation in 2016, but participated in a statewide solicitation seminar hosted by SCE.

SCG3806 Statewide ET - Water Energy Nexus Shared Network Advanced Meter Infrastructure Pilots

The SoCalGas Water Energy Nexus Shared Network Advanced Metering Infrastructure (WEN AMI) Pilots³ have been established to develop and refine the identification of potential hot water leaks based on analytics of both gas and combined water and gas usage data, and to evaluate the potential benefits associated with hot water leak detection and resolution. The WEN Pilots allow for water utilities to leverage the existing SoCalGas Advanced Meter Infrastructure (AMI) network to collect and transmit hourly water usage data, which is used in the analytics effort. Two separate Commission-regulated water utilities, San Gabriel Valley Water Company and California American Water, are participating in this pilot program, and a 3rd party analytics vendor, Valor Water Analytics, is conducting the combined water-gas analytics.

In 2016, the deployment of advanced meter radio modules (Meter Transmission Units or ‘MTUs’) by the participating water utilities was completed, with approximately 1,800 water MTUs successfully transmitting data over the SoCalGas Advanced Meter Network. The analytics period kicked off in the fourth quarter of 2016 for the San Gabriel Valley Water Company WEN AMI Pilot, and the analytics period for the California American Water WEN AMI Pilot will begin in 2017.

The WEN Shared AMI Pilots have been driving to achieve the following program goals: (1) network piggybacking, (2) Combined utility data analytics for hot water leak detection, and (3) Determining energy savings from reduced water loss. The first goal has been met, as both WEN Shared AMI Pilots participants have deployed their pilot water MTUs and are successfully transmitting data over the SoCalGas AMI Network. The WEN Shared AMI Pilots have begun work on Goals 2 and 3 and will continue to these efforts in 2017.

Statewide Codes & Standards Program

The Statewide Codes and Standards (C&S) Program saves energy on behalf of ratepayers by influencing standards and code-setting bodies, such as the California Energy Commission (CEC) and the United States Department of Energy (DOE), to strengthen EE regulations. The C&S Program also supports compliance improvement with existing regulations to maximize gross savings, assists local governments to develop ordinances that exceed statewide minimum requirements, and coordinates with other programs and entities to support the State’s ambitious

³ D.15-09-023, Advice No. 5014, Advice No.4992-A

energy policy goals. C&S Program advocacy and compliance improvement activities extend to virtually all buildings and potentially all appliances sold in California.

Throughout 2016, SoCalGas collaborated with the CEC to initiate over 20 new Codes and Standards Enhancement (CASE) proposals for the 2019 Title 24, Part 6 rulemaking, assisting with related infrastructure and resource development for 2019, and supported preparations for 2016 Standards implementation. SoCalGas also participated in the ASHRAE 90.1 and 189.1 Standards technical committees and working groups.

SoCalGas supported new appliance efficiency standards at both the state and federal levels where four appliance CASE proposals were adopted by the Energy Commission in 2016: LEDs, small diameter directional lamps, computers, and displays. Three new CASE proposals are under development for irrigation emitters, EISA exempt lamps and Standby power. SoCalGas supported 18 federal standards that were adopted in 2016 and four that are scheduled for adoption in 2017 including the collection and submittal of lab test data, market and pricing data, submitting comments, and participating in meetings and working groups.

The Compliance Improvement subprogram delivered 244 Title 24, Part 6 standards-related traditional classroom training sessions, twenty virtual classes, facilitated twenty “Decoding Talks”, and updated all on-line self-study courses to reflect the changes and additions to the standards. The Energy Code Ace tools and resources were updated for the 2016 Standards in addition to launching a new Application Guide series. In close collaboration with the Energy Commission, the statewide C&S Compliance Improvement team developed dynamic compliance resources and checklists, and supported the development of dynamic forms that are expected to be released in 2017. The statewide C&S Compliance Improvement team also developed and updated twelve On-Demand Videos in support of the Energy Commission’s Modernized Appliance Efficiency Database System (MAEDBS), seven fact sheets, and a Water-Energy Nexus online self-study course.

The C&S Program team continued to support expansion of the Reach Code subprogram which was in a growth cycle driven by the new 2016 Title 24 standards and increased focus by local governments on climate action plans. The statewide C&S team is coordinating with the CEC to provide the technical analysis needed to support local jurisdictions adopting local energy ordinances.

Increasing scrutiny by stakeholders to CEC and DOE rulemakings continues to compel increasing rigor to achieve success. Greater rigor was achieved by increasing research (lab testing, field surveys, etc.) which increased costs. The complexity of building codes and the number of appliance standards continued to increase. DOE standards for new product categories continued to increase preemption of state appliance standards and constrain prescriptive baselines for building codes, thereby limiting opportunities for California to require increased cost effective savings.

The audience requiring Title 24, Part 6 training has increased in scope and now includes architects and designers, commissioning agents and acceptance test technicians, distribution inspectors. Increased training modules are required to serve this expanded user group.

There are several opportunities to increase savings from state and federal building codes and appliance standards. There is a need to continue expansion of primary research to ground proposals in data. Looking ahead, code simplification and efficiency improvement of existing buildings will be increasingly important. New reach codes can be developed based on 2016 building codes now that software has stabilized. Collaboration with the statewide C&S Compliance Improvement team to recruit and involve a diverse cross-section of market actors to contribute during the initial advocacy stage of the Building Energy Efficiency Standards rulemaking process can result in improved compliance rates and smoother implementation.

SCG3724 Statewide C&S - Building Codes & Compliance Advocacy

The Building Codes Advocacy subprogram primarily targets improvements to California's Building Energy Efficiency Standards, Title 24, Part 6 while also pursuing changes to national building codes which is updated by the CEC on a triannual cycle. 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 (e.g., the National Fenestration Rating Council, and the Cool Roof Rating Council). These efforts support the statewide goals outlined in the Clean Energy & Pollution Reduction Act (SB 350).

The subprogram leads worked closely with the CEC and provided support for implementation of 2016 Title 24 Building Standards in the following areas:

- Improved Energy Code Impact analysis (doubled calculated nonresidential savings)
- Supported the creation of the JA8 and JA10 categories in the CEC Appliance Database (MAEDBS).
- Provided a domestic hot water (DHW) model, including an improved heat pump water heater model and initial testing of drain water heat recovery units.
- Water efficiency and Model Water Efficiency Landscape Ordinance (MWELo) proposed requirements
- Provided support in pursuit of ZNE goals, including a CALGreen ZNE tier and prerequisite requirements, plug load model, and other analyses.

The statewide C&S team held stakeholder meetings in the second half of 2016 to inform and engage stakeholders, gather input and refine the measure list. The meetings covered approximately 24 code change proposals in ten categories: (1) Advanced Daylighting Design, (2) Demand Response, (3) Laboratory Measures, (4) Nonresidential HVAC, (5) Nonresidential Lighting, (6) Residential Envelope, (7) Residential HVAC, (8) Nonresidential Indoor Air Quality, (9) Residential Water Heating, and (10) Warehouse Topics.

In addition to CASE development, the statewide C&S team provided technical support to the Energy Commission through the development of an energy calculation spreadsheet for screening energy savings estimates, Time Dependent Valuation (TDV) demand factors spreadsheet for calculating generation peak demand, and peak demand and PV cost savings. The statewide C&S

team has also provided guidance and support on cost-effectiveness study of different definitions of ZNE (regulated loads, regulated + white goods, total, etc.) and drawing participants together from IAQ standard development for LEED, ASHRAE 62.1 and the Building Energy Efficiency Standards to allow use of Title 24, Part 6 IAQ standards for compliance with other standards.

SCG3725 Statewide C&S - Appliance Standards Advocacy Narrative

The Appliance Standards Advocacy subprogram targets both state and federal standards and test methods including improvements to Title 20 Appliance Efficiency Regulations by the CEC, and improvements to Federal appliance regulations and specifications by the DOE, EPA ENERGY STAR[®], ASHRAE, and the Federal Trade Commission (FTC). Advocacy activities include developing Title 20 code enhancement proposals, participating in the CEC public rulemaking process, participation in ASHRAE committees, submitting comment letters based on IOU research and analysis in federal standards proceedings, and participating in direct negotiations with industry. Additionally, the program monitors state and federal legislation and intervenes, as appropriate. During 2016, the C&S program advocated for changes to Title 20

Appliance Efficiency Regulations. Activities included:

- Participated in several CEC webinars and workshops regarding LEDs, small-diameter directional lamps, computes, displays, portable spas and pool pumps rulemakings.
- Developed CASE studies for the CEC on products including consumer electronics, Energy Independence and Security Act (EISA) exempt lamps, sprinkler spray bodies, commercial clothes dryers, televisions computers and displays.
- Completed laboratory testing for commercial clothes dryers with results submitted as part of the CASE studies.

Additionally, the C&S program advocated for changes to federal appliance standards. Activities included:

- Researched and responded to specific federal rulemaking and specification processes issues conducted by the DOE, EPA ENERGY STAR[®], and the Federal Trade Commission.
- Participated in several stakeholder meetings during rulemakings and specifications process, resulting in thirty rulemaking advocacy letters issued in 2016. The results of these efforts will be determined in future years⁴.
- IOU Advocacy letters issued in previous years influenced rulings on several Federal Measures taking effect in 2016.
- Participated in DOE's Appliance Standards and Rulemaking Federal Advisory Committee working groups with DOE, industry, and other stakeholders.

⁴ Battery chargers, boilers, dehumidifiers, miscellaneous refrigeration products, pre-rinse spray valves, vending machines and ceiling fan light kits.

SCG3726 Statewide C&S - Compliance Enhancement

Following adoption, C&S supports compliance improvement with both the Building Energy Efficiency Standards and the Appliance Standards. Compliance improvement activities complement advocacy work by maximizing verified savings from C&S 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. Achieving satisfactory compliance with codes and standards is a crucial requirement for capturing the intended energy savings for the long-term benefit of society.

Title 24, Part 6 Building Energy Standards Compliance Improvement Efforts:

- The Compliance Improvement team updated existing training assets and created new 2016 Title 24, Part 6 training courses designed to support market actors across the compliance industry. Training is offered in several modalities including traditional classroom sessions, virtual classroom sessions, webinars and online self-study, allowing users to take the course at their convenience.
- The Title 24 Compliance Improvement team conducted over 240 classroom (in-person) training sessions with approximately 4,800 attendees.
- The Title 24 Compliance Improvement team conducted decoding webinars covering five topics related to the 2016 Standards update. Each webinar was offered in four separate sessions, resulting in completion of 20 decoding webinars with a total of 659 attendees.
- The Title 24 Compliance Improvement team updated five virtual classroom (v-class) courses to reflect changes in the 2016 Standards. Virtual classes are modified versions of the traditional Standards Essentials suite of classroom courses targeting energy consultants. The Title 24 Compliance Improvement team conducted 20 v-classes with a total of over 440 attendees.
- The Title 24 Compliance Improvement team updated the existing Energy Code Ace fact and triggers sheets for the 2016 Standards, and developed seven new Application Guides.
- The team continued outreach via Energy Code Ace by participating in industry events, distributing 70 targeted messages, and updating EnergyCodeAce.com.
- The Energy Code Ace team updated all four of the “Ace” tools for the 2016 Standards.
- The Title 24 Compliance Improvement team is coordinating with the Building Advocacy program to strengthen the process by which market actors contribute input to the codes and standards improvement process and minimize compliance issues created by the Standards language itself.
- The Compliance Improvement team is updating CEA residential and nonresidential examinations for 2016 Standards.
- SoCalGas worked with Southern California Edison to implement the Master Builder Program which assisted builders implement new high performance walls and high performance attic insulation techniques.

Title 20 Appliance Standards Compliance Improvement:

The Compliance Improvement team completed the following activities in 2016, which was the first full year of the Title 20 compliance support activities:

- Coordinated with the Energy Commission to refine and finalize a 2016 outreach plan.
- Launched twelve Energy Code Ace on-demand video modules organized under the six topics to support Title 20 compliance improvement.
- Developed a 60-minute online self-study course on the Water-Energy Nexus, available through the Energy Code Ace website.
- The Compliance Improvement team developed the following Title 20-related resources:
 - Fact sheets documenting requirements for the equipment and Title 20 certification processes:
 - Added Title 20 Appliance Standards document to 2016 Reference Ace tool to allow users to easily reference performance requirements to ensure specified equipment is compliant with the Standards.
- In collaboration with CEC, initiated monthly analysis of Title 20 hotline calls to determine or check to see if resources are addressing market needs
- Added the following Title 20 web resources:
 - Title 20 On-Demand Videos page views comprised approximately 0.1% (272) of all page views (268,379). For context, the Energy Code Ace homepage comprised 34% of the 268,379 page views in 2016.
 - Title 20 documents (e.g., fact sheets, FAQ, handouts) comprised approximately 4% (3,992) of the total file views (100,762). For context, the fact sheet “What’s New: 2016 Residential Code” was downloaded most often (8,392) in 2016.

SCG3727 Statewide C&S - Reach Codes

In addition to state and national building codes, the Reach Codes subprogram provides technical support to local governments that wish to adopt ordinances that exceed statewide Title 24 minimum EE requirements for new buildings, additions, or alterations. The Reach Codes subprogram support local governments through research and analysis for establishing performance levels and cost effectiveness relative to Title 24 by Climate Zone, drafting 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.

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 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, National Fenestration Rating Council, Collaborative for High Performance Schools, and the United States Green Building Council. Additionally, the program intervenes in ENERGY STAR® and other voluntary activities to shape future regulations or support coordination with voluntary programs.

In 2016, the subprogram worked with local jurisdictions to prepare the way for adoption of codes that exceed 2016 Title 24 as part of the normal three-year cycle of local jurisdiction adoption of California Uniform codes. The subprogram created several technical resources for local jurisdiction use that include the Nonresidential Outdoor Lighting Cost-Effectiveness Study, the Cool Roof Cost-Effectiveness Study, Plug-In Electric Vehicles Infrastructure, and the 2016 CALGreen Cost-Effectiveness Study for Low-Rise Residential New Construction.

The subprogram was also able support to the city of Santa Monica to develop the first Low-Rise Residential ZNE reach code as defined by the Integrated Energy Policy Report (IEPR). Single Family New Construction will be designed to 15% above 2016 Title 24 Pt 6 with High Rise Multifamily and Non-Residential new construction will be designed to 10% above 2016 Title 24 Pt 6. Work is expected to continue in 2017 to encourage compliance.

The subprogram worked with CEC staff on proposed solar ordinance features recommending a “reach” level of energy efficiency beyond the minimum code to ensure loading order maintained and encourage achieving all feasible savings, developed the cost-effectiveness study and methodology for determining minimum PV system size (without oversizing) providing recommendations on ordinance language, and investigating options to implement software revisions to facilitate implementation. Additional work was completed that analyzed the feasibility of requiring residential new construction to meet the Title 24, Part 11 definition of ZNE achieving an Energy Design Rating (EDR) of zero. Analysis is underway to expand the study to all climate zones in 2017.

SCG3728 Statewide C&S - Planning Coordination

The Planning and Coordination subprogram works with the CEC, CPUC, ETP, WE&T, rebate and other voluntary programs, to conduct strategic planning in support of the Strategic Plan policy goals, including ZNE goals for new construction. As part of the expanded outreach and communications efforts, the C&S Program maintains a C&S collaborative, and continues to facilitate the statewide Compliance Improvement Advisory Group. In addition, the C&S Program maintains regular contact with state and federal code-setting agencies to minimize duplication of efforts and coordinate activities.

In 2016, the Planning and Coordination subprogram conducted tactical planning in support of the CPUC’s residential ZNE policy goal. Activities included development of a draft plan, review by CPUC and CEC staff, and revisions to the draft plan based on these inputs. The statewide C&S team also developed a standing statewide cross-functional conference call to improve coordination communication with other groups within the IOU EE portfolio. In addition, the subprogram staff continued collaboration with the WE&T statewide team on training calendar offerings for building industry community and training for community colleges on Title 24 code requirements.

Statewide Workforce Education & Training Program

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): PG&E, SCE, SDG&E, and SoCalGas. Education and training are vital components of each of the IOU's energy efficiency portfolio.

SoCalGas Workforce Education & Training continued reaching out for new curriculum across the energy efficiency industry to offer energy efficiency workforce in support of resource program goals and objectives. Achieving deeper savings, articulating code changes, and developing a well-trained and appropriately-skilled workforce represented some of the driving themes for WE&T in 2016. There were also challenges in the last year, such as: keeping pace with local, regional, and state policies and initiatives; trying to coordinate and align WE&T efforts with numerous energy efficiency training implementers; and maintaining commitments to the Strategic Plan, workforce needs, education curriculum, and training standards.

SCG3729 Statewide WE&T Centergies

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.

During 2016, SoCalGas WE&T Centergies conducted 167 training/seminar sessions, 104 outreach consultations, and 229 equipment demonstrations. SoCalGas achieved these goals while taking steps to adjust its portfolio offerings to include Integrated Demand-side Management curriculum, identifying partners to expand demonstration lab work, and using more hands-on field tools.

The trainings and seminars provided are a mix of existing and new courses developed in collaboration with WE&T partners to meet student needs. Examples of continuing efforts include: Building Operator Certification training sessions and webinar series to commercial building operators; building awareness and education in Building Science in 2016 by offering three classes in this area; hosting the Municipal Green Building Conference and Expo to further awareness and demonstrations in areas of sustainability; and partnering with the Metropolitan Water District to facilitate four California-friendly landscape classes held to promote sustainability and drought awareness; and collaborating with the Home Building Institute (HBI) to provide work-based learning, education, and training in landscape and facilities maintenance to qualified trainees at the Energy Resource Center.

New activities and efforts were complementary to the continuing WE&T work implemented during 2016. For example, the statewide WE&T team's focus on relationship building with labor and apprenticeships - as part of a more collaborative training strategy - began taking shape in 2015 and continued in 2016. In addition, SoCalGas expanded its partnership with the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) to design and add the new industry-requested HVAC/R classes to its HVAC training series. SoCalGas also engaged the plumbing

and mechanical trades in the area of water energy nexus and sustainability with a presentation focused on residential and commercial water-heating held in the newly designed water heating demonstration lab. And finally, SoCalGas' WE&T team is collaborating with a water-heating distributor in offering quarterly, in-depth energy efficiency training sessions for premium tankless water-heating systems. The training sessions were developed to help achieve deeper energy savings and increase uptake for efficient tankless water-heating equipment and technology. The training includes interactive product demonstrations, as well as hands-on installation, operation, diagnostics and trouble shooting.

In support of the Business Plan development process, SoCalGas worked with the other IOUs to streamline the questions used in the post-seminar evaluations for the purpose of consistency in future data collection efforts.

SCG3730 Statewide WE&T Connections

The WE&T Connections Sub-Program is organized around downstream and upstream relationships between the IOUs and the educational sector that support workforce development in energy efficiency (EE), energy management, and educating students about green careers. The Connections Sub-Program seeks to promote understanding of EE, demand side management (DSM), distributed generation (DG), and green career awareness along all educational paths. WE&T Connections achieves its EE educational goals by working with community-based organizations, state education agencies, and educational stakeholders. In conjunction with third party vendors, Connections provides interactive programs, educational materials, assemblies, and teacher workshops correlated, as appropriate, to the California Department of Education's content standards.

In 2016, the Statewide WE&T Connections program solicited and selected new program implementers. The programs selected were separately targeted at the K-8, 9-12 and post-secondary education level.

In 2016, the WE&T Connections Program achievements were mixed. The PEAK program, which targets grades K-8, exceeded its goal of reaching 6,000 students within the SoCalGas service area. In addition, 83% of the schools participating in the program were categorized as Title 1 schools. The Energize Schools Program, which targets grades 9-12, was also able to exceed its goal of statewide students reached within the SoCalGas service area. Of the schools participating in the program, 73% were categorized as Title 1 schools. And finally, the Post-Secondary school program, with its Education and Internship components, lagged on its goals for number of faculty partners engaged, number of filled internship positions, community project roles accomplished, and campuses reached by the program. It did, however, meet its goal for the number of Career Pathways modules developed.

SCG3731 Statewide WE&T- Strategic Planning

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.

During 2016, the SoCalGas WE&T Strategic Planning team spent considerable time focused on strategic planning for the Workforce Education & Training program in support of the SoCalGas Energy Efficiency Business Plan. The time and effort resulted in research that identified critical market, workforce, and energy sector information that has helped shape key objectives and goals for WE&T in the forthcoming rolling portfolio administration. The WE&T team transitioned from its stakeholder engagement forum format, which were used as taskforce meetings, into using the California Energy Efficiency Coordinating Committee (CAEECC) and the sub-committee meeting structure for continuing engagement with WE&T stakeholders. Thus, efforts to achieve greater value and outcomes from strategic collaboration with potential groups such as industry associations and trades, education institutions, policy makers, and government agencies in delivering well-trained and appropriately skilled workforce remain of the highest priority.

SCG3733 Statewide Marketing, Education and Outreach

In Decision 13-12-038, the Commission established the Statewide Marketing, Education and Outreach (ME&O) Program. The Commission directed that the Center for Sustainable Energy (CSE), formerly the California Center of Sustainable Energy (CCSE), would serve as the program administrator and be independently responsible to deliver results of the program. The Commission also adopted “a governance structure that leaves the details of running the statewide marketing campaign to the CSE, but also provides for strong oversight by the Commission and the California Energy Commission (CEC), while also allowing the utilities and others to provide input, advice, and collaboration.”

The Commission identified the IOUs’ responsibilities including: providing information to CSE in a timely manner; participating in the EM&V roadmap for marketing; coordinating with CSE on local and statewide marketing activities; and raising any issues with the semi-annual marketing plans proposed by CSE. The Commission also directed PG&E to serve as the fiscal manager, on behalf of the IOUs, through a contract with CSE without exercising control of, or modifications to, the overall design of the Statewide ME&O program.

In 2016, SoCalGas coordinated with CSE to ensure consistency between the statewide marketing program and the local marketing efforts conducted by SoCalGas. SoCalGas also provided collaborative feedback on campaign strategy, prioritization of marketing topics, and collateral.

SCG3734 Statewide IDSM Program

The California Long Term Energy Efficiency Strategic Plan (Strategic Plan) recognizes the integration of demand-side management options, including EE, demand response (DR), and

distributed generation, as fundamental to achieving California’s strategic energy goals. To support this initiative, the IOUs have identified integrated demand-side management (IDSM) as an important strategic DSM policy priority and have proposed a series of activities, pilots and other programs in response to the Strategic Plan DSM Coordination and Integration Strategy.

A Statewide IDSM Task Force was formed in 2010 and has continued coordinating activities that promote, in a statewide-coordinated fashion, the strategies identified in the Strategic Plan and the eight integration directives described in the EE decision as follows:

1. Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes greenhouse gas (GHG) and water reductions benefits and the potential long-term economic and electric/gas hedging benefits.
2. Development of proposed measurement and evaluation protocols for IDSM programs and projects.
3. Review IDSM-enabling emerging technologies for potential inclusion in integrated programs.
4. Development of cross-utility standardized integrated audit tools using PG&E’s developed audits as a starting point.
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., evaluation, measurement & verification, and cost-benefit results).
6. Develop regular reports on progress and recommendations to the CPUC.
7. Organize and oversee internal utility IDSM strategies by establishing internal integration teams with staff from EE, DR, DG, marketing, and delivery channels.
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 programs are coordinated with EE integrated marketing efforts.

Statewide IDSM:

The following is the current status by the four IOUs of the eight IDSM program directives:

- Further efforts on developing integrated cost-effectiveness and EM&V methodologies are on hold pending direction from the Energy Division.
- The Task Force tracked multiple integrated emerging technologies and reviewed various programs, projects, IDSM Pilots and activities to identify integration efforts and opportunities, as well as to develop best practices.
- The IOUs submitted four, joint quarterly reports for 2016, including an executive summary section, to provide Energy Division staff with updates on the eight IDSM directives. All quarterly reports were uploaded and available for viewing on California Energy Efficiency Statistics Data Portal (EE Stats).
- The statewide IDSM Task Force held regular coordination phone calls to continue to ensure alignment across the state and discuss lessons learned.

- The IOUs have developed well established processes ensuring delivery of integrated messaging via marketing, education and outreach to residential and business customers. Delivery of IDSM marketing has become more than just promotion of multiple programs within specific tactics like collateral or websites. It is now a key component in the planning phases of integrated marketing, education and outreach to help provide the right solutions to the right customer, at the right time.
- The SW Online Integrated Audits team continues to coordinate to deliver a consistent online integrated audit tool that works with each IOU interface and educates customers on managing their energy use costs.
- The Onsite Integrated Audits team continues to collaborate to share approaches and best practices and to discuss ongoing collaboration. The IOUs continue to offer onsite integrated audits to small, medium and large customers.

SoCalGas IDSM:

Through a Single-Point-of-Contact (SPOC) strategy, SoCalGas' engaged many large multifamily portfolio owners successfully enrolling more than 6,900 units in the low-income Energy Savings Assistance Program, as well as other energy efficiency programs such as Multifamily Rebate and On-Demand Efficiency Programs. Through the SPOC, SoCalGas also worked with the largest multifamily complex in Southern California (more than 4,000 units) that resulted in the single largest residential retrofit project enrolled in the Multifamily Energy Upgrade California Program. The facility retrofitted its campus with new heating boiler plants and made comprehensive changes to the heating system. The facility is also currently replacing its lighting systems through LADWP's lighting programs.

SoCalGas continued to partner with other utilities to deliver IDSM solutions that encompass multiple fuel sources, (gas, electricity and water) and continued to expand its capabilities in delivering comprehensive customer solutions via its partnership programs. SoCalGas launched two new partnership programs with LADWP, and another two new programs with Metropolitan Water District (MWD). By establishing the Engineering Support for Calculated Program Partnership with LADWP, SoCalGas and LADWP have implemented a collaborative process where both utilities jointly review custom energy efficiency projects with both gas and electric opportunities. To date, the IDSM initiative has delivered 27 joint program agreements with municipal utilities that include LADWP, Riverside Public Utilities, Anaheim Public Utilities, Pasadena Water and Power, and MWD. SoCalGas also continued working SCE and PG&E to deliver joint programs and services in the statewide programs.

The demand for program partnerships with municipal utilities from both SoCalGas program teams and the partner utilities' continued to be robust. However, this demand also needed to be balanced with the availability of program resources. Consequently, both SoCalGas and partner utilities agreed to prioritize program launches based on their impact and strategic importance.

SoCalGas' energy efficiency team continues to work closely with the ESAP team to refine communication and coordination strategy to ensure that customers, particularly multifamily ones, receive comprehensive services and incentives regardless of the occupants' income qualification.

SoCalGas has conducted numerous joint EE/ESAP marketing sessions in 2016, including participation in 113 residential events and 29 business events.

SoCalGas further developed and enhanced the IDSM knowledge and capabilities of its internal staff, through in-person joint meetings both internally and with municipal utility partners. SoCalGas' staff continued working internally to ensure integration among different categories of programs (e.g. EE, ESAP, solar thermal), as well as externally with municipal and investor-owned utilities to ensure integration of natural gas/electric/water efficiency, solar, demand response and advanced metering offerings, particularly for the multifamily sector where SoCalGas assigned dedicated multifamily account executives to work exclusively with large multifamily portfolio owners in its territories. Additionally, SoCalGas continued to market its utility partnership model to other utilities and external entities by participating and presenting the model in national conferences such as ACEEE's Summer Study on Buildings in 2016.

Statewide Financing Programs

Energy efficiency finance offerings are designed to facilitate the adoption of energy efficiency by addressing one of the major barriers to participation: up-front costs. Additionally, finance enables customers to take a holistic approach to projects and acts as a catalyst to implement improvements regardless of capital budgets or schedule constraints. The offerings are designed to help customers produce deeper energy savings. The Statewide Financing options are growing beyond the traditional On-Bill and ARRA-originated Financing programs with the introduction of new financing pilots authorized by the Commission.

SCG3735 Statewide On-Bill Financing

Statewide On-Bill Financing (OBF) offers interest-free, unsecured, on-the-utility-bill loans that work in conjunction with utility energy efficiency programs. It is designed primarily to facilitate the purchase and installation of qualified energy efficiency measures by non-residential customers who may lack up-front capital to invest in real and sustainable long-term energy cost reductions. Loan terms range from up to five years for commercial customers and up to ten years for government agency customers. The eligible loan amount is based on the project cost, less incentives or rebates, up to the loan maximum of the OBF product and within the loan term thresholds. Customer loans are repaid through a fixed monthly installment on their utility bills. There is no prepayment penalty and loans are not transferable. Partial or non-payment of loans could result in shut-off of utility service.

During 2016, the OBF program continued working with SoCalGas customer representatives and equipment vendors to encourage customers to participate. The OBF program marketing materials were refreshed in various marketing brochures as well as SoCalGas' energy efficiency webpage promoting SoCalGas' energy efficiency programs. The OBF program was closely coordinated with the Local Government Partnerships and Institutional Partnerships on a number of local and state government projects. By the end of year, seven energy efficiency projects were financed through OBF.

In 2013, the OBF Program was reclassified by the California Public Utilities Commission as a resource program. The Commission has indicated more information is necessary to support a work paper that can address energy savings related to Financing Programs, so at this juncture, SoCalGas does not have energy savings to report for 2016. The Commission indicated that actual energy savings will be determined through its evaluation, measurement and verification studies. However, OBF continued to serve as a funding mechanism for other energy efficiency programs and, as such, helped other programs meet their program savings objectives.

There was one program design change to the OBF program in 2016. Institutional customers had the opportunity to take advantage of an increased loan term and maximum loan amount (15 years and up to \$2 million, respectively). The key implementation barrier for natural gas-only OBF continues to be the long payback periods for natural gas equipment. Project payback periods for most gas projects tend to be much longer than the five -year maximum required for business projects to qualify.

SCG3736 ARRA Originated Financing

The American Recovery and Reinvestment Act (ARRA) Originated Programs utilize ratepayer support to continue successful ARRA-funded programs. These programs were designed to encourage the implementation of comprehensive energy efficiency retrofits by providing access to affordable financing options. SoCalGas has previously provided support for the following two ARRA continuation finance programs:

emPowerSBC is a comprehensive single-family residential financing program administered by the County of Santa Barbara and is a co-funded effort among PG&E, SCE, and SoCalGas. The program receives funding for various programmatic activities including marketing and workforce training within the Santa Barbara, Ventura, and San Luis Obispo counties (Tri-Counties). Additionally, there is a credit enhancement budget of up to \$1 million for a loan loss reserve (LLR). emPowerSBC provides unsecured loans for homeowners to implement home energy upgrades resulting in lower energy usage, reduced utility costs, and increased indoor comfort. The program leverages ARRA and ratepayer funding to create a public private partnership among the County, all eight incorporated cities within the County, Energy Upgrade California Home Upgrade Program, and two competitively selected local credit unions.

During 2016, emPowerSBC continued to engage various stakeholders including customers and contractors in an effort to promote program participation. One of emPower's goals for 2016 was to increase program uptake, leveraging financing as a means for investment in energy efficiency improvements. For the year, the emPowerSBC program closed 11 loans with a value of over \$250,000. Since its inception in 2013, emPower has closed 33 loans with a total loan amount of over \$700,000. There have been no loan defaults reported.

The City of Los Angeles: ARRA Property Assessed Clean Energy (PACE)/ Los Angeles Better Buildings Challenge (LABBC) Assistance Program was initially launched and funded in 2011 as a joint effort between Los Angeles County and the City of Los Angeles using ARRA grant

funds. The City marketed the program, provided free audits, and created a Debt Service Reserve Fund for property owners in the City of Los Angeles using its ARRA funds. The County acted as the program administrator creating the legal documents and the assessment district, issuing PACE bonds to investors and providing the payment mechanism through the property tax system. At the direction of the City, this program element was eliminated in 2016.

The Commission requires additional information for the development and approval of a workpaper for energy savings, therefore the ARRA Originated Programs did not report energy savings for 2016. Additionally, the ARRA Programs are pilots and have not yet established program performance metrics. The Commission is preparing a cost-effectiveness study on ARRA programs which is expected to be finalized in mid-2017.

SCG3737 New Financing Offerings

The IOUs are developing a set of statewide financing pilot programs that offer scalable and leveraged financing products and test market incentives in the form of credit enhancements and on-bill repayment for attracting private capital. The pilots consist of the following on-bill repayment (OBR) programs: Small Business OBR Loan Program; Small Business OBR Lease Program; Non Residential OBR without Credit Enhancements (CE) Program; Master-Metered Multi-Family OBR Program; and the Residential Energy Finance Line Item Charge (EFLIC) Program. The EFLIC Program is only offered in PG&E's service territory. The pilots also consist of two off-bill programs: Single Family Loan Program (aka Residential Energy Efficiency Loan or REEL) and Off-Bill Small Business Lease Providers Program.

The pilots will include ratepayer-supported credit CEs for residential properties and small businesses. The CEs are expected to provide additional security to third-party lenders and private capital so they can extend or improve credit terms for energy efficiency projects. The Financing Pilots will be administered by the California Alternative Energy and Advance Transportation Financing Authority (CAEATFA).

The first regular track program (REEL) launched in July 2016. CAEATFA, Center for Sustainable Energy (CSE), and SoCalGas, SCE, PG&E, and SDG&E began coordinating marketing, education, and outreach efforts to both the contractors and consumers in support of the pilot program. The remaining pilots, including the OBR programs, are scheduled to launch in late 2017.

The New Financing Offerings program focused on establishing requirements for transmitting electronic files to support the secure transmissions of third-party OBR charges to place on the utility bill and subsequent remittance of customer payments to the lender. In January 2016, CAEATFA and the utilities, along with the Master Servicer, created the Data Exchange Protocol (DEP). The DEP established the file types, file format, and frequency of file exchanges between the utilities and Master Servicer as part of the on-bill repayment loan enrollment and remittance process to participating lenders for all OBR programs. External system integration testing between the utilities and Master Servicer commenced in May 2016, with three of the utilities completing testing by November 2016.

CAEATFA management expressed a need for long-term funding to mitigate resource constraints that could impact the timing of the launch of remaining pilots. In November 2016, the Commission issued a Joint Ruling of Assigned Commissioner and Administrative Law Judge on Financing Pilots and Associated Marketing, Education, and Outreach Activities which granted CAEATFA additional funding as requested.

SCG3803 California Hub for EE Financing

The California Hub for Energy Efficiency Financing (CHEEF) was established to design and implement seven new statewide financing pilots. The CHEEF infrastructure coordinates the flow of third-party private capital to fund energy improvements, manage the availability of project, loan, and energy consumption data, and ensure a streamlined process for program participants. Key components of the CHEEF infrastructure include a Master Servicer responsible for the day-to-day administration of the program, a trustee bank responsible for holding and transferring ratepayer funds used for credit enhancements, a contractor manager that provides quality assurance and control (QA/QC) for finance-only projects, and data manager that will make anonymized and aggregated program data available to the public.

In Decision (D.) 13-09-044, the Commission requested the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) take on the role of CHEEF manager. CAEATFA is responsible for administering the CHEEF, which includes developing program regulations for the Financing Pilots, operationalizing program processes and forms, and managing outreach efforts to both contractors and financial institutions. SoCalGas is the lead utility for the Financing Pilots Program and contract administrator for the CHEEF agreement.

CAEATFA launched the Residential Energy Efficiency Loan (REEL) Assistance Program and enrolled its first loan in July of 2016. The program went on to enroll six loans in its first six months of operation. In addition, CAEATFA recruited two statewide financial institutions and two regional lenders. Contractor recruitment and training for REEL also began in 2016 and concluded the year with 171 contractor companies completing the required training, 76 of which enrolled in the program. The REEL program's initial pilot term is expected to end July 2018.

CAEATFA continued development of the commercial pilots in 2016, including exploring a finance-only path that would finance projects not covered by utility programs. CAEATFA is considering incorporating the Investor Confident Project (ICP) protocols for finance-only projects. CAEATFA and ICP staff coordinated several trainings for IOU engineers and reached out to contractors to explore interest in using the protocols. CAEATFA also conducted a series of workshops to help inform the regulatory process that will continue into 2017.

In 2016, CAEATFA requested an additional \$8.36 million in administrative funds and staff resources through fiscal year 2019-2020. In November, the Commission approved CAEATFA's request and authorized the amount to be shifted from the reserved budget that was set aside for the finance pilots.

The Data Exchange Protocol (DEP) was approved in January 2016 and outlines the process by which data points, file layout, and payments between the IOUs, the master servicer, and lenders occur. The approval allowed the IOUs to start development of their IT systems and to modify their billing systems to accept financing charges on the bill. By the end of 2016, all but one of the four IOUs had successfully completed OBR functionality testing with the master servicer.

During 2016, SoCalGas was actively involved in supporting CAEATFA with launching the REEL program, developing and testing OBR functionality with the master servicer, engaging in the development of the commercial pilots, and assisting with securing additional administrative budget through comments and support. SoCalGas helped CAEATFA enroll contractors by assisting in trainings through its Home Upgrade contractor network. SoCalGas also managed the CHEEF agreement, including administration of quarterly invoicing and reporting activities and led efforts to amend the CHEEF agreement to meet program and administrative objectives.

Institutional Partnerships

Institutional Partnerships are designed to create dynamic and symbiotic working relationships between IOUs, state or local governments and agencies or educational institutions. The objective is to reduce energy usage through facility and equipment improvements, share best practices, and provide education and training to key personnel. In 2016, the Institutional Partnerships addressed programmatic challenges impacting energy efficiency projects at the campuses and state facilities as well as providing a concentrated effort to support shared energy efficiency, ZNE, and environmental goals. As described in the energy efficiency Business Plan development process, Institutional Partnerships will be considered part of the Public Sector Program portfolio. Through the energy efficiency Business Planning process, SoCalGas worked with partners to engage them in identification of challenges facing higher education and state agencies, as well as included them in the development of Public Sector strategies.

SCG3738 California Department of Corrections and Rehabilitation/IOU Partnership

The California Department Corrections and Rehabilitation (CDCR)/IOU Partnership is a customized statewide energy efficiency partnership program that accomplishes immediate, long-term peak energy demand savings and establishes a permanent framework for sustainable, long-term comprehensive energy management programs at CDCR institutions served by California's four IOUs.

This program capitalizes on the vast opportunities for efficiency improvements and utilizes the resources and expertise of CDCR and IOU staff to ensure a successful and cost-effective program that meets all Commission objectives. The program also leverages the existing contractual relationship between CDCR and energy service companies (ESCOs) to develop and implement energy projects in CDCR facilities.

Overall the CDCR Partnership is expected to meet or exceed the 2016 energy savings goals. Regular management team meetings (every 4 weeks) and executive team meetings (quarterly) with the Program Administration Manager (PAM) have been key to identifying and managing projects, and to proactively addressing any challenges the program may have faced. CDCR uses over half of the energy consumed by state agencies under the Governor’s executive authority; however, CDCR’s budget for implementing energy efficiency projects is minimal. With the CDCR/IOU EE Partnership, efficiency projects can be identified and implemented through the IOU core and On Bill Financing Programs.

The CDCR Partnership faces an ongoing challenge of finding funding for projects. On Bill Financing has been and remains the primary source of funding and is supplemented by Special Repairs Project funding. CDCR has also leveraged CEC Revolving Fund Loans in the past. CDCR has been working directly with the Energy Division to discuss difficulties encountered advancing projects through the Partnership. A number of projects have been placed on hold until resolution is reached on how CDCR’s projects may be technically reviewed, given that the commercial customer segment may not match CDCR’s operating conditions; CDCR will continue to work with Commission staff so that projects may continue to be advanced and implemented.

SCG3739 California Community Colleges/IOU Energy Efficiency Partnership

The California Community Colleges (CCC) / IOU Energy Efficiency Partnership is a unique, statewide program to achieve immediate and long-term energy savings and peak demand reduction within California’s higher education system. SoCalGas and the other IOUs provided funding for the 2013-2016 program cycle to maintain the Partnership program processes and framework established in previous program cycles for sustainable, comprehensive energy management at campuses served by California's four IOUs.

The program has a hierarchical management structure to ensure successful implementation. The management team met monthly to conduct business at the management level, whereas the executive team met quarterly to discuss overall program status and policy issues. The Partnership also has an outreach team that focused its efforts in several areas, including: (1) conducting site visits to educate and update college and district staff on the benefits of the partnership (including regional facilities workshops for campus facilities and energy managers), and (2) planning and participation in CCC conferences (including the CA Higher Education Sustainability Conference and Community College Facility Coalition Conference). In addition, campus forums were hosted quarterly at campuses across the State, serving as a venue for districts to share successes and strategies for overcoming obstacles. At a project level, the partnership continued regular project status meetings between the IOUs and the Program Administration Management (PAM) to document implementation progress, identify and resolve issues, and drive project completion.

The CCC/IOU Partnership has provided extensive support for the CCC efforts to identify, develop, and implement projects funded through Proposition 39. These services included funding enhanced outreach, project development, and technical support for 72 districts

containing 112 campuses throughout California. This resulted in the identification, funding, and closeout of nearly 100 CCC/IOU Partnership projects in SoCalGas territory. Furthermore, this support has continued to develop a sizeable pipeline of projects in SoCalGas territory that are slated to be completed by the end of 2018. A majority of these remaining projects require design and/or Division of the State Architect (DSA) approvals, which slow project timelines down.

On the administrative side, the partnership continued to improve upon its existing management structure and refine its processes to ensure its efforts were both efficient and effective. There was a significant additional push among participating IOUs, to coordinate with other tangential offerings by the IOUs, which would be beneficial to the partnership's members. This included increased efforts to enroll participating customers in On Bill Financing programs to reduce upfront project costs, and greater integration of each IOUs Savings By Design teams into existing program management processes. Held a Partnership "Visioning" meeting in January with participation from the full Management Team where the mission, goals, and implementation strategies for the Partnership were discussed and updated. The result was the publishing of a Partnership Strategic Plan in April of 2016.

Despite the above successes, 2016 was also a transitional year for the CCC/IOU Partnership. Changes in leadership at the Chancellor's Office as well as CPUC guidance required changes to longstanding processes to allow SoCalGas to meet its partnership goals. Finally, the partnership was challenged by the reduction of projects that qualify for IOU incentives, even/especially deemed or express rebates.

SCG3740 UC/CSU/IOU EE Partnership

The University of California/California State University/Investor Owned Utility (UC/CSU/IOU) EE Partnership is a statewide program which includes California's four IOUs, as well as the recent addition of Los Angeles Department of Water and Power (LADWP), in partnership with the UC and CSU systems. The program generates energy savings through the identification and implementation of energy efficiency projects and through training and education to support those projects. The Partnership consists of three main project types: retrofit, monitoring based commissioning (MBCx), and new construction.

The program has a hierarchical management structure to ensure successful implementation. The management team meets every three weeks to conduct business at the operational level and the executive team meets quarterly to discuss overall program status and policy issues. The Partnership also has a training and education team that organizes various energy efficiency trainings targeting university campuses. In addition to IOU representatives, the UC Office of the President and CSU Chancellor's Office each have members on all three program management teams to provide the UC and CSU campuses with support in their efforts to implement energy efficiency projects. A Program Administrative Manager (PAM) organizes and facilitates team activities, works with individual stakeholders, actively tracks project savings and schedule data in a web-based tracking tool and creates regular reports to show overall status of the program and forecasts relative to goals.

This year, LADWP was added to the Partnership, allowing UCLA, CSU Northridge, and CSU Los Angeles to receive enhanced incentives for kWh savings, which were previously unavailable. The campuses were already part of the Partnership through SoCalGas, however, the addition of LADWP enhances campus ability to pursue comprehensive projects with both gas and electric savings. Additionally, LADWP representatives were integrated into the management and executive teams.

There were other notable successful efforts in 2016. For example, a Partnership Data Dashboard was developed, allowing partners to easily access and export current and historical Partnership project data. This new dashboard also contained a variety of interactive graphs and hosts reports measuring the progress of the Partnership. The training and education team also hosted various events, such as: a Campus Forum focused on Net Energy Metering (NEM) 2.0 and Non-Utility Supply Guidance; an Energy Managers' Meeting which served as a post-conference workshop of the California Higher Education Sustainability Conference; and four workshops addressing Zero Net Energy on university campuses. In addition, a new Training and Education scholarship program was implemented, granting funding to each UC and CSU campus to attend the energy efficiency related training(s) of their choice, as approved by the Partnership.

Some campuses were reluctant to pursue certain projects or felt limited in being able to do so due to the lack of published guidance on non-utility supply hourly analysis. In addition, current Commission policy requiring energy savings above code (Title 24) and industry standard practice baselines is not always aligned with determining project financial impact to support project financing or translating savings to carbon reductions to meet university carbon goals. MBCx offerings at the various IOUs were discontinued in 2016, limiting project opportunities for UC and CSU. Additionally, many custom measures were moved to deemed, decreasing the claimable energy savings and incentives received by universities.

SCG3741 State of California/IOU Partnership

The State of California/IOU Partnership is a Statewide program designed to achieve immediate and long-term peak energy demand savings and establish a permanent framework for sustainable, comprehensive energy management programs at state facilities served by California's four large IOUs. This is accomplished by collaborating with the Department of General Services (DGS) in establishing an energy service company (ESCO) pool to help facilitate implementation of energy efficiency projects. In addition, the revival of the Department of Finance Energy \$Mart program will provide financing for project opportunities.

The State of California Partnership is a continual and collaborative effort to support the DGS to manage projects for Departments without contracting authority. The Judicial Council of the Courts is also working with the IOUs to implement projects in courthouse buildings obtained from the Counties in the state. For the first time in the history of the State/IOU Partnership, a Program Administration Manager (PAM) was hired by the four IOUs. The PAM's role is to coordinate between the IOUs and ensure that project documentation is shared as needed, projects are tracked, and customer concerns/support items are addressed in a coherent and synergistic fashion.

The DGS continued identifying projects for their ESCO pool for the Statewide Energy Retrofit Program; and with IOU support, ensured that the request for proposals (RFPs) included energy efficiency and utility incentives as an integral requirement for project proposals. This ESCO pool is being used to implement energy efficiency projects. An additional pool of ESCOs was created to assign smaller projects for which individual bidding would be time-consuming. The DGS has overcome various hurdles in developing the ESCO pool program including many financing and legal barriers. This process has taken some time and considerable effort due to perceived legal issues with how the DGS works on behalf of other California agencies and departments.

The IOUs attended the Sustainable Building Working Group meetings, a State of California working group that consist of agency sustainability managers, with the task of planning and implementing all aspects of B-18-12, the Governor’s Executive Order. The IOUs attend in a supporting role to ensure that agency needs regarding energy data for benchmarking are met. The IOUs also use this platform for agency outreach.

Local Government Partnership

SoCalGas’ Local Government Partnership (LGP) is unique, complex and multi-dimensional partnership with local government customers. First, local governments are a distinct customer segment that operates with their own unique challenges and needs related to energy efficiency. Second, local governments also serve as a delivery channel for specific products and services when they serve as LGPs. Finally, local governments have a unique role as leaders of their communities. Increasingly, local governments are interpreting their responsibility for community well-being to include reducing GHG emissions, increasing renewable energy usage, protecting air quality, creating green jobs, and making the community more livable and sustainable.

The Local Government Partnership is designed to serve and support local governments by increasing energy efficiency in municipal facilities, provide programs and services to local communities that can help them reduce both operating costs, and greenhouse gas emission levels through energy-efficiency. In 2016, SoCalGas supported Partnerships in achieving their energy efficiency and climate goals. Through the energy efficiency Business Planning process, SoCalGas worked with partners to engage them in the identification of challenges faced by local governments, as well as included them in the development of Public Sector strategies. Moving forward, the Local Government Partnerships will be considered part of the Public Sector Program portfolio.

SCG3742 LGP-LA County Partnership

The County of Los Angeles Partnership supports the energy reduction and environmental initiatives described in the Los Angeles County Energy and Environmental Plan, adopted in 2008, and the objectives of the California Long Term Energy Efficiency Strategic Plan (CLTEESP). Energy Efficiency (EE) projects are focused on County-owned and Municipal

buildings, consisting of lighting, HVAC, Retro-Commissioning, steam boilers, and Savings-By-Design new construction projects at each of the 38 County departments served by Energy Management (County Internal Services Department). Additional efforts with the County Office of Sustainability include program support and coordination for Energy Upgrade California, and strategic plan solicitation activities that expand the County's Enterprise Energy Management Information System (EEMIS), allowing Los Angeles County to receive participating city data for analysis to help the city to better manage their energy usage and support the identification of EE opportunities.

The Partnership participated in various successful collaborations during 2016. The Partnership, for example, collaborated with the Los Angeles County Internal Services Department (ISD) to capitalize on EE opportunities by working with representatives from the 38 county departments served by ISD for energy management services. Partnerships worked together with ISD, Public Works and the Metropolitan Department of Transportation on strategies to develop energy savings opportunities and strategic implementation forecasts. The Partnership also collaborated with the County Office of Sustainability to provide information to Los Angeles County departments regarding programs offered to improve awareness of EE incentives and rebates.

Other program successes included the initiation and/or completion of Retro-Commissioning projects and EE retrofits throughout county facilities, successfully contributing terms to the core rebate and incentive programs. The Partnership also provided strategic planning support for the set up to transfer data to Los Angeles County's EEMIS to support local governments enrolled in the Partnership.

The County has expressed concerns over measures being removed from custom incentive program due to standard industry practice policies. This policy makes it very difficult to justify moving forward with projects due to higher implementation costs for higher efficiency products.

SCG3743 LGP-Kern Energy Watch Partnership

Kern Energy Watch (KEW) Partnership brings together three utilities, PG&E, SCE, and SoCalGas with twelve local governments to improve energy efficiency throughout Kern County. The County of Kern serves as the implementer and coordinates the energy efficiency efforts of the County of Kern, and the cities of Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco.

In 2016 the Partnership increased its focus on providing useful data to partners from which they could begin to make business decisions. This meant starting with an increased effort to get all partners on board with benchmarking. The Partnership utilized the services of the San Joaquin Valley Clean Energy Organization (SJVCEO) and started with the largest partner (County of Kern). The County had over 700 accounts which required just over three months to get fully benchmarked. The implementer then continued on with additional partners that desired to have their accounts benchmarked as well. KEW had two additional partners, Taft and Shafter, begin the processes necessary to complete benchmarking of their accounts and those services will continue into 2017 for them and additional partners.

The implementer met with the Greater Bakersfield Chamber of Commerce to discuss utilizing them to distribute energy efficiency information to their small and medium business (SMB) clients. It was determined that Partnership would develop a target campaign for their restaurant members, as they have seen a huge increase and turnover in this segment. The chamber agreeing to partner with the Partnership gives greater access to those SMB owners. KEW can also educate them on programs for residents, as they are not only business owners but residents as well. KEW will continue to develop this campaign into 2017 and then replicate it with additional Chambers.

KEW partnered with the County of Kern's 4th District Supervisor to provide energy efficiency information to residents in the cities of Derby Acres, Valley Acres, Ford City, and Northwest Bakersfield. EE information was handed out to over 200 residents. KEW also partnered with the City of McFarland and the Kern County Public Health Dept. to distribute EE information to residents during a street fair. Over 100 residents were served.

The Partnership barriers have been a continued change in leadership and representatives in the partner cities. Also, due to budget constraints, energy efficiency has taken a back seat to higher priorities in some of the municipalities. Having continued dialogue and providing them with free or low-cost services such as benchmarking and direct install have been ways of keeping them engaged throughout the year.

SCG3744 LGP-Riverside County Partnership

In 2010, the County of Riverside (County) formed a Partnership with SCE and SoCalGas which is intended to assist the County in achieving its green policy initiatives and formulate an integrated approach to energy efficiency. This collaborative effort aims to build an infrastructure that would efficiently deliver cost-effective energy efficiency projects to reduce the "carbon footprint" created by County facilities.

The Partnership improves energy efficiency in the County's municipal facilities and leverages utility resources, customized to the County's unique needs, to advance energy efficiency in the partners' facilities. The Partnership also supports the County in meeting carbon dioxide reduction requirement efforts required in Assembly Bill 32, as well as contributing toward meeting Commission energy savings goals and objectives.

While overall the Partnership had difficulties meeting its 2016 goals, there were areas where it proved to be successful. For example, the Partnership was able to retrofit several boilers within the County that resulted in therm savings and an eligible incentive. In addition, the County of Riverside was selected to present on Partnership Best Practices at the 7th Annual Statewide Energy Efficiency Forum which was held in Riverside.

The Partnership was challenged to support the County with many energy efficiency retrofits because the County is determining their strategic direction and whether to implement projects

through an energy service company (ESCO). Due to the loss of third party programs the county successfully used in the past, it has been difficult for them to launch new EE projects.

SCG3745 LGP-San Bernardino Co IOU Partnership

In 2010, SoCalGas joined the San Bernardino County Partnership Program, a continuation of the 2009 partnership between SCE and the County of San Bernardino. The Partnership assists the County in achieving its green policy initiatives to formulate an integrated approach to energy efficiency. This will be a collaborative effort with the aim to build an infrastructure that would efficiently deliver cost-effective energy efficiency projects, thus reducing the “carbon footprint” created by County facilities. County facilities are targeted for retrofits, retro-commissioning (RCx) and new construction elements.

Although energy audits led to therm saving projects delivered through SoCalGas core programs in 2016, the overall therm savings goal for the Partnership was not reached. However, there are a significant therm savings that have been identified in audits and are in the queue for implementation in 2017. An example of one of these therm-savings projects is a controls project at the County’s Twin Peaks facility that was identified in a joint audit.

The partnership held monthly Management Team meetings to discuss program status, project tracking, and overall program implementation and coordination issues. In addition, meetings were held regularly with project managers from various County departments to identify opportunities and provide information available on SoCalGas resources and other core program offerings. The top County facilities with the greatest opportunity for reduction in energy consumption were identified and were targeted for retrofit, RCx, and new construction elements. Leveraging County management staff from various departments including Special Districts, Sheriff, Information Technology, Library, Fire, and project managers in the Engineering and Architecture Department, has proven to be an effective means in identifying opportunities that would have not otherwise been supported by SCE or SoCalGas programs.

The partnership worked to educate the County of San Bernardino project managers and staff on the importance and value of energy efficiency. This motivated the county’s staff to look for opportunities to reduce their operating costs by implementing energy efficiency projects and conservation practices.

SCG3746 LGP-Santa Barbara County Partnership

There are two distinct partnerships for Santa Barbara County- South County and North County.

South County Energy Efficiency Partnership

The South County Energy Efficiency Partnership (SCEEP) includes SCE, SoCalGas, and municipal governments within the County of Santa Barbara - including Santa Barbara County and the cities of Santa Barbara, Goleta, and Carpinteria. The program generates energy savings through identification of municipal energy efficiency projects, education and training, and

marketing and outreach. Cities complete retrofits of their own facilities and conduct community sweeps as well as outreach to residential and business communities to increase participation in core utility programs. A local non-profit, the Community Environmental Council, facilitates administrative and programmatic support to the Partners.

Throughout 2016, SCEEP continued to drive city leaders, residents and businesses toward energy efficiency actions through the following activities: education and outreach, business support, and direct implementation. SCEEP partners participated in several community exhibits and outreach events in 2016. Events included the Santa Barbara Earth Day Festival, The Central Coast Sustainability Summit, Local Government Commission Statewide Energy Efficiency Collaborative (SEEC) meeting, presentation on “Zero Net Carbon” goals through energy efficiency in the building sector, and a SCEEP Awards Luncheon to honor SCEEP partners for the contributions they made to increase energy efficiency in Santa Barbara County’s southern region. SCEEP also hosted a training session for municipal partners, on Title 24 building code training, and organized two informational sessions on battery storage technologies for partners.

SCEEP continued to partner with the countywide Green Business program, a voluntary certification program. More than 84 businesses have been certified through the program to date. Using modelling tools from the statewide Green Business Network, the partnership compiled data from current certified businesses to calculate annual savings.

Energy efficiency activities at the facilities of the government partners included incentives, rebates, and payment structures, such as OBF, municipal partners were able to pursue the following projects:

- City of Carpinteria – began three projects within their pool facilities and a phased project to upgrade City Hall to address HVAC concerns. Three outdoor lighting projects (all city owned) were also completed in 2016.
- City of Santa Barbara - Building Automation System (BAS) controls were installed at Carrillo Recreation Center; water controls were installed at Elings Park; Savings By Design project at the police station was completed; the City completed a streetlight project; additional street light projects will be installed in 2017; launched a revolving fund that accumulates monies saved by energy efficiency projects, to allow for future project investments; updated all of the outdoor lighting at The Cater treatment plant; and initiated a project for LED bi-level lighting at the Granada garage, which will serve as a pilot project for other City of Santa Barbara parking lots in the future.
- County of Santa Barbara - working to get a 2% surcharge on general services passed as a method to pool funds to conduct energy efficiency work and enacted an approved Zero Net Energy resolution which requires all new Santa Barbara County owned facilities and major renovations beginning design after 2025 to be constructed as Zero Net Energy Facilities with an interim target for 50% of facilities beginning design after 2020 to be Zero Net Energy.

Despite these efforts, the SCEEP is falling short of expectations because of serious difficulties to identify and complete energy efficiency projects.

North Santa Barbara Energy Watch Partnership

The Santa Barbara County Energy Watch Partnership is a joint effort between PG&E, SoCalGas and the Santa Maria Valley Chamber of Commerce. The Partnership's participating municipalities are Buellton, Solvang, Guadalupe, Santa Maria and the County of Santa Barbara. The program generates energy savings through identification of municipal EE projects and Direct Install projects for businesses; savings from these projects are delivered through the core programs. The program also provides education, training, marketing, and outreach for all utility energy efficiency core programs.

In 2016, the Energy Watch programs continued to improve upon existing program strategies to address the community's needs. The Partnership continued outreach to activities across the region, with an emphasis on small, hard to reach communities which saw the re-instatement of outreach workshops. Other outreach and education activities were conducted by the program administrator and manager, to coincide with Energy Awareness Month, to the City Councils of Santa Maria, Solvang, and Buellton, and the Santa Barbara County Board of Supervisors. Specific outreach campaign efforts included a website, one on one contact with businesses, direct mailers, media advertising, direct presentations, and radio interviews. In support of this work, the Partnership updated its marketing materials, produced new marketing materials, and expanded its marketing outreach.

In 2016, collaborated with other organizations and agencies to extend its reach in promoting energy efficiency to businesses and residences. An example of this was its continued collaboration with the Santa Barbara County Green Business Program, EmPower Central Coast, and other agencies and organizations to extend the outreach message of energy and sustainability to the Partnership's communities. In addition, the Partnership had a sponsorship presence and made presentations at events, including the Santa Maria Chamber of Commerce Annual Trade Show, and the Solvang Grow Your Community Expo. The success of these relationships was evident in that the Santa Barbara County Energy Watch Partnership received proclamations and resolutions from Santa Maria, Buellton, Solvang and the County of Santa Barbara during 2016.

While the Partnership had areas of great success in 2016, benchmarking with cities and municipalities proved difficult to accomplish.

SCG3747 LGP-South Bay Cities Energy Efficiency Partnership

The South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership Program provides integrated technical and financial assistance to help the South Bay Cities effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality and ensure that their communities are more livable and sustainable. The Program provides a performance-based opportunity from SCE and access to all SoCalGas core programs and incentives for member Cities to increase energy efficiency in local government facilities and their communities through energy saving actions.

During 2016, the SBCCOG Partnership exceeded the term goal for savings delivered through the core utility programs. In addition, to delivered term savings, the Partnership conducted marketing and outreach activities in its member communities. This included hosting five workshops, delivering 20 presentations, leading three volunteer trainings, participating in two business expos, hosting three SCE seminars, exhibiting at over 80 events, hosting ten employee events, and conducting 30 overviews of SBCCOG programs. Through the various marketing and outreach opportunities, over SoCalGas energy efficiency kit cards were collected.

SCG3748 LGP-San Luis Obispo County Energy Watch Partnership

San Luis Obispo County Energy Watch (SLOEW) is a partnership amongst the County of San Luis Obispo (County), PG&E, SoCalGas, and participating cities and special districts. SLOEW is a comprehensive program that provides information and energy management services to targeted customers regarding energy use and cost associated with facilities and infrastructure. SLOEW also assists with the monitoring and implementation of the County's EnergyWise Plan, which was adopted in November 2011 and aims to reduce GHGs in accordance with state mandates. The mission of the SLOEW Partnership is to contribute to a vibrant and resilient San Luis Obispo County through reduced energy cost, use, and demand, and decreased greenhouse gas emissions. SLOEW recently re-prioritized the partnership's goals around distinct programs and target customers via a robust strategic action planning process. By serving as customers' "staff extension", SLOEW has positioned itself to manage all aspects of energy efficiency projects including education/outreach, technical/engineering, budgeting/ financial, and procurement.

In 2016, the SLOEW Partnership continued and expanded their Energy Management Programs for the municipality, county, and special districts. In 2014, SLOEW launched the Special District Energy Management Program (SDEMP), the following year the County Energy Management Program (CEMP) rolled out, and then in 2016 the Municipal Energy Management Program (MEMP) went live. These programs inventory and benchmark the energy use and cost of building facilities and utility infrastructure on a bi-annual basis for each of the targeted areas. SLOEW staff work with department personnel on inventory, benchmarking, and reporting efforts. The Partnership provides energy performance information and conducts assessments for buildings and infrastructure to help select, finance, and implement projects that improve operations, reduce energy costs, and decrease GHG emissions. Once projects have been implemented, SLOEW monitors energy usage, costs, and building performance over time. SLOEW engaged PG&E and KW Engineering to offer the Large Integrated Audit (LIA) program to nine Community Services District (CSDs) in the county, to identify energy efficiency, generation, load management, and demand response opportunities via the SDEMP.

In 2016, the projects that were generated through the energy management programs included a complex wastewater aeration retrofit project for San Miguel CSD, implementing a lighting project for Los Osos CSD, and advancing a freshwater project for Los Osos CSD. For continuing CEMP, SLOEW engaged PG&E's Sustainable Solutions Turnkey (SST) program, which is a design-build energy efficiency retrofit project that leverages public-private partnerships to streamline implementation of energy efficiency projects using money saved from energy and operational efficiency. Detailed assessments were conducted of several facilities and

recommendations were provided for measures including lighting, heating and cooling, and energy management control upgrades at several County facilities. The implementation of finalized SST measures began in 2016.

SLOEW continued to operate the Climate Services Program, which supports and coordinates the County's implementation of measures identified in the County's EnergyWise Plan (Climate Action Plan). Staff provides tracking and reporting of the County's progress towards its goals of reducing energy use from County facilities by 20% and overall greenhouse gas emissions (GHG) by 15% from baseline levels (2006) by 2020 through monitoring of the implementation measures.

Other notable SLOEW efforts in 2016 included: baseline and benchmark reports for all incorporated cities in the county, updating the County's Energy Wise Plan, involvement in the SEEC Forum as well Local Government Partner meetings, and staff participation in re-development of Rural and Hard-To-Reach working group addressing challenges faced by implementers in delivering energy efficiency services to rural areas in the state.

SCG3749 LGP–San Joaquin Valley Partnership

The Valley Innovative Energy Watch (VIEW) is a Local Government Partnership (LGP) between PG&E, SCE, SoCalGas, and local governments in Kings and Tulare counties (Kings County, cities of Avenal, Corcoran, Hanford, and Lemoore; Tulare County, cities of Dinuba, Farmersville, Lindsay, Porterville, Tulare, and Woodlake). The partnership is implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO).

The VIEW Partnership identifies opportunities for improved energy efficiency in municipal infrastructure; offers customized incentives for municipal projects; conducts energy efficiency trainings; hosts and participates in outreach events to drive participation in core utility programs; and supports the California Long Term Energy Efficiency Strategic Plan. The Partnership supports peer best practice sharing through the Peer to Peer Working Group (P2P), the Rural Hard to Reach Local Government Partnerships' Working Group (RHTR), the San Joaquin Valley Energy Watch Collaborative (SJVEWC), and the California Energy Efficiency Coordinating Council (CAEECC) as a general member, and on the Public Sector and Cross Cutting subcommittees.

The VIEW partnership performed and participated in many vital organizations, groups and councils to promote and become the voice for the San Joaquin Valley. The partnership efforts not only showed the need for local government partnerships, but also increased participation with partnering cities. They promoted the core programs, Energy Action Plans, and performed community outreach events that helped the community save energy. This focus resulted in the following achievements:

- Performed continued maintenance on roughly 4,000 Energy Star Portfolio Manager accounts.
- Updated and/or completed Energy Actions Plans for County of Kings as well as the cities of Hanford, Dinuba, Lindsay, and Woodlake

- Obtained supplemental funding to support Partnership interests and efforts.
- Participated in P2P, SJVEWC meetings, RHTR monthly member calls and quarterly meetings, CPUC Energy Division Statewide Advisory Group calls, SEEC Forum, and city council meetings.
- Became a party to CPUC proceeding 17-01-013 with RHTR for which formal comments were filed in support of IOU administration of LGPs and in opposition to the LGSEC proposal for statewide administration of LGPs.
- Partnership implementer joined the CAEECC as a general member and Public Sector subcommittee co-chair (as the non-Program Administrator representative, shared with SoCalREN). This resulted in participation in 17 CAEECC and ad hoc CAEECC meetings as well as 15 Public Sector subcommittee calls with co-chair, program administrators and CAEECC co-chair.
- Participated in IOU LGP study with Research in Action and CPUC LGP study with Evergreen Economics.
- Hosted the VIEW the Success! Annual recognition luncheon as well as the information table at the Visalia Earth Day event, Kings County Employee BBQ and Tulare County Health Fair.
- Co-hosted with San Luis Obispo Energy Watch, PG&E, SCE, and SoCalGas the Central California LGP Meeting (CenCal Meeting) in San Luis Obispo as well as the in-person meeting of the RHTR and PG&E, SCE and SoCalGas in coordination with the CenCal Meeting.
- Conducted Rural Outreach Events (ROEs) in Armona (Kings County), London (Tulare County) and Kettleman City (Kinds County).

SCG3750 LGP-Orange County Cities Energy Efficiency Partnership

The Orange County Cities Energy Efficiency Partnership Program includes the cities of Huntington Beach, Westminster, Fountain Valley, Costa Mesa, Newport Beach, City of Irvine and the City of Santa Ana as well as SCE and SoCalGas. In addition to identifying and implementing energy efficiency retrofits for municipal facilities, the Partnership also funds community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions. The partnership goals also include strategic plan activities, such as climate action planning, updating the Energy Action Plans, code compliance, and reach codes

Partnership activities focus on implementing energy efficiency in municipal facilities specifically, and in the community in whole. The Partnership establishes energy savings goals through energy efficiency retrofit of city-owned facilities, funded by Partnership technical assistance to identify and scope projects and enhanced incentives. The Partnership also funds community education, marketing and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions. Another key element of the partnership is the strategic plan activities where the city is supported in creating and accomplishing long term sustainability goals in climate action planning, code compliance, reach codes and other strategic plan initiatives.

The Partnership had numerous achievements in 2016. The City of Huntington Beach, for example, established a Green/Sustainable Certification Program, completed all of its LS3 projects, and obtained Platinum status. The City of Newport Beach also obtained Platinum status and conducted an Advanced Meter project. The City of Costa Mesa obtained Silver status.

SCG3751 LGP-SEEC Partnership

The Statewide Energy Efficiency Collaborative (SEEC) is an alliance between the Local Government Commission, Institute for Local Governments, ICLEI for Local Government, PG&E, SDG&E, SCE and SoCalGas. It was established to facilitate action by California cities and counties to reduce greenhouse gas emissions and save energy. The collaborative employs a variety of strategies to catalyze local climate and energy action, including: education and tools for energy efficiency and climate action planning; venues for peer-to-peer networking; technical assistance to implement, track and assess the progress of cities and counties; and support and recognition for local agencies participating in the Beacon Program greenhouse gas emission reduction and utility energy efficiency programs.

The SEEC Partnership had various successes during 2016. The annual SEEC Forum had over 300 participants (the highest level of participation since the forum first started), from 90 unique cities, counties, and regional agencies, representing over 88% of the state's population. The Beacon program added 23 new participants, totaling 100 cities and counties representing more than 30% of California's population. The Beacon Program recognized a record number of cities and counties with awards including 83 Spotlight Awards and 8 full Beacon Awards.

SEEC ClearPath CA, is an energy and emissions calculating, monitoring, and tracking tool. A total of 128 Community and 53 Government Operations inventories were created in 2016 including over 1,000 individual calculations and 83 new US cities are now using ClearPath CA as their GHG inventorying and tracking tool. ClearPath was selected as the official inventory tool for the Compact of Mayors and now supports one-click reporting of summary data to the Carbon Climate Registry (cCR) reporting platform. The Statewide Energy Efficiency Best Practice Coordinator shared 731 best practices, funding opportunities, news highlights, events, and resources to over 900 local government staff and other key stakeholders.

SEEC communications were numerous in 2016, utilizing different avenues to reach stakeholders. The 2016 Climate and Energy Legislative Update highlighted key climate- and energy-related bills passed in the 2016 legislative session including AB-197, AB-1550, AB-2722, SB-32, SB-1000, and other important bills. The SEEC Calendar featured 340 webinars, public workshops, conferences, and other climate- and energy-related events in 2016, providing a single place for local government staff to learn about important events. In addition, a quarterly energy newsletter developed by the Coordinator, Currents, featured articles on 27 timely and relevant topics.

SEEC also provides technical assistance to the member communities. For example, SEEC conducted a demonstration project in the Gateway Cities region to help the region capitalize on the growing interest in sustainable development among local officials, businesses and

community leaders in the region. Throughout 2016, SEEC partners and the Coordinator worked together to provide information via two Cap-and-Trade and a Climate Planning Tools workshop. SEEC partners and the Coordinator also worked with the County of San Mateo to support their ZNE efforts. After numerous targeted calls to learn about the County's resource and technical assistance needs, SEEC developed the online ZNE Hub to create a 'one-stop-shop' for ZNE resources to streamline resource access and research efforts. And finally, the Coordinator conducted over 77 one-on-one calls and meetings with local government staff to provide technical assistance and resource connections.

SCG3752 LGP-Community Energy Partnership

In 2016, the Community Energy Partnership (CEP) continued implementation of the SCE and SoCalGas joint Local Government Partnership focused on achieving energy savings and behavioral change in residential, non-residential, and municipal sectors. The CEP supports local governments in implementing local government items that are identified in the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan).

The Partnership focused on the outreach activities within its member cities. As a result, twelve e-blasts were sent to city and utility partners for education and training. In addition, SoCalGas core programs were promoted at nine outreach events across each of the CEP's cities, except San Bernardino. Evolve Showerhead rebates and Furnace check articles were promoted at these outreach activities. In addition, the Partnership organized in person team leader meetings to encourage Partner-to-Partner dialogues and encouraging/coordinating partner city attendance at Statewide Energy Efficiency Collaborative forum

In 2016, the CEP worked with City and Utility Partners to identify opportunities for municipal therm savings and tracked municipal energy efficiency projects with therm savings potential. The CEP faced challenges, however, due to the limited opportunities for energy efficiency incentives as result of relatively low natural gas loads at municipal facilities. In addition, the City of Corona's delay of their methane reclamation project prevented completion of that project in 2016.

SCG3753 LGP-Desert Cities Partnership

The Desert Cities Energy Partnership Program is a local government partnership comprised of Blythe, Cathedral City, Desert Hot Springs, Indian Wells, Palm Springs, Rancho Mirage, Agua Caliente tribe, La Quinta, Coachella, Indio, SoCalGas, Imperial Irrigation District (IID), and SCE. The program is designed to assist local governments to effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

This Partnership focuses on installing measurable and persistent energy efficient and conservation devices for the benefit of the cities and their constituencies. Partnership activities specifically target the implementation of energy efficiency measures in municipal facilities. The

Partnership supports city and community energy efficiency efforts through marketing and outreach funds. The Partnership establishes energy savings goals through city-identified projects, funded by partnership incentives and technical assistance.

During 2016, the team met monthly to discuss program goals, milestones, marketing, training, and energy efficiency projects. The meeting location was rotated to different cities to encourage participation from cities that are significantly spread out. The Partnership also held working group meetings quarterly with the cities to discuss their ongoing projects. The annual Energy Summit was held at the Agua Caliente Casino and was well attended. The Partnership exceeded its goals for municipal facilities during 2016.

SCG3754 LGP-Ventura County Partnership

Working in conjunction with SCE and SoCalGas, the Ventura County Regional Energy Alliance (VCREA) continued as the Local Government “implementing partner” for the Ventura County Partnership Program. VCREA works to coordinate efforts among local entities in the region to undertake energy efficiency projects, train public agency staff and consider opportunities for long-term strategic energy efficiency planning as part of the 2013-2016 program cycle. The Partnership Program has been the cornerstone of the VCREA program, providing a strong connection to public agencies and the VCREA mission. VCREA’s mission is to establish Ventura County, its communities and neighboring regions as the leader in developing and implementing durable, sustainable energy initiatives that support sensible growth, healthy environment and economy, enhanced quality of life and greater self-reliance for the region by reducing energy demand and increasing energy efficiency practices.

The Partnership had numerous successes in 2016. Of particular note is the Identification and coordination of leveraged projects leveraged with utility incentives to public agencies. In 2016, the Partnership also saw the addition of new jurisdictions to the partnership, growing to 11 municipal partners. Activities in these jurisdictions included: over 40 community events and presentations; six LED holiday light exchange events, and four trainings including benchmarking, HVAC, Solar, and Title 24. In addition, the Partnership collaborated efforts with multi-family and low income utility programs, Community Action of Ventura County, County Public Health, The Energy Coalition, Community Environmental Council, and South County Energy Efficiency Partnership. The success of the program is evidenced in the 26 awards received by the member cities, including the Beacon Program “Champion of the Year.” The program utilized technical support from both IOUs to assess potential opportunities. Although the program did not produce any municipal gas savings for the year, one large project was completed for which therm savings will be reported in 2017 due to issues with Title 24 regulations.

The Partnership success was in large part related to its ability to engage its member cities as well as other communities and stakeholders. For example, the member cities continued efforts with Climate on the Move, a regional inventory of greenhouse gas emissions. It also conducted offsite partnership meetings through the County so that cities were able to attend and be more engaged. In addition, the Partnership interacted with other LGPs in the region to better share and

implement best practices. These include South Santa Barbara County EE Partnership and other LGPs through the Peer-to-Peer group in SCE and SoCalGas territory. In partnership with Thousand Oaks and City of Ventura, SoCalGas and SCE jointly sponsored local Green Business Certification programs in the County of Ventura. The Statewide Green Business Network has integrated many new features, such as the capacity to integrate technical assistance, utility rebate offerings, collaboration with utilities' Direct Install programs, and conducting in-person verifications to see if the customer is actually implementing the measures. The funding from the utilities allowed the program to add therm saving calculations where Kwh were already being captured as well as the ability to report customer activity, GHG reductions, and EE savings via a dashboard.

While successful on many fronts the Partnership did face challenges in 2016. Data access continued to be an issue that needs to be addressed. Improved alignment is also required between the utility and local government goals for project implementation, planning and financing. In addition, local governments have been challenged in lending support to the program due to consolidated staffing levels and budgetary limitations.

SCG3755 LGP-Local Government Energy Efficiency Pilots

In the Decision for 2013-2014 EE portfolios, the Commission authorized funding to SoCalGas for Local Government Partnerships to pilot new approaches for implementing energy efficiency. This is a non-resource program. All therms are delivered through the SoCalGas core programs. There were no new pilot approaches implemented or funded in 2016.

The South Bay Cities Council of Governments (SBCCOG) introduced a new program in 2014, the Green Buildings Challenge (GBC) program. SBCCOG's Green Buildings Challenge program was launched in September 2015. The GBC program engages local property managers and business tenants to adopt sustainability initiatives. Through friendly competition, participants pursue hard-to-reach goals by taking action on selected activities to achieve measurable energy savings results. With the support of the SBCCOG and the South Bay Environmental Services Center (SBESC), the GBC contacted many local businesses and was able to provide information about energy efficiency programs. SoCalGas is reviewing and validating energy savings, to determine if GBC will continue to be offered or expand the concept to other areas.

SCG3773 LGP-New Partnership Programs

In its Decision for 2013-14 EE portfolios, the Commission authorized funding for the purpose of SoCalGas adding new Local Government Partnerships, subject to the Commission's approval. These new LGP's are intended to promote the core programs as well as making deep energy retrofits a priority in the current program cycle.

Expansion opportunities are to focus closing the gap between partnerships that currently have partnerships with SCE and adopting those partners into SoCalGas LGP program. After careful

consideration of the existing partnerships and potential member cities, no new partnerships were launched in 2016.

SCG3774 LGP-LG Regional Resource Placeholder

In D.12-11-015, the Commission authorized the formation of the Southern California Regional Energy Network (SoCalREN) to implement a portfolio of approved SoCalREN programs as pilots in SCE and SoCalGas service territories, which include SoCalREN’s Energy Upgrade California (EUC) Residential program, Finance program, and Southern California Regional Energy Center (SoCalREC) program for public agencies. In this Program, SoCalGas acts as a Lead Utility in collaboration with SCE to provide overall fiscal oversight and day-to-day contract management of SoCalREN programs. In addition, SoCalGas engages in program coordination with SoCalREN to achieve seamless program offerings and avoid customer confusion.

During 2016, SoCalGas and SoCalREN built on the successful program coordination and leveraging in 2015 to continue the improvement and refinement of the coordination practices. Leveraging the secure bill file delivery system, SoCalGas successfully expanded the authorized customer bill data delivery to additional local governments in South Bay area to provide bill data to Los Angeles County’s Enterprise Energy Management and Information System (EEMIS) to help inform their energy management. The utilities and SoCalREN continue the regular project coordination and communication through various coordinating committees across many programs. Overall, the Program met its objectives for 2016.

SCG3776 LGP-Gateway Cities Partnership

The Gateway Cities Energy Partnership Program (GCELP) is a local government partnership between the Cities of South Gate, Norwalk, Downey, Lakewood and Lynwood (the “Cities” or “Partners”) along with SCE and SoCalGas. The partnership program works to raise energy efficiency awareness, promote long-term energy reduction goals within municipal building stock and coordinates with partner cities to cross promote residential and business utility energy efficiency programs. In addition, the partnership program completes targeted retrofit and retro-commissioning projects in municipal facilities.

Partnership activities focus on addressing energy usage in municipal facilities and in the community. The Partnership places great emphasis on having partners lead their communities by example; by first concentrating on their own municipal facilities. This partnership program provides energy efficiency education, technical assistance, retro-commissioning (RCx) as well as design consultation and energy analysis of new construction and renovation project plans. Analysis of municipal facilities is conducted to identify demand reduction projects with energy conservation measures (ECM) alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit project in each of the targeted cities.

Overall the program objectives were met in 2016. The Partnership provided specialized energy efficiency offerings to participating local governments, residential and business communities. It also informed partners and their communities about the wide variety of energy efficiency and demand reduction offerings by SoCalGas. The Partnership identified opportunities for municipal building retrofits, new construction, commissioning and retro commissioning. And finally, the Partnership provided partners with access to technical assistance to help identify ECMs, define project scopes, estimate project cost, and determine eligible incentives.

The Gateway Cities Partnership continued development of the program infrastructure by conducting regular monthly update meetings with partners throughout 2016. The Partnership also engaged in Marketing, Education and Outreach (ME&O) activities including eleven partner community outreach events in 2016. The Partnership also participated in BOC training educational activities in 2016, resulting in six partner staff members completing classes. The Gateway Cities Energy Partnership is also working to expand and has successfully engaged with the cities of Signal Hill and Whittier to officially join the Partnership. The Partnership team and representatives from each of its partner cities attended the Statewide Energy Efficiency Collaborative Forum in June 2016 for information sharing with statewide partner cities. The Cities of Lakewood and Lynwood have initiated efforts in completing Energy Action Plans that will incorporate goals and objectives for the next couple of years of planned retrofit projects to reduce energy usage at municipal facilities.

SCG3777 LGP-San Gabriel Valley Partnership

The San Gabriel Valley Energy Wise Partnership (SGVEWP) is a collaboration between the San Gabriel Valley Council of Governments (SGVCOG), SCE, and SoCalGas. The primary objectives of the SGVEWP are as follows:

1. Identify opportunities for municipal building energy efficiency retrofits and assist cities in implementing these projects and accessing SCE financial incentives and technical resources;
2. Leverage the SGVCOG's communication infrastructure to inform member agencies about existing SCE energy efficiency, conservation and demand response programs and encourage participation; and
3. Develop specialized energy efficiency offerings to local governments as well as residential and business customers.

Overall the Partnership's program objectives were met. The Partnership held San Gabriel Valley (SGV) training sessions, including annual kick-off update, business energy forum, and benchmarking 101 workshops. Related responsibilities include hosting ten Energy Wise Partnership meetings in SGV cities with SoCalGas and SCE. The Partnership also initiated a winter-preparedness outreach campaign that included social media posts, and newsletter articles. The Partnership was responsible for the creation of a database that contains information on San Gabriel Valley cities' facilities, energy usage and audit information. Other work addressed by the partnership included updating the website, www.sgvenergywise.org, to include recent news and events; coordinating the distribution of information about the Partnership to member

agencies by leveraging existing communication channels, including the COG's committee structure. In 2016, the Partnership was able to develop its work plan for the year. Projects completed during 2016 included a pool heaters and a pool cover.

SCG3778 LGP-City of Santa Ana Partnership

The City of Santa Ana Partnership is a local government partnership comprised of the City of Santa Ana, SoCalGas, and SCE. Partnership activities focus on implementing energy efficiency in municipal facilities specifically and promoting energy efficiency in the community. The partnership establishes energy savings goals for energy efficiency retrofit of city-owned facilities, and identifies, scopes, and implements projects. The partnership also funds community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take actions to reduce energy consumption, and includes Strategic Plan activities such as climate action planning, code compliance and reach codes development.

The Partnership met its program objectives for 2016. SoCalGas, SCE, and the City met monthly to discuss program goals, milestones for marketing, training, and energy efficiency projects. The City completed a water heater project in 2016 and continues to promote energy efficiency projects with a natural gas vehicle (NGV) station in the project pipeline. The City also featured energy efficiency and other SoCalGas programs in each of its quarterly newsletters. SoCalGas participated in a Party for the Planet event at the Santa Ana Zoo and provided information to attendees to residential and commercial program offerings along with resources and programs available to low income customers.

SCG3779 LGP-West Side Cities Partnership

The Westside Cities Partnership (WSCP) is a SoCalGas Local Government Partnership with the City of Culver City (Culver City) with The Energy Coalition (TEC) as the implementing vendor. TEC also implements the West Side Energy Leader Partnership (WSELP), a Local Government Partnership between SCE and Culver City. Many WSCP program elements are implemented in coordination with the WSELP Programs resulting in economies of scale.

The WSCP's three core program elements are consistent with the SoCalGas Master Program Implementation Plan: Government Facilities, Strategic Plan Activities, and Core Program Coordination, and enhancing the leadership role of Culver City in energy management. WSCP activities in support of this implementation plan included sending twelve Partnership E-blasts to city and utility partners for partner education and training. Other efforts included outreach activities to educate residents about showerheads, furnace checks, and SoCalGas core programs. Non-outreach activities included tracking status of therm-saving projects and assisting City in determining use of SoCalGas City-Directed Budget

Although the WSCP is a non-resource program, it does have annual therm savings targets that are achieved through municipal energy efficiency projects and reported through the SoCalGas

Core programs. The WSCP, however, has found limited opportunities for energy efficiency incentives due to relatively low natural gas loads at municipal facilities. Therm savings were delivered via a Municipal Energy Management System project and the Culver City Plunge boiler replacement.

SCG3780 LGP-City of Simi Valley Partnership

The City of Simi Valley Partnership is a local government partnership between the City of Simi Valley, SoCalGas and SCE. Partnership activities focus on implementing EE in municipal facilities and promoting EE in the community. The partnership establishes energy savings goals for EE retrofit of city-owned facilities, and identifies scopes and implements EE projects.

On December 31, 2015, City of Simi Valley Partnership merged with the Ventura County Regional Energy Alliance (VCREA) Partnership. This consolidation was fully supported by the affected partners. SoCalGas and SCE worked collaboratively to propose a mechanism to consolidate the Simi Valley single city partnership into the larger regional VCREA Partnership. The program was officially closed out in 2016 with the approval of SoCalGas Advice Letter 4991. All remaining operating budget for the City of Simi Valley Partnership was shifted to the SCG3773-New Partnership Program budget.

SCG3781 LGP-City of Redlands Partnership

The Redlands Energy Partnership Program is a local government partnership comprised of the City of Redlands, SCE and SoCalGas. The program is designed to assist the City of Redlands to effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable. Partnership activities focus on implementing energy efficiency in municipal facilities specifically and in the community as a whole. The Partnership establishes energy savings goals through City-identified projects, funded by Partnership incentives and technical assistance. The Partnership supports City and community energy efficiency efforts through marketing and outreach funds.

Monthly meetings to discuss potential opportunities were held with Redland's energy champion. To date, however, no projects with the city have been started. There are many potential projects lined up for 2017 that were identified in previous audit reports this includes plans the city has to move forward with two boilers. These replacements will occur in 2017. Outreach events have also been identified for 2017.

The city does not have a significant amount of natural gas savings that can occur from replacement of current equipment. The Redlands Partnership proposed to transition out of a single city partnership at the end of 2016 and to become part of the San Bernardino Regional Energy Efficiency Partnership in 2017.

SCG3782 LGP-City of Beaumont Partnership

The City of Beaumont Energy Partnership is designed to provide integrated technical and financial assistance to help the City of Beaumont effectively lead their community to increase energy efficiency), reduce greenhouse gas emissions, protect air quality, and ensure that their community is more livable and sustainable. The partnership provides performance-based opportunities for the city to demonstrate EE leadership in its communities through energy saving actions, including retrofitting its municipal facilities, as well as providing opportunities for constituents to take action in their homes and businesses.

In late 2015, the City informed SoCalGas and the partner utility, SCE, that due to recent and sudden changes in City leadership, it would not be able to renew its partnership status for 2016. The Partnership was officially closed out with the approval of SoCalGas Advice Letter 4991 in 2016. The remaining 2013-2016 operating budget for this LGP was fund shifted to the SCG3773-New Partnership Program. SoCalGas continues to provide assistance to the City in whatever capacity possible.

SCG3783 LGP-Western Riverside Energy Partnership

The Western Riverside Energy Partnership is a local government partnership comprised of the cities of Calimesa, Canyon Lake, Eastvale, Hemet, Lake Elsinore, Menifee, Murrieta, Norco, Perris, San Jacinto, Temecula, Wildomar, as well as the implementer, Western Riverside Council of Governments (WRCOG), SCE, and SoCalGas. The Partnership delivers energy savings by implementing energy efficiency measures to municipal facilities while concentrating on deep energy retrofits. The Partnership offers marketing education and outreach to local governments and their communities, coordinates with core utility energy efficiency and demand response programs as well as provides Strategic Planning assistance to participating cities. Western Riverside County is a large geographical area in Southern California, generally located east of Orange County, south of San Bernardino County, and north of San Diego County; the WRCOG covers an area of over 2,100 square miles.

The Partnership conducted monthly and quarterly meetings with their partner cities to discuss program goals, milestones for marketing, training, and energy efficiency projects. In addition to these meetings, the Partnership team began working on conducting one-on-one meetings with City staff to further identify the goals that each city wanted to obtain in the Partnership and develop an energy efficiency project pipeline. Through this format, the Partnership was able to further identify the projects of interest and community outreach goals. To meet those goals, the Partnership participated in several City-sponsored events and promoted energy efficiency rebate information and energy savings tips along with signups for SoCalGas' energy efficiency kits and promotion of SCE's LED Lighting Exchange.

The Partnerships also resulted in other successful efforts. For example, SoCalGas assisted SoCalREN and City of Murrieta with a pool heater project which was completed in 2016. The Project was supported through the Regional Energy Network. This was the first Western Riverside Energy Partnership project completed through the SoCalREN. Through the Partnership, SoCalGas' and SCE's Core Energy Savings Assistance (ESA) and Middle Income

Direct Install (MIDI) Program staff worked together to develop a targeted outreach campaign with three Partnership cities to promote the programs through the Partnership. Mailers went out to eligible customers in Hemet, Murrieta, and Temecula. The campaign successfully resulted in an estimated 341 enrollments as a direct result of the campaign.

SCG3801 LGP- North Orange County Cities Partnership

The North Orange County Cities Energy Partnership (NOCC) is a SoCalGas Local Government Partnership focused on achieving energy savings and behavioral change in residential, non-residential, and municipal sectors. The NOCC supports local governments to implement local government actions that are identified in the California Long- Term Energy Efficiency Strategic Plan (Strategic Plan). The NOCC Partnership consists of SoCalGas, the eight cities of Brea, Buena Park, Fullerton, La Habra, La Palma, Orange, Placentia, and Yorba Linda, plus implementing vendor, The Energy Coalition.

The NOCC Partnership worked in several areas during 2016 to build awareness of the opportunities available through the Partnership. It promoted SoCalGas' core programs to residents at outreach events. It also distributed Local Government Partnership e-blasts for Partner education and training. The Partnership played a critical role in developing relationships by facilitating monthly NOCC meetings and coordinating as well as conducting Partnership orientation meetings with partner cities. In addition, it produced energy analysis reports for partner cities and held debriefing calls and meetings.

Although NOCC is a non-resource program as implemented by SoCalGas, it does have annual therm savings targets that will be achieved through municipal energy efficiency projects delivered through SoCalGas core programs. In 2016, the Partnership pursued three audits to identify therm saving measures such as a pool heater and cover project in Buena Park. In general, the Partnership found that there are limited opportunities for energy efficiency audit development due to relatively low natural gas loads at municipal facilities.

SCG3802 LGP- San Bernardino Regional Energy Partnership

The San Bernardino Regional Energy Partnership is a joint partnership with both SoCalGas and SCE with the San Bernardino Association of Governments (SANBAG) as the implementer. The Partnership was approved and added to the Local Government Partnership Program for SoCalGas and SCE in April 2015. The goal of the San Bernardino Regional Energy Partnership is to provide an Energy Efficiency Partnership program to the 14 cities that are not currently participating in other Partnerships with SoCalGas. The Partnership will demonstrate deep energy retrofits, focusing on municipal retrofits in the participating jurisdictions, which include the cities of Chino, Chino Hills, Fontana, Grand Terrace, Highland, Loma Linda, Montclair, Ontario, Rancho Cucamonga, Rialto, City of Twentynine Palms, Upland, Yucaipa, and Town of Yucca Valley.

The primary objectives for the San Bernardino Regional Energy Partnership include:

- Promote integrated energy efficiency through identifying/assisting in the coordination of opportunities for cost-effective implementation of natural gas and electric energy-savings technologies;
- Coordinate community outreach and training efforts to educate consumers and promote programs; and
- Identify/offer financial packages that bundle practical utility incentives, with various monetary incentives aimed at improving the participation of residents, businesses, and local government agencies.

In its first full year of implementation, the Partnership fell short of its goals but made good progress towards establishing itself as a regional Partnership. The Partnership and its contractor provided technical assistance support during 2016; this included conducting energy audits of facilities in three cities. Examples of the projects identified and implemented in 2016 include a flue gas analysis conducted for boilers in both Chino Hills and the City of Fontana to determine boiler operating efficiencies. Another project completed in 2016 was the replacement of a natural gas boiler in the City of Highland. As a result of these efforts, the Partnership now has a pipeline of energy efficiency projects that will be completed in 2017.

The Partnership conducted monthly and quarterly meetings with their partner cities to discuss program goals, milestones for marketing, training, and EE projects. The Partnership also participated in meetings with the Regional Energy Network to provide an overview of The Energy Networks Programs to the City of Upland, City of Rancho Cucamonga and City of Rialto. Other efforts in the Partnership during 2016 included:

- Each city in the partnership received a kiosk to display SoCalGas core program materials;
- Energy Efficiency Starter Kits were distributed at Holiday Light Exchange events in five cities;
- A new joint partnership overview brochure was created; and
- SoCalGas was represented at the Rialto Pollution Prevention Fair.

Third Party Programs

SCG3757 3P-Small Industrial Facility Upgrades

The Small Industrial Facility Upgrades Program assists industrial customers in becoming more energy efficient and productive through the adoption of EE technologies, including those with low market penetration. The program offers proven EE measures offered in both its calculated and deemed program offerings.

In 2016 the program fully committed the available program budget and received additional budget via a funds shift in late 2016 to allow for additional commitments resulting in a robust pipeline. This success was driven by relationship building and successful project completions with industrial customers. Customers were reached through a variety of methods, including directly at the plant level, through corporate management, account executives, and equipment suppliers.

Due to various challenges at the facility level, project installation and commissioning schedules commonly slip, which caused multiple projects' estimated installation dates to slip into 2017.

SGC3758 3P-Program for Resource Efficiency in Private and Public Schools

The Program for Resource Efficiency in Private and Public Schools, (PREPPS), is intended to reduce gas energy costs, limit greenhouse gas emissions, and improve school district facility operations to enhance the learning environment. The PREPPS targets private learning institutions and public K-12 schools. PREPPS provides school facilities with project opportunity evaluations, energy efficiency recommendations, technical services, and cash incentives.

PREPPS continued to achieve the goal of increasing enrollment of new participants through a balanced mix of deemed and custom measures. The overall satisfactory achievement of energy savings goals for the year will assist the program in building a strong pipeline of enrollments and commitments that is expected to carry into 2017.

PREPPS saw many program successes and barriers in 2016. PREPPS saw an increase in annual savings and an increase in the size of committed projects over previous years. Custom projects accounted for a greater percentage of gross therm savings over previous years. However, due to the complexity of the custom project process, smaller projects not deemed cost-effective, did not move forward. PREPPS continued to enhance vendor relationships, which resulted in the acquisitions of several deemed projects.

SCG3759 3P-On Demand Efficiency

The On-Demand Efficiency Program (ODE) addresses a method of decreasing the natural gas consumption of central domestic hot water systems with recirculation loops in multifamily buildings while maintaining occupant satisfaction with the hot water delivery. Demand controls on hot water recirculation systems turn off the recirculation pump when it is not needed, thereby reducing heat loss from the loop, boiler fire time, and natural gas consumption. This program identifies multifamily properties with central domestic water heating systems and installs on-demand controllers that are feasible for the water heating system.

ODE achieved success on three fronts: nearly doubled 2015 projects installations; an increase in gross therm savings; and an upsurge in customer satisfaction survey scores. Installation quality, improved feasibility analysis, and higher inspection rates were prioritized, resulting in a decrease in performance issues. Customer satisfaction surveys displayed an acceptable response rate and high level of program satisfaction.

During 2016, multiple changes were implemented to improve program success. Marketing outreach was modified to focus on property management companies in order to reach large unit complexes. In addition, the current controller technology was updated for quicker and less evasive installation with the opportunity to accommodate wireless monitoring. Lastly, an

increase to the inspection rate coupled with a higher demanding process, was created to follow up on customer issues.

SCG3760 3P-HERS Rater Training Advancement

The Home Energy Rating System (HERS) Advanced Rater Training Program promotes, develops, and delivers training to certified HERS raters, energy analysts, HVAC technicians, building department officials, other building trade professionals, residential homeowners, and technical students. The participants are involved in new and existing engineering and construction. The curriculums address technical and administrative elements of energy ratings, energy efficiency standards including changes based on updated Title 24 requirements, and industry best practices.

In 2016, Program reach was expanded to include two new organizations: Southwest Carpenter's Union and Community Services and Employment Training (CSET) of Visalia. A total of three new curriculums were developed and three courses were updated during the Program year. New classes created in 2016 included Real Estate Training: Upselling Energy Efficient Homes; Quality Installation: High Efficiency Gas Furnace; and Smart Homes. Updated curriculum included: Combustion Safety; EPA 608 Core & Type II; and Title 24, Part 6: Residential Overview. Despite the challenges of keeping enrollments high during the summer months, class minimum enrollments were met and exceeded. Budget management allowed for additional classes to be held, achieving additional efficiencies that allowed the Program not only to meet but to exceed goals. The Program continued to refine and improve its delivery method to provide strategic and operational support to SoCalGas' WE&T goals and the audience it serves.

For 2016, the Program's production exceeded goal by two classes (67) with an average attendance of almost 20 students per class. This represents an increase of over 3 students per class over 2015. Over 1,300 students attended classes during 2016, resulting in an increase of The total number of students in 2016 increased more than 15% over 2015 and average class attendance increased by 20% from the previous year. Twenty-five different classes were delivered in 2016, in half day and full day formats. In addition, the website was updated to provide new course descriptions and marketing notices.

SCG3761 3P-Multifamily Home Tune-Up

The Multifamily Home Tune-up Program targets owners and managers of multi-unit residential properties. The program provides and installs energy efficient low-flow showerheads and kitchen/bathroom aerators in Orange, San Bernardino, Riverside, and Imperial Counties.

The Program continued measure installations in 2016 by leveraging relationships with other direct install contractors and SoCalGas programs in the service area. By strategically sharing leads and contacts, each contractor added value to their respective program while increasing the value proposition and ease of participation for property managers/owners. Approximately 90

sites and over 8,000 apartment units participated in the program with nearly 25,000 energy efficient devices installed.

Due to the extensive size of the coverage area, it was determined that conducting a program saturation study would better identify underserved areas optimal for conducting program outreach. Starting in the second quarter, the Home Tune-Up program deployed property outreach in specific areas identified as underserved by the Program Manager. As a result, the Home Tune-Up program joined and participated in several Orange County Apartment Association advertising and outreach events which provided additional visibility to both SoCalGas and the Home Tune-Up program. After a relatively successful summer, enrollments started to decline forcing another realignment of the outreach strategy. This consideration includes enrollment of larger property management firms in the underserved areas. Success with this strategy allowed the program to recover monthly installations and savings through the end of the program year.

At the end of 2016 SoCalGas was re-evaluating the long-term program plan as a result of various implementation challenges faced in implementing the program.

SCG3762 3P-Community Language Efficiency Outreach

The Community Language Efficiency Outreach Program (CLEO) is an energy efficiency marketing, outreach, education and training program specifically targeted to the Vietnamese, Indian, Chinese Korean, Hispanic, and African American (VICK-HA) SoCalGas customers. CLEO has a unique, 100% in-language strategy which serves a key role in overcoming the English-as-a-second language market barrier and targets hard-to-reach, low and medium income customers.

The CLEO program markets SoCalGas programs and offers energy efficiency education and training using local ethnic media (radio and newspapers) and community events. The CLEO program's marketing efforts encourage and create participation in SoCalGas energy efficiency programs. CLEO also targets SoCalGas customers in areas with high concentrations of Asian, Hispanic, and African American customers as well as customers in other Southern California Power Producers Association (SCPPA) municipal cities.

In 2016, the CLEO program emphasized working with faith-based and community-based organizations, especially in Hispanic communities. This effort resulted in a participation increase of 250% in the Hispanic community as compared to the previous year.

The CLEO program also continued to reach out to foodservice business customers to educate them on SoCalGas foodservice offerings such as EE programs, rebates, and Energy Resource Center workshops. The CLEO program provided in-language assistance as required for the attendees.

In 2016, CLEO clearly met and exceeded its program goals. CLEO provided 18 in-language seminars, 49 booths, 305 foodservice surveys, 928 EE surveys and 947 EE Kits enrollments. Furthermore, the CLEO program hosted an energy education school program for five schools.

The CLEO program made a few changes in 2016. During the 2016 program year, the program reassigned a portion of the goals to SCPA cities and Southern California Edison (SCE) shared territories due to reprioritization of SCE funding. In addition, radio and newspaper marketing was replaced by more focused in-person marketing.

SCG3763 3P-Multifamily Direct Therm Savings

The Multi-Family Direct Therm Savings Program (marketed as “Energy Smart”) targets owners and managers of multi-unit residential properties. The program encourages participation by providing energy efficient products and installation at no cost to the end-use customer. Marketing activities focus primarily on apartment building owners and managers.

The Energy Smart Program installed nearly 86,000 energy efficient devices at approximately 1,300 sites in 2016. The Energy Smart team provided a high level of customer service, both in the office and in the field, resulting in favorable customer satisfaction surveys. In 2016, the program received an overall satisfaction rating of 9.6 from customers responding to a survey questionnaire generated a third party.

In 2016, the Energy Smart Program delivered the program in hard to reach counties (outside Los Angeles County). At the end of 2016, the program reached 4.3% of hard to reach customers. There were no major challenges or implementation barriers in 2016. The only challenge that the delivery team faced in 2016 was maintaining a full installation schedule. Although 2016 goals were met, it was a continuous struggle throughout the year to find customers to enroll and install. The program faced rejections for various reasons, such as, another contractor had previously retrofitted the site or the customer had collaborated with a contractor that could offer numerous items such as toilets.

SCG3764 3P-LivingWise®

LivingWise® is a school-delivered residential energy savings program that is currently sponsored through collaboration between SoCalGas, SCE, and additional water agencies. The Program provides a proven blend of classroom activities and take-home retrofit and audit projects which students complete as homework assignments with their parents and families. Energy audit data and installation reports are collected via surveys, which are returned to teachers and forwarded to the LivingWise® Program Center for tabulation and storage. LivingWise® is implemented at the sixth grade level to best align with State Learning Standards, and is offered to eligible teachers as an elective (supplemental) program. Teacher enrollment is very high, and overall participant program satisfaction (including parents) is excellent.

The take-home retrofit kit provided to the students included a low-flow showerhead as well as kitchen and bathroom aerators. Whenever SoCalGas was paired with Southern California Edison (SCE) as the co-sponsor the student and teacher educational materials were modified to incorporate the inclusion of a LED (Light Emitting Diode) light bulb.

The 2016 LivingWise program objectives were accomplished including: serving nearly 36,000 sixth grade students, teachers and households; achieving the quarterly distribution goals; and receiving exemplary program ratings in response to the independent research firm customer satisfaction surveys.

SCG3765 3P-Manufactured Mobile Home

The Manufactured Mobile Home Program (MMHP) is designed to provide energy efficient gas measures on a comprehensive basis to manufactured mobile home SoCalGas customers. These energy efficient measures include duct test and seal, kitchen and bathroom faucet aerators, and low flow showerheads.

In 2016, the SoCalGas Manufactured Mobile Home Program provided installations to over 10,400 customers. Quality Assurance surveys were completed for nearly 3,500 customers in 2016 and contractor internal site inspections were completed at over 1,000 customer residences. Positive customer feedback was received from almost 800 customers in 2016. Key Performance Indicators (KPI) Reporting was completed quarterly with scores indicating the program was at or above goal in all evaluated areas.

There were minimal program changes made throughout 2016. For example, effective June 1, 2016, the inspection rate was increased from 5% to 12% based on a statistical analysis of required inspection rates. In order to optimize program efficiency, the program teams, together with SoCalGas program staff, developed and implemented a new internal process that utilized both the marketing and production team customer contact opportunities to gather additional contact information. With this process deployment, program staff were able to provide cost-effective energy savings to SoCalGas customers and decrease access and inspection issues.

SCG3768 3P-California Sustainability Alliance

The California Sustainability Alliance (Alliance) Program is designed to increase and accelerate adoption of energy efficiency by packaging it with complementary sustainability measures (i.e., efficient energy and water use, renewable energy, waste management, and transportation management). In this manner, energy efficiency can be achieved more cost-efficiently, increasing net societal benefits and maximizing benefits to California ratepayers. The scope of the Alliance includes multiple activities dedicated towards: (1) building demand for energy efficiency and environmental sustainability; (2) advancing and promulgating the body of sustainability best practices, tools and techniques; (3) leveraging the collective resources of all partners – public and private, local, state and federal; and (4) developing educational and

outreach materials to widely disseminate the business case for sustainability through the body of emerging and existing best practices.

In 2016, the Alliance program completed two primary projects within the program: Green Buildings and Water Energy. Within the Green Building project, multiple activities were conducted such as; implementation of a student-run design competition geared towards implementing sustainable strategies in the commercial sector; and the design of a potential study which analyzed various measures across diverse building types and California climate zones using building energy simulation software.

Within the Water Energy area, the Alliance program conducted multiple activities which studied the viability of water efficiency in the design of landscapes at medical facilities and conducted a case study exhibiting the potential for water-energy savings while maintaining wellness benefits of the green space. Furthermore, the Alliance program examined the urban agriculture subsector to produce a public case study which examined the opportunities for SoCalGas' future program design.

SCG3769 3P-Portfolio of the Future (PoF)

The Portfolio of the Future (PoF) is aimed at filling the gap between existing technologies in SoCalGas' energy efficiency portfolio and new, emerging technologies. POF seeks to enable the inclusion of emerging natural gas efficiency technologies and new business models to identify candidate natural gas applications in all sectors. This entails identifying, evaluating, and demonstrating new technologies and then working to facilitate their inclusion in SoCalGas' program offerings.

The primary indicator of the PoF program success is the number of new energy efficient technologies that were brought into SoCalGas' energy efficiency portfolio. In 2016, the program was successful in meeting its targets. PoF identified several promising measures - such as Individual Comfort Controls, Integrated Space and Water Heating, and many behavioral measures - and supported SoCalGas in developing programs for several more including Industrial Waste Water Recycling, the Rheem H2AC, Smart Thermostats, Recirculating Pump Time Clock, and a Modulating Gas Dryer Retrofit.

SCG3770 3P-PACE Energy Savings Project

The PACE Energy Savings Project (PACE ESP) is a multi-ethnic outreach program that actively promotes the SoCalGas energy efficiency programs to its residential and small business customers. The program targets customers who belong to the Chinese, Filipino, Korean, Hispanic and, Vietnamese communities living in Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties. PACE ESP conducts its outreach efforts in the native languages of the targeted customer communities to promote better understanding and increased participation in these programs.

In 2016, PACE ESP met and exceeded its target goals and tasks. Program success was attributed directly to the outreach specialists who conveyed the information directly to the community members and participated in community events. Furthermore, PACE specialists conducted seminars and presentations that target community members via outreach activities in their native languages, presented energy efficiency concepts, distributed in language information materials to the target communities, and coordinated with formal and informal leaders of the community.

In 2016, PACE ESP conducted six workshops/ seminars and eight presentations and participated at 62 ethnic community events. As part of these efforts, PACE ESP made contact with over 900 small business customers and roughly 2,700 residential customers. This resulted in over 1,900 completed Ways to Save Energy surveys—formerly known as Home Energy & Water Efficiency Surveys. Lastly, the PACE ESP program enrolled over 2,000 residential customers to receive free EE kits by mail.

SCG3771 3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)

The Innovative Designs for Energy Efficiency Activities 365 (IDEEA365) program provides opportunities for third-party contractors to propose and implement new programs. This EE solicitation process allows for a “continuous” portfolio cycle to encourage new targeted and innovative technologies, program concepts, and offerings without having to wait for a new program cycle to begin.

The program process creates a mechanism for competitive solicitations for third-party programs that may improve cost-effectiveness and helps achieve deeper retrofit savings. The “continuous” solicitation concept is promoted by offering two unique solicitation types, Targeted and Innovative. Targeted Solicitations support utility identified program gaps, market needs, and technologies while Innovative solicitations encourage both existing and new service providers to develop and submit innovative program ideas. With the Innovative process, SoCalGas periodically offers an open Request for Abstracts (RFA) to give the providers of energy efficiency programs the opportunity to present their ideas and concepts for possible funding and implementation. In the Innovative process, upon receipt of abstracts, SoCalGas coordinates program selection and review with internal cross functional groups and an active Peer Review Group (PRG) consisting of program stakeholders to provide advisements. After reviews, scoring, and approval by internal and external stakeholders, the selected abstracts move to a second stage which requires more detailed information. For Targeted programs, the solicitation is done in a single stage with only an RFP. Scoring and selection of proposals is completed in the same way for both Innovative and Targeted solicitations. The selected programs then proceed to contracting, completion of internal and regulatory required documentation, and then funded via fund shift from the available IDEEA365 budget. All bids and communications were posted via the statewide Proposal Evaluation and Program Management Application (PEPMA) website.

During 2016, circumstances driven primarily by legislative requirements required IDEEA365 program activity to be halted while solicitations to meet legislative requirements were executed.

SCG3793 3P-IDEEA365-Instant Rebates! Point of Sale Food Service Equipment

The Instant Rebates! Point-of-Sale Rebate Program (Instant Rebates!) enables nonresidential customers to receive point-of-sale (POS) rebates for eligible, high-efficiency equipment from participating food service equipment vendors. Equipment vendors may receive a sales incentive for eligible high-efficiency food service equipment purchased by a SoCalGas customer. Sales incentives is a mid-stream strategy designed to offset vendors' administrative burden, financial carrying costs of fronting rebates to customers, and overhead associated with stocking and selling more high-efficiency equipment.

In 2016, the Instant Rebates program exceeded the original 2016 program goals. A Customer Satisfaction Study released in early 2016 provided highly favorable ratings of Instant Rebates and the service provided by the Implementer. Instant Rebates exceeded its fourteen-day program payment goal, issuing vendor rebates in an average of eight days from the application approval date. Program Implementer enrolled three new and re-engaged six non-participating vendors to expand the program's geographical coverage. Thirty-three vendor stores are currently enrolled in Instant Rebates.

Instant Rebates conducted custom trainings with one of the largest vendors to address unique sales processes for special order-eligible equipment sales and expanded the program through additional market channels. Instant Rebates presented at two SoCalGas Account Executive meetings and shared information with ten municipal green business/ sustainability program leaders to pass on to their constituents.

SCG3794 3P-IDEEA365-Water Loss Control

The Water Loss Control (WLC) Program provides leak-loss detection and remediation, and pressure management services for water entities. This program was structured to build a customer understanding about the potential embedded energy savings, avoided costs, and cost-effectiveness of leak detection and remediation programs.

Due to various implementation challenges faced by the contractor, the long-term program plan required reevaluation. It was determined that the program not be continued into the 2016 program year and was terminated via Advice Letter 4991.

SCG3795 3P-IDEEA365-Commercial Sustainable Development

The Commercial Sustainable Development Program (CSDP) provides design assistance as well as policy and educational assistance to commercial customers. It focuses on passive and low energy strategies to assist the commercial customer in achieving sustainability, Zero Net Energy (ZNE), and improved thermal comfort. The program deliverables include: white papers; methodologies; metrics; case studies; and workshops on passive design and low energy

strategies. In addition, the program is responsible for funding and coordinating a research grant to support a research assistant working to implement passive design and low energy research strategies.

Due to various implementation challenges faced by the contractor, the long-term program plan required reevaluation. It was determined that the program not be continued into the 2016 program year and was terminated via Advice Letter 4991.

SCG3796 3PP-IDEEA365-On-Demand Efficiency for Campus Housing (ODECH)

The On-Demand Efficiency for Campus Housing Program (ODECH) addresses a method of decreasing the natural gas consumption of central domestic hot water systems with recirculation loops in campus housing buildings while maintaining occupant satisfaction with the hot water delivery. Demand controls on hot water recirculation systems turn off the recirculation pump when it is not needed, thereby reducing unnecessary heat loss from the loop, reducing the boiler fire time, and thus reducing the natural gas consumption. ODECH finds potential sites and installs on-demand controllers that are appropriate for the water heating system, sustainable, save natural gas and electricity and reduce greenhouse gases by burning less natural gas for water heating while maintaining occupant satisfaction with the hot water delivery.

In 2016, the ODECH program exceeded the original goals and with strong initial interest at the beginning of the program year, the program required additional funds to support the strong surge of customer uptake. The ODECH program enjoyed high marks on the program administrator's participant survey. All inspections performed by the program manager's third party inspection group passed. The program experienced very few customer issues and only one in nearly 160 controller installations reported performance issues.

The overall sales approach represented a major change for 2016. The program staff sent out emails monthly which contributed to an increase in program enrollments and overall awareness of the program.

SCG3797 3P-IDEEA365-Energy Advantage Program for Small Business

The Energy Advantage Program (EAP) for Small Business is designed to educate small and medium business customers about energy savings opportunities. To encourage customer installation of energy efficiency projects, EAP helps the customer leverage other SoCalGas rebates and incentives programs.

While the original EAP program was designed to leverage referrals from small business lenders during their active loan process, the Program Administrator discovered that many lenders perceived too much risk with such referrals, causing delays in their loan closures. As such, EAP

continues to educate lenders and build a trusted relationship by providing referrals to lenders and generating referrals from lenders to EAP after a borrower's loan closes. EAP has become a resource for small businesses with sizeable facilities. There is still a significant energy efficiency opportunity, and depending on the needs of the customer, EAP can connect the customer to a variety of additional project financing resources, such as SBA 504 modification, PACE loan, SoCalGas On-Bill Financing (OBF) or other community based lending products.

During 2016, EAP conducted outreach to the targeted regional lender community. In total, EAP engaged with approximately fifteen small business lenders, and enrolled two new lenders as active marketing partners in the program. EAP continued to be active at community events, Valley Economic Alliance events, and presenting at Small Business Administration (SBA) Events. EAP educated 118 customers on the program and benefits. The program successfully enrolled nine small and medium business customers, which included commercial and manufacturing facilities.

SCG3798 3P-IDEEA365-Connect

The Connect Program (Connect) was developed to address the missing information and deployment link within the commercial real estate (CRE) industry. Connect utilizes a portfolio approach to develop long-term energy savings pipelines and establish relationships for both CRE and utility stakeholders. By utilizing existing relationships established with top CRE property management firms, Connect aims to gain the data and building access required to successfully engage the CRE market. In doing so, Connect limits marketing costs and improves the conversion rate of individual building engagements.

The Connect Program focuses on the deployment of gas measures in office, retail, mixed-use, healthcare, and light industrial spaces within SoCalGas' territory. The Program promotes the full suite of existing SoCalGas energy efficiency programs and tracks the completion of customer's energy efficiency projects.

Connect has had significant reach within SoCalGas territory and has benchmarked over 50 properties, totaling over 13.8 million square feet, conducted 10 property audits, covering over 3.6 million square feet and identified 25 energy efficiency measures. Connect added a qualitative component to include conversations regarding past audits, owner receptivity to implementing energy efficiency measures, potential pending sale of the building, and others. Connect has developed an extensive savings pipeline to be pursued for implementation via SoCalGas resource EE programs throughout 2017.

SCG3799 3P-IDEEA365-Historical Building Energy Efficiency

The Historic Building Energy Efficiency Program (HBEEP) is a residential outreach program focused on energy efficient upgrades to historic single-family homes. HBEEP's model is designed to assist homeowners of historic buildings learn how restoration and preservation activities can be combined with energy efficiency upgrades. HBEEP addresses a gap in targeting

a unique building portfolio that includes older single family homes located in designated historic building districts within the SoCalGas service territory. This customer base is typically constrained by specific building alteration guidelines aimed to preserve neighborhoods with distinct architectural and cultural characteristics. The program strategy is to initially target owners/buyers of pre-1940 homes located in designated historic building districts such as the City of Los Angeles' designated Historic Preservation Overlay Zones (HPOZs) and enroll these customers in SoCalGas' energy efficiency rebate and incentive programs (e.g., Home Upgrade/Advanced Home Upgrade Programs).

In 2016, program implementation activities continued based on HBEEP's original program design. Minor changes were implemented to improved efficiencies and reduced administrative burdens. Program implementation activities resulted in the following: seven Home Upgrade participating contractors received training/mentoring specifically in restoration construction and historic preservation. Contractor initiated projects after completing training and mentoring led to 44 energy assessments and 44 Home Upgrade program enrollments. Direct correspondence with customers through homeowner outreach events led to completion of six energy assessments and three Home Upgrade program enrollments.

Though there were no program changes throughout 2016, HBEEP's activity led to increased market understanding and insight into the following program barriers. Many potential customers requested detailed information regarding the incentive process (specifically, the Home Upgrade program incentive process), which is not available through HBEEP. The needs of older historic homes are resource intensive. Another concern identified was the presence of hazardous materials (i.e., possible asbestos containing materials (PACM)) and other health and safety concerns (e.g., knob and tube wiring) which can prevent a comprehensive energy assessment from being conducted, which is necessary to accurately assess the home's energy needs.

SCG3800 3P-IDEEA365-Clear Ice

Clear Ice is a turnkey gas savings energy efficiency program for SoCalGas customers' new and existing ice rinks. It offers a calculated incentive on an industrial vortex technology called REALICE. With this technology, water used for ice making and resurfacing no longer needs to be heated to from 120°F – 160°F and ambient un-heated water at approximately 60°F can be used.

REALICE is a relatively new technology in the United States and there is a need to conduct targeted and repeated communications to each rink's decision makers including both rink operators and rink owners. One key market barrier is to modify an entrenched behavior by the rink operators whose normal practice is to use heated water heated for ice resurfacing. To modify this behavior, a technical description of how and why the technology works, total savings, and other program adopters are just some of the talking points presented to the rink owners and operators.

Currently, only one customer has installed this technology one customer has committed to installation (pending incentive approval), and another has agreed to test the technology.

Additional customers have indicated an interest in the technology based on the return on investment, combined incentives and the increasing program uptake. Program staff will continue to pursue potential cliental, present ongoing customer training, develop marketing materials and conduct outreach presentations to all rinks in the SoCalGas service territory.

SCG3804 3P-IDEEA365-On-Premise Ozone Laundry (OPOL)

The On-Premise Ozone Laundry (OPOL) Program targets small to medium sized hotels, fitness centers, and health centers (including nursing homes, convalescent homes, hospices and hospitals) with 250 or fewer rooms that have an on-premise laundry operation. The program installs ozone laundry technology in customer's on-premise laundry facility. Ozone technology is effective in cold water, thereby reducing gas and electricity consumption by eliminating nearly all hot water wash cycle requirements.

The OPOL program launched in 2016. The OPOL Program marketing strategies, infrastructure, and staff resulted in a steady increase in program performance levels. The program team, working with the SoCalGas staff, constantly refined system processes to maximize program availability in the hard to reach sector.

The OPOL Program has fluidly introduced and educated the targeted sector to the newly implemented technology. Customer interest, willingness to participate and program enrollment have steadily increased throughout the implementation period. Post installation maintenance and service visits have reassured program participant satisfaction as well as the continued use of the technology.

Water Energy Nexus

SoCalGas has long been an active contributor in the water-energy proceeding since its inception. Spanning across five of the six legislative umbrellas that guide the State's goals in energy, emissions reductions, and sustainability, SoCalGas has maintained its role as a water advocate. In 2016, SoCalGas has continued in its offering of programs that educate on water savings, deliver energy savings measures associated with the savings of hot water, as well as partnering with water agencies for cross-promotion. Based on the evolution of Water Energy Nexus proceeding activities, SoCalGas had begun new research and study efforts to better quantify and deliver energy savings through water and will be continuing these activities throughout 2017. SoCalGas works jointly with the other investor owned utilities (IOUs) and stakeholders in planning toward the improvement of tools and protocols regarding water energy and expects these activities to continue through 2017 and beyond.

Water Energy Nexus Cost Calculator

On February 10, 2016, the Commission requested comments on changes to Water-Energy Avoided Cost Tools via the CPUC's Water-Energy Nexus Programs Rulemaking [OIR 13.12.011]. In the ruling, the Commission cited Decision (D.) 15-09-023 adopting the Water-

Energy (W-E) Calculator that stated “The most pressing substantive change we would like to see for the tools is the addition of default gas energy intensity values to the W-E calculator.” During the course of multiple workshops that were conducted during 2014-2015 to obtain input into the design and default assumptions proposed to be used in the CPUC’s Water-Energy Calculator, SoCalGas and other parties noted the omission of natural gas. The consequence of this omission is that presently, although Ordering Paragraph 2 in D.15-09-023 directs that “Energy efficiency Program Administrators shall use the Water-Energy Calculator and the Avoided Water Capacity Cost Model in preparing their requests for ratepayer funding for measures/programs that reduce water use and thus save embedded energy”, any water-energy nexus program conducted by a gas utility is deemed to have a natural gas energy intensity of zero.

The Commission’s W-E Calculator currently utilizes a default value of zero for gas intensity and does not calculate embedded energy savings for natural gas. Per the direction given by the Commission to Energy Efficiency Program Administrators to utilize the W-E Calculator, SoCalGas in 2016 began work on a study to determine the appropriate value to represent the natural gas energy intensity of water in the CPUC’s W-E Calculator within SoCalGas’ service area. In the third quarter of 2016, SoCalGas identified which water agency operate natural gas engines for water transportation and also what the water agencies estimated water and energy values from 2010-2015. As D.16-12-047 provided additional direction for the W-E Calculator to be integrated with the E3 Energy Efficiency Cost Calculator (Water Energy Nexus Cost Calculator 2.0), SoCalGas will continue this effort in 2017 to establish the background in which SoCalGas can calculate the water energy intensity value for its service territory in 2017 onward incorporated as part of the Water Energy Nexus Action plan due six month after the natural gas study is complete or August 2017, whichever comes first.

California Sustainability Alliance

In 2016, the California Sustainability Alliance, a SoCalGas 3rd Party Program, completed a guidebook to understand opportunities for water and energy savings associated with landscape design. The guidebook is tailored to the medical industry to assuage concerns this industry has with outdoor landscapes. In this guidebook, the California Sustainability Alliance discovered that water efficient landscape design can have substantial direct and possibly embedded energy savings, cost savings, and maintenance benefits.

Shared Network Advanced Meter Infrastructure Pilots

SoCalGas, along with the other Energy IOUs in California, were asked to develop pilot proposals to identify technical issues with a water corporation “piggybacking” on electric corporation and/or gas corporation Advanced Metering Infrastructure (AMI), or to structure new pilots to explore different questions if pilots on AMI were already underway. As part of this effort, SoCalGas submitted a proposal which, in addition to network sharing, includes the identification and evaluation of potential hot water leaks based on analytics of both gas and water AMI data, as well a study of the potential benefits associated with hot water leak detection and resolution. This proposal was approved by the CPUC on June 9, 2016 with D.16-

06-010, and SoCalGas has begun work with Aclara Technologies (advanced meter vendor), Valor Water Analytics, (3rd party analytics vendor), and two separate Commission-regulated water utilities (San Gabriel Valley Water Company, California American Water) on this effort, referred to as the Water Energy Nexus (WEN) AMI Pilots.

The WEN Shared AMI Pilots have been driving to achieve the following program goals set forth in the pilot: (1) network piggybacking, (2) Combined utility data analytics for hot water leak detection, and (3) Determining energy savings from reduced water loss. The first goal has been met in 2016, as both WEN Shared AMI Pilots participants have deployed their pilot water MTUs and are successfully transmitting data over the SoCalGas AMI Network. The WEN Shared AMI Pilots have begun work on Goals 2 and 3 and will continue to these efforts in 2017.

Water Utility Partnering Activities

SoCalGas currently has several water-energy nexus activities and partnerships.

In 2016, SoCalGas continued its partnership with Los Angeles Water and Power (LADWP) and Los Angeles Metropolitan Water District (MWD) to co-deliver water energy nexus activities. SoCalGas and MWD alongside the U.S. Bureau of Reclamation (USBR), Environmental Protection Agency (EPA), Southern Nevada Water Authority (SNWA), the Central Arizona Project (CAP), SoCalGas and Western Resource Advocates funded research to document water energy saving ideas and strategies. SoCalGas also continued its Energy Smart Landscape seminars that was co-taught with MWD in 2016. The LADWP/SoCalGas water energy nexus partnership continued its successful achievements through its direct install activities, one such activity installed various water energy measures in over 31,000 multi-family units.

SoCalGas continued its LivingWise[®] residential energy education and savings program. LivingWise[®] is a school-delivered residential program that during 2016 was sponsored through collaboration between SoCalGas, Southern California Edison (SCE), and 12 different California municipalities or water agencies. The 2016 LivingWise[®] program involved sixth grade students, teachers and households reaching over 35,000 households to install and educate water energy activities.

Other Water Energy Related Program Activities

In 2016, SoCalGas offered multiple energy efficiency measures that can achieve direct water savings to residential and non-residential customers. These measures are listed in the table below:

EE Program Sector	Measures Offered that Achieve Direct Water Savings
Residential	Auto-Diverting Tub Spout with Thermostatic Shut-off Valve
	High Efficiency Clothes Washer
	Low Flow Showerhead
	Residential Faucet Aerator
	Thermostatic Shower Valve

	Water Savings Kit
Non-Residential	Gas Combination Oven
	Gas Pressureless Steamer
	Laminar Flow Restrictor
	Low Flow Pre-Rinse Spray Valve
	Ozone Laundry

SoCalGas plans to expand its offer of EE measures which can achieve direct water savings to residential and non-residential customers in 2017 through the development of new deemed EE savings measure workpapers.

Budget

Program expenditures are not broken out by measure or by water energy related activities and rather are included in the overall expenditures listed in Appendix B.1, Updated Monthly Report, for the following programs listed below:

Program
SCG3702 SW-CALS-Plug Load and Appliance
SCG3703 SW-CALS-Plug Load and Appliances - POS
SCG3705D SW-CALS-EUCa MIDI
SCG3707 SW-CALS-RNC
SCG3711 SW-COM-Deemed Incentives
SCG3761 3P-MF Home Tune Up
SCG3763 3P-MF Direct Therm Savings
SCG3764 3P-Livingwise
SCG3765 3P-Manufactured Mobile Home
SCG3793 3P-IDEEA365-Instant Rebates!
SCG3805 SW-COM-Direct Install Program
SCG3806 AMI Water Pilot

SECTION 1 ENERGY SAVINGS

The purpose of this table is to report the annual impacts of the Energy Efficiency portfolio of programs implemented by SoCalGas for the 2016 year. The annual impacts are reported for 2016 in terms of annual and lifecycle energy savings in natural gas savings in MMTh (million therms). The report shows annual savings (Installed Savings) that reflect installed savings, not including commitments. The values in the Installed Savings column include savings from the Low-Income Energy Efficiency Program, and Codes and Standards work (LIEE and C&S savings are broken out as separate line items in Table 6 - Savings by End-Use).

Table 1

Table 1: <i>Electricity and Natural Gas Savings and Demand Reduction (Gross)</i>			
Annual Results	2016 Installed Savings [1]	CPUC 2016 Adopted Goals (D.15-10-028)	% of Goals (2016)
<i>2016 Energy Savings (GWh) – Annual</i>	8.7		
<i>2013-2016 Energy Savings (GWh) - Annual</i>	37.2		
<i>2016 Energy Savings (GWh) – Lifecycle</i>	100		
<i>2013-2016 Energy Savings (GWh) - Lifecycle</i>	471		
<i>2016 Natural Gas Savings (MMth) – Annual [2]</i>	36.2	29.1	124%
<i>2013-2016 Natural Gas Savings (MMth) - Annual [2]</i>	114.7	101.7	113%
PG&E			
SCE			
SDG&E			
SCG	36.1	29.1	124%
MCE			
BayREN			
SoCalREN	0.1		
TOTAL Natural Gas Savings (MMth) – Annual	36.2	29.1	124%
<i>2016 Natural Gas Savings (MMth) – Lifecycle [3]</i>	170		
<i>2013-2016 Natural Gas Savings (MMth) - Lifecycle [3][4]</i>	884		
<i>2016 Peak Demand Savings (MW)</i>	5.2		
<i>2013-2016 Peak Demand Savings (MW)</i>	18.2		

[1] Results from activity installed in 2016.

[2] Includes savings associated with Low Income Energy Efficiency and Codes and Standards programs.

[3] Does not include lifecycle savings associated with SoCalREN and Codes & Standards programs for 2016.

[4] Does not include lifecycle savings associated with SoCalREN, Low Income Energy Efficiency, and Codes and Standards programs for 2013, 2014, and 2015.

SECTION 2 EMISSION REDUCTIONS

The purpose of this table is to report the annual incremental environmental impacts of the Energy Efficiency portfolio (for both electricity and natural gas) of programs implemented by SoCalGas during the 2016 program year. Parties agreed that the impacts should be in terms of annual and lifecycle tons of CO₂, NO_x, SO_x, and PM₁₀ avoided and should come from the E3 calculator.

Table 2

Table 2: <i>Environmental Impacts (Gross)</i>								
Annual Results	Annual tons of CO2 avoided	Lifecycle tons of CO2 avoided	Annual tons of NOx avoided	Lifecycle tons of NOx avoided	Annual tons of SOx avoided^[1]	Lifecycle tons of SOx avoided^[1]	Annual tons of PM10 avoided	Lifecycle tons of PM10 avoided
<i>2016 Portfolio Targets [2]</i>								
2016 Total [3]	359,780	4,819,325	559,098	7,502,209	-	-	663	7,599
2013-2016 Total [4]	880,901	12,503,571	1,297,121	18,389,729	-	-	3,607	45,843

[1] The avoided SOX reductions are not calculated in the cost effectiveness tool (CET). It was determined that none of the IOUs uses coal power on the margin and the energy efficiency savings have impact on the margin only.

[2] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 established SoCalGas' gas emission reduction targets for the 2013-2014 program cycle. SoCalGas' Compliance Advice Letter 4725 approved by the Commission on January 26, 2015 established SoCalGas' gas emission reduction target for the 2015 program year. SoCalGas did not file a compliance filing for 2016 and does not have portfolio targets assigned for 2016.

[3] Results from activity installed in 2016 only.

[4] Results from activity installed in 2013, 2014, 2015, & 2016.

[5] Environmental impacts do not include any impacts associated with SoCalREN or Low Income Energy Efficiency programs.

SECTION 3 EXPENDITURES

The purpose of this table is to report the annual costs expended by SoCalGas in implementing the 2016 Energy Efficiency portfolio. The report is broken out into the Administrative Costs, Marketing/Education/Outreach Costs, and Direct Implementation Costs categories for the following program classifications: 1. IOU Programs, 2. Local Government Programs (Partnership Programs), 3. Third Party Programs (Competitive Bid Program), and 4. EM&V reported for IOU and Joint Staff individually. The next set of expenditures represents budget and expenditure dollars outside of portfolio: 1. SW ME&O, 2. OBF/Revolving Loan Pool, and 3. Energy Savings and Assistance Program (ESA).

Table 3

Table 3:
2016 Expenditures, including expenditures on past cycle commitments paid in 2016

2016 Expenditures	Administrative Cost									
	Non-IOU Implementer					IOU Support				
	10-12 Committed Funds Expenditures	10-12 Committed Funds 2013-2016 Expenditures	13-15 Committed Funds Expenditures	2016 Expenditures from 2016 Budget	2013-2016 Total Expenditures	10-12 Committed Funds Expenditures	10-12 Committed Funds 2013-2016 Expenditures	13-15 Committed Funds Expenditures	2016 Expenditures from 2016 Budget	2013-2016 Total Expenditures
IOU Programs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,419,622	\$ 21,093,174
Local Government Programs (Partnership Programs)	\$ -	\$ -	\$ -	\$ 149,210	\$ 556,214	\$ -	\$ -	\$ -	\$ 629,800	\$ 2,710,438
Third Party Programs (Competitive Bid Program) [1]	\$ -	\$ -	\$ -	\$ 958,190	\$ 3,344,421	\$ -	\$ -	\$ -	\$ 405,248	\$ 1,448,989
RENs & CCA (Non-IOU Programs) [4][5]	\$ -	\$ -	\$ -	\$ (2,363,924)	\$ (1,527,460)	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ -	\$ (1,256,523)	\$ 2,373,175	\$ -	\$ -	\$ -	\$ 6,454,671	\$ 25,252,601
EM&V - IOU	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 778,893	\$ 2,108,013
EM&V - Joint Staff	\$ -	\$ -	\$ -	\$ 2,481,780	\$ 4,429,816	\$ -	\$ -	\$ -	\$ -	\$ -
Total Portfolio	\$ -	\$ -	\$ -	\$ 1,225,257	\$ 6,802,991	\$ -	\$ -	\$ -	\$ 7,233,564	\$ 27,360,613
SW ME&O [2]*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,520	\$ 47,430
OBF/Revolving Loan Pool*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Savings Assistance Program (ESA)*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenditures	\$ -	\$ -	\$ -	\$ 1,225,257	\$ 6,802,991	\$ -	\$ -	\$ -	\$ 7,242,084	\$ 27,408,044

*Budget dollars outside Portfolio Total

Table 3:
2016 Expenditures, including expenditures on past cycle commitments paid in 2016

2016 Expenditures	Direct Implementation Non-Incentive					Direct Implementation Incentives & Rebates				
	10-12 Committed Funds Expenditures	10-12 Committed Funds 2013-2016 Expenditures	13-15 Committed Funds Expenditures	2016 Expenditures from 2016 Budget	2013-2016 Total Expenditures	10-12 Committed Funds Expenditures	10-12 Committed Funds 2013-2016 Expenditures	13-15 Committed Funds Expenditures	2016 Expenditures from 2016 Budget	2013-2016 Total Expenditures
	IOU Programs	\$ 516,498	\$ 11,531,132	\$ -	\$ 22,728,734	\$ 82,728,707	\$ -	\$ -	\$ -	\$ 21,288,481
Local Government Programs (Partnership Programs)	\$ -	\$ 49,648	\$ -	\$ 1,729,683	\$ 6,296,845	\$ -	\$ -	\$ -	\$ -	\$ 3,523
Third Party Programs (Competitive Bid Program) [1]	\$ -	\$ 770,967	\$ -	\$ 8,110,632	\$ 26,430,563	\$ -	\$ -	\$ -	\$ 7,348,171	\$ 25,199,782
RENs & CCA (Non-IOU Programs) [4][5]	\$ -	\$ -	\$ -	\$ 5,495,688	\$ 4,688,846	\$ -	\$ -	\$ -	\$ 3,500,000	\$ 5,275,000
Subtotal	\$ 516,498	\$ 12,351,747	\$ -	\$ 38,064,737	\$ 120,144,960	\$ -	\$ -	\$ -	\$ 32,136,651	\$ 95,428,602
EM&V - IOU	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EM&V - Joint Staff	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Portfolio	\$ 516,498	\$ 12,351,747	\$ -	\$ 38,064,737	\$ 120,144,960	\$ -	\$ -	\$ -	\$ 32,136,651	\$ 95,428,602
SW ME&O [2]*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OBF/Revolving Loan Pool*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 193,671	\$ 1,410,993
Energy Savings Assistance Program (ESA)*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenditures	\$ 516,498	\$ 12,351,747	\$ -	\$ 38,064,737	\$ 120,144,960	\$ -	\$ -	\$ -	\$ 32,330,322	\$ 96,839,595

*Budget dollars outside Portfolio Total

Table 3:
2016 Expenditures, including expenditures on past cycle commitments paid in 2016

2016 Expenditures	PA Administered ME&O (outside the SW ME&O activities)					Adopted 2016 Budget (Decision 14-10-046)	Operating 2013-2016 Budget (Decision 14-10-046)
	10-12 Committed Funds Expenditures	10-12 Committed Funds 2013-2016 Expenditures	13-15 Committed Funds Expenditures	2016 Expenditures from 2016 Budget	2013-2016 Total Expenditures		
	IOU Programs	\$ -	\$ -	\$ -	\$ 3,058,893		
Local Government Programs (Partnership Programs)	\$ -	\$ -	\$ -	\$ 253,189	\$ 1,052,955	\$ 4,845,951	\$ 19,217,336
Third Party Programs (Competitive Bid Program) [1]	\$ -	\$ -	\$ -	\$ 767,690	\$ 2,549,948	\$ 16,375,717	\$ 66,549,984
RENs & CCA (Non-IOU Programs) [4][5]	\$ -	\$ -	\$ -	\$ 94,888	\$ 1,135,911	\$ 4,337,000	\$ 17,501,161
Subtotal	\$ -	\$ -	\$ -	\$ 4,174,661	\$ 18,652,007	\$ 80,355,572	\$ 331,916,135
EM&V - IOU	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 920,680	\$ 3,849,307
EM&V - Joint Staff	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,427,247	\$ 10,148,172
Total Portfolio	\$ -	\$ -	\$ -	\$ 4,174,661	\$ 18,652,007	\$ 83,703,499	\$ 345,913,613
SW ME&O [2]*	\$ -	\$ -	\$ -	\$ 2,175,674	\$ 5,683,159	\$ 2,436,603	\$ 6,440,669
OBF/Revolving Loan Pool*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Savings Assistance Program (ESA)*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenditures	\$ -	\$ -	\$ -	\$ 6,350,334	\$ 24,335,167	\$ 86,140,102	\$ 352,354,283

*Budget dollars outside Portfolio Total

[1] Does not include those competitively bid programs that are components of Statewide programs.
 [2] D.15-09-033 authorized bridge funding for the 2016 SW ME&O annual budget. SCG3733 SW-ME&O-ME&O was adjusted based on levels set in D.16-09-020.
 [3] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 contained SoCalGas' annual budgets for the 2013-2014 program cycle. Advice Letter 4725 filed December 15, 2014 and approved by the Commission January 26, 2015 contained annual budgets for 2015. D.15-10-028 authorized annual budgets for 2016 based on 2015 funding levels provided in D.14-10-046.
 [4] Includes budget and expenditures associated with SoCalREN.
 [5] The SoCalRen - Finance Program budget reflects a reduction of \$225,000 from the originally authorized budget, per D.13-09-044, OP 23.

SECTION 4 COST-EFFECTIVENESS

The purpose of this table is to provide an annual update on the cost-effectiveness of the portfolio of programs being implemented in the 2016 program year. The targets above are at the portfolio level, so an annual average is used in order to compare the current annual estimates of cost-effectiveness with the cost-effectiveness levels that were estimated at the time the portfolios were adopted. The report includes the SoCalGas results and goals.

Table 4

Annual Results	Total Cost to Billpayers (TRC)	Total Savings to Billpayers (TRC)	Net Benefits to Billpayers (TRC)	TRC Ratio	Total PAC Cost	PAC Ratio	PAC Cost per kW Saved (\$/kW)	PAC Cost per kWh Saved (\$/kWh)	PAC Cost per therm Saved (\$/therm)
<i>2016 Portfolio Targets [1]</i>							N/A	N/A	
2016 Total [2][7][8][9]	\$ 193,024,347	\$ 288,667,015	\$ 95,642,668	1.50	\$ 77,196,027	3.74	N/A	N/A	\$ 0.31
2013-2016 Total [3][4][5][6][7]	\$ 538,402,132	\$ 703,383,845	\$ 164,981,712	1.31	\$ 264,365,333	2.66	N/A	N/A	\$ 0.31

[1] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 established the cost-effectiveness of SoCalGas' 2013-2014 portfolio. SoCalGas' Compliance Advice Letter 4725 approved by the Commission on January 26, 2015 established the cost-effectiveness of SoCalGas' 2015 program year. SoCalGas did not file a compliance filing for 2016 and does not have portfolio targets assigned for 2016.

[2] Results from activity installed in 2016 only.

[3] Results from activity installed in 2013, 2014, 2015, & 2016.

[4] Includes SoCalGas' 2013 shareholder incentive payment of \$3,075,647, submitted in AL 4542 and approved by the Commission on December 11, 2013.

[5] Includes SoCalGas' 2014 shareholder incentive payment of \$5,824,913, submitted in AL 4661 and approved by the Commission on December 18, 2014.

[6] Includes SoCalGas' 2015 shareholder incentive payment of \$4,153,869, submitted in AL 4826 & AL 4859 and approved by the Commission on December 3, 2015.

[7] Includes SoCalGas' 2016 shareholder incentive payment of \$3,538,297, submitted in AL 5024 and approved by the Commission on December 15, 2016.

[8] Does not include costs and benefits associated with Low Income Energy Efficiency, Emerging Technologies Programs, and SoCalREN.

[9] 2016 Cost-Effectiveness calculations exclude \$1,392,176.77 of cost incurred for activities that will be claimed in 2017.

SECTION 5 BILL PAYER IMPACTS

The purpose of this table is to report the annual impact of the energy efficiency activities on customer bills relative to the level without the energy efficiency programs, as required by Rule X.3 of the Energy Efficiency Policy Manual version 3, adopted in D.05-04-051.

Table 5

Table 5:				
<i>Ratepayer Impacts</i>				
2016	Electric Average Rate (Res and Non-Res) \$/kwh	Gas Average Rate (Core and Non-Core) \$/therm	Average First Year Bill Savings (\$)	Average Lifecycle Bill Savings (\$)
SCG	N/A	\$1.10	\$ 39,458,588	\$ 180,698,841

[1] SoCalGas' 12-month residential weighted average transportation rate for 2016 is \$0.79674 per therm.

[2] SoCalGas' 12-month average procurement rate in 2016 was \$0.29965.

[3] Ratepayer impacts are derived from 2016 gross savings accomplishments and the average rate.

[4] The average First Year Bill Savings are calculated by the 2016 first year savings multiplied by the Gas Average Rate.

[5] The average Lifecycle Bill Savings are calculated by the 2016 lifecycle savings multiplied by the Gas Average Rate.

SECTION 6 SAVINGS BY END-USE

The purpose of this table is to show annual portfolio savings by Residential and Non-Residential end-uses and those savings attributable to the LIEE program, and Codes and Standards work

Table 6

Table 6:						
<i>Annual Savings By End-Use 2016 Only</i>						
	GWH	% of Total	MW	% of Total	MMTh	% of Total
Residential	8.40	97%	5.16	100%	4.01	11%
Appliances	2.19	25%	0.91	18%	0.31	1%
Consumer Electronics	-	0%	-	0%	-	0%
Cooking Appliances	-	0%	-	0%	-	0%
HVAC	2.14	25%	1.80	35%	0.36	1%
Lighting	-	0%	-	0%	-	0%
Pool Pump	-	0%	-	0%	0.00	0%
Refrigeration	-	0%	-	0%	-	0%
Water Heating	0.49	6%	0.05	1%	2.08	6%
Other	3.58	41%	2.40	46%	1.24	3%
Nonresidential	0.29	3%	0.01	0%	11.34	31%
HVAC	(0.03)	0%	-	0%	0.44	1%
Lighting	-	0%	-	0%	-	0%
Office	-	0%	-	0%	-	0%
Process	-	0%	-	0%	4.68	13%
Refrigeration	-	0%	-	0%	0.09	0%
Water Heating	0.10	1%	0.01	0%	1.32	4%
Other	0.22	3%	-	0%	4.81	13%
Low Income Energy Efficiency	-	0%	-	0%	1.15	3%
Codes & Standards Energy Savings	-	0%	-	0%	19.69	54%
SCG ANNUAL PORTFOLIO SAVINGS	8.69	100%	5.17	100%	36.19	100%

[1] Results from activity installed in 2016 only.

[2] Includes savings associated with SoCalREN.

SECTION 7 COMMITMENTS

The purpose of this table is to allow the utilities to report commitments which will be produced within the 2017 program year (commitments entered into during the previous and current program cycle but which are not expected to produce installed savings until after December 2016). This information will be useful for the Commission's resource planning purposes by enabling program activities to be linked to a particular funding cycle.

Table 7

Table 7:				
<i>Commitments</i>				
Commitments Made in the Past with Expected Implementation after December 2010-2012				
	Committed Funds [1]	Expected Energy Savings		
2010-2012 [1]	\$	GWH	MW	MMth
SCG Total	\$ 671,982	0	0	2.32
Commitments Made in the Past Year with Expected Implementation after December 2015				
	Committed Funds	Expected Energy Savings		
2013-2015	\$	GWH	MW	MMth
SCG Total				
Commitments Made in the Past Year with Expected Implementation after December 2016				
	Committed Funds [2]	Expected Energy Savings		
2013-2016 [2]	\$	GWH	MW	MMth
SCG Total	\$ 7,724,157	0	0	8.65

[1] Committed funds are associated with the 2010-2012 program cycle as of 12/31/2016.

[2] Committed funds are associated with the 2013-2016 program cycle as of 12/31/2016.

[3] Committed funds represent incentive amounts only.

SECTION 8

SHAREHOLDER PERFORMANCE INCENTIVES

In 2016, the Commission awarded SoCalGas an earnings amount of \$3.54 million, calculated from the results of the 2014 and 2015 program period.

In accordance with the reporting schedule as adopted in D.13-09-023 dated September 5, 2013 and modified by D.15-10-028 Appendix 5 dated October 28, 2015, current values for the 2016 Efficiency Savings and Performance Incentives (ESPI) have not yet been submitted by the IOUs.

The IOUs will file their respective ESPI advice letters on September 1 of this year. The first ESPI awards claims are expected to be approved by the Commission no later than December 31 of this year. The second 2016 ESPI awards claims will be submitted for approval to the Commission on September 1 of the following year. Therefore, there is no information on earnings presented in this report for the 2016 period.

Appendix A – SoCalGas Program Numbers

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3701	SW-CALS-Energy Advisor		
SCG3702	SW-CALS-Plug Load and Appliances		
SCG3703	SW-CALS-Plug Load and Appliances - POS		
SCG3704	SW-CALS-MFEER		
SCG3705	SW-CALS-Energy Upgrade California Home Upgrade Program		
SCG3706	SW-CALS-Residential HVAC		
SCG3707	SW-CALS-RNC		
SCG3708	SW-COM-Energy Advisor		
SCG3709	SW-COM-CEI		
SCG3710	SW-COM-Calculated Incentives		
SCG3711	SW-COM-Deemed Incentives		
SCG3712	SW-COM-NonRes HVAC		
SCG3713	SW-IND-Energy Advisor		
SCG3714	SW-IND-CEI		
SCG3715	SW-IND-Calculated Incentives		
SCG3716	SW-IND-Deemed Incentives		
SCG3717	SW-AG-Energy Advisor		
SCG3718	SW-AG-CEI		
SCG3719	SW-AG-Calculated Incentives		
SCG3720	SW-AG-Deemed Incentives		
SCG3721	SW-ET-Technology Development Support		
SCG3722	SW-ET-Technology Assessment Support		
SCG3723	SW-ET-Technology Introduction Support		
SCG3724	SW C&S-Building Codes & Compliance Advocacy		
SCG3725	SW C&S-Appliance Standards Advocacy		
SCG3726	SW C&S-Compliance Enhancement		
SCG3727	SW C&S-Reach Codes		
SCG3728	SW C&S-Planning Coordination		
SCG3729	SW-WE&T-Centergies		
SCG3730	SW-WE&T-Connections		
SCG3731	SW-WE&T-Strategic Planning		
SCG3734	SW-IDSM-IDSM		
SCG3735	SW-FIN-On-Bill Financing		
SCG3736	SW-FIN-ARRA-Originated Financing		
SCG3737	SW-FIN-New Financing Offerings		
SCG3738	LInstP-CA Department of Corrections Partnership		
SCG3739	LInstP-California Community College Partnership		
SCG3740	LInstP-UC/CSU/IOU Partnership		
SCG3741	LInstP-State of CA/IOU Partnership		
SCG3742	LGP-LA Co Partnership		
SCG3743	LGP-Kern Co Partnership		
SCG3744	LGP-Riverside Co Partnership		
SCG3745	LGP-San Bernardino Co Partnership		

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3746	LGP-Santa Barbara Co Partnership		
SCG3747	LGP-South Bay Cities Partnership		
SCG3748	LGP-San Luis Obispo Co Partnership		
SCG3749	LGP-San Joaquin Valley Partnership		
SCG3750	LGP-Orange Co Partnership		
SCG3751	LGP-SEEC Partnership		
SCG3752	LGP-Community Energy Partnership		
SCG3753	LGP-Desert Cities Partnership		
SCG3754	LGP-Ventura County Partnership		
SCG3755	LGP-Local Government Energy Efficiency Pilots		
SCG3756	3P-Energy Challenger		May 2013
SCG3757	3P-Small Industrial Facility Upgrades		
SCG3758	3P-PREPS		
SCG3759	3P-On Demand Efficiency		
SCG3760	3P-HERS Rater Training Advancement		
SCG3761	3P-MF Home Tune-Up		
SCG3762	3P-CLEO		
SCG3763	3P-MF Direct Therm Savings		
SCG3764	3P-LivingWise		
SCG3765	3P-Manufactured Mobile Home		
SCG3766	3P-SaveGas		January 2015
SCG3768	3P-CA Sustainability Alliance		
SCG3769	3P-PoF		
SCG3770	3P-PACE		
SCG3771	3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)		
SCG3773	LGP-New Partnership Programs		
SCG3774	LGP-LG Regional Resource Placeholder		
SCG3775	CRM		
SCG3776	LGP-Gateway Cities Partnership		
SCG3777	LGP-San Gabriel Valley COG Partnership		
SCG3778	LGP-City of Santa Ana Partnership		
SCG3779	LGP-West Side Cities Partnership		
SCG3780	LGP-City of Simi Valley Partnership		2016
SCG3781	LGP-City of Redlands Partnership		
SCG3782	LGP-City of Beaumont Partnership		2016
SCG3783	LGP-Western Riverside Energy Partnership		
SCG3793	3P - IDEEA365 - Instant Rebates! Point of Sale Food Service Equipment Program	March 2014	
SCG3794	3P - IDEEA365 Water Loss Control Program	May 2014	2016
SCG3795	3P-IDEEA365 - Commercial Sustainable Development Program	August 2014	2016
SCG3796	3P-IDEEA365-On Demand Efficiency for Campus Housing	March 2015	
SCG3797	3P-IDEEA365-Energy Advantage Program for Small Business	November 2014	

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3798	3P-IDEEA365-Connect	March 2015	
SCG3799	3P-IDEEA365-Historical Building Energy Efficiency	August 2015	
SCG3800	3P-IDEEA365-Clear Ice	August 2015	
SCG3801	LGP - North Orange County Cities Partnership	April 2015	
SCG3802	LGP - San Bernardino Regional Energy Partnership	April 2015	
SCG3803	SW-FIN-California Hub for EE Financing	October 2014	
SCG3804	3P-IDEEA365-On-Premise Ozone Laundry	January 2016	
SCG3805	Statewide CEE - Direct Install Incentives	2016	
SCG3806	Statewide ET - Water Energy Nexus Shared Network Advanced Meter Infrastructure Pilots	2016	

Appendix B.1 – Updated Monthly Report

The Updated Monthly Report can be found on the EEStats website:
<http://eestats.cpuc.ca.gov/Views/Documents.aspx>

Appendix B.2 – Updated Quarterly Report

The Updated Quarterly Report can be found on the EEstats website:
<http://eestats.cpuc.ca.gov/Views/Documents.aspx>

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-27

SOCALGAS EXHIBIT

SoCalGas 2017 Energy Efficiency Annual Report

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Concerning
Energy Efficiency Rolling Portfolios,
Policies, Programs, Evaluation, and
Related Issues.

Rulemaking 13-11-005
(Filed November 14, 2013)

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)
ENERGY EFFICIENCY PROGRAMS 2017 ANNUAL REPORT**

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May 1, 2018

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Concerning
Energy Efficiency Rolling Portfolios,
Policies, Programs, Evaluation, and
Related Issues.

Rulemaking 13-11-005
(Filed November 14, 2013)

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) ENERGY EFFICIENCY
PROGRAMS 2017 ANNUAL REPORT**

Southern California Gas Company (SoCalGas) submits its 2017 Annual Report for energy efficiency programs and accomplishments. The Annual Report is prepared in accordance with the Administrative Law Judge’s Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues (August 8, 2007), issued in Rulemaking 06-04-010 (Ruling).¹ The Ruling requires “each utility to file its annual report on May 1 of the year following the end of a given program year.”

The Annual Report is attached and will be uploaded and available for viewing on the California Public Utilities Commission’s Energy Efficiency Statistics Application (EESTATs) website.²

Respectfully submitted on behalf of SoCalGas,

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May 1, 2018

¹ Per the Ruling, filing and serving the Annual Report would apply to successor proceedings, which includes this docket. See Ruling, p. 4 (OP 2).

² Pursuant to D.18-01-004, the dollar amounts of third party contracts included in Appendix C are only provided in the aggregate. D.18-01-004, pp. 64-65 (OP 8). As directed by the Commission, particular contract dollar amounts will be provided confidentially to the Commission.

ATTACHMENT

**SOUTHERN CALIFORNIA GAS
COMPANY**

**ENERGY EFFICIENCY PROGRAMS
ANNUAL REPORT**

2017 RESULTS



A  Sempra Energy utility

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2017 ENERGY EFFICIENCY PROGRAM PORTFOLIO SUMMARY

Executive Summary

At Southern California Gas Company (SoCalGas), sustainability and environmental stewardship are fundamental elements of doing business. SoCalGas actively works to reduce the environmental impact of our operational practices, and assists customers in reducing their impact by showing them how to use energy more efficiently. SoCalGas accomplishes this by offering a comprehensive suite of conservation and energy efficiency (EE) programs, strategies, and solutions to meet the dynamic energy needs of our customers. In 2017, SoCalGas continued the programmatic successes achieved in prior years of the 2013-2017 program cycle, and further refined its program delivery and implementation processes to actively seek EE opportunities and adapt to its diverse customer base. In 2017, SoCalGas demonstrated the success of its programs by saving customers more than 39.5 million therms, which represents 130% of the energy efficiency goal established by the California Public Utilities Commission (Commission or CPUC). SoCalGas cost-effectively administered EE savings to customers, providing ratepayers over \$148 million in resource benefits. In addition, as part of SoCalGas' commitment to help California meet its goal of greenhouse gas (GHG) emission mitigation, its EE programs avoided over 5.4 million tons of carbon dioxide (CO₂).

SoCalGas continues to work closely with the Commission and other stakeholders to achieve California's strategic vision and goals to ensure: (1) maximum achievement of all cost-effective and feasible energy efficiency savings in the natural gas sector, (2) programs, strategies, and offerings that provide deep, long-term energy savings, and (3) energy efficiency programs that will generate quick and low-cost reductions in greenhouse gas emissions, as adopted in the California Long-Term Energy Efficiency Strategic Plan and Energy Action Plan (CLTEESP or Strategic Plan), and contribute to a doubling of energy efficiency by 2030, as adopted by Senate Bill (SB) 350.

In order to achieve the Commission's aggressive long-term goals, SoCalGas has partnered with municipal electric utilities and water agencies to increase its program reach, enhance cost-effectiveness, and offer comprehensive demand-side management offerings to customers. This approach minimizes lost opportunities, allows for more comprehensive and deeper energy efficiency projects, and increases operational efficiencies allowing for a more streamlined delivery of ratepayer-funded programs.

Notable successes during program year 2017 include the following:

AB 793 Offerings Approved for Residential and Small or Medium Business Customers

In 2017, SoCalGas incorporated two new Assembly Bill (AB) 793 programs into its existing energy efficiency portfolio in response to the objective of Section 717 of AB 793 and SB 350. SoCalGas' AB 793 Programs are intended to increase deployment of current demand-side program offerings that promote the energy management technologies within the residential, low-income, and small to medium-sized commercial market segments.

Supporting the Energy Efficiency Workforce through Education and Training

In 2017, SoCalGas' Workforce, Education and Training (WE&T) Centergies conducted over 150 training/seminar sessions, over 130 outreach consultations, and over 300 equipment demonstrations. SoCalGas continued implementing steps to adjust its portfolio offerings to include Integrated Demand-side Management curriculum and draw audiences representing occupations that can have the most impact in the success of the SoCalGas program portfolio. During 2017, SoCalGas' WE&T program also incorporated Skype technology to conduct more enhanced discussion and working sessions with market actors and implementers.

Leveraging SoCalGas' Advanced Meter Infrastructure to Address California's Water Concerns

In 2017, SoCalGas continued its partnership with San Gabriel Valley Water Company and California American Water to implement two separate Water-Energy Nexus Advanced Meter Infrastructure (AMI) pilots to successfully achieve the following program goals: (1) network piggybacking, (2) combined utility data analytics for hot water leak detection, and (3) determining energy savings from reduced water loss. These partnerships provided over 1,800 installations of water meter transmission units throughout SoCalGas' service territory in 2017, allowing for the successful identification of hot water leaks.

Effective Collaborations of Programs

SoCalGas continued program collaboration efforts among different programs, as well as externally with municipalities and IOUs to ensure integration of natural gas/electric/water efficiency, solar, demand response, and advanced metering offerings. Through SoCalGas' single point-of-contact (SPOC) strategy, in 2017 SoCalGas engaged 18 large multi-family portfolio owners, enrolling over 8,000 multi-family units in the low-income Energy Savings Assistance (ESA) Program, Energy Efficiency Multifamily Rebate Program, and On-Demand Efficiency Program. Leveraging the SPOC strategy also resulted in enrolling the single largest residential retrofit project in the SoCalGas' Multifamily Energy Upgrade California Program.

Project of the Year: Commercial Restaurant Retrofit

Working together with the Metropolitan Water District, Los Angeles Department of Water and Power (LADWP), and Southern California Edison (SCE), SoCalGas launched the first normalized metering energy consumption (NMEC) programs in the marketplace, and developed processes and procedures to launch similar programs. Using the customer-facing name "Restaurant Refresh," the program targets restaurant owners with education, technical support,

on-site energy assessments, enhanced rebates and ‘performance’ incentives based on one-year gas savings measured through the NMEC process.

2017 Program Roster

Continuing off the successes of 2016, these program highlights reflect a fraction of the accomplishments during program year 2017. Pursuant to Decision (D.) 14-10-046, SoCalGas was authorized \$83.7 million in funding for the SoCalGas portfolio of energy efficiency programs. The annual funding levels established in the 2013-2014 cycle were extended in 2017 by D.14-10-046 to allow the continuation of EE programs in California.

These programs include the following:

Statewide Energy Efficiency Programs

- California Statewide Program for Residential Energy Efficiency
- Commercial Energy Efficiency Program
- Industrial Energy Efficiency Program
- Agricultural Energy Efficiency Program
- Emerging Technologies Program
- Codes and Standards Program
- Workforce Education and Training
- Statewide Marketing Education and Outreach
- Statewide Integrated Demand-Side Management (IDSMS)
- Energy Efficiency Finance Programs

Government/Institutional Energy Efficiency Partnership Programs

- California Department of Corrections Partnership
- California Community College Partnership
- University of California/California State University/IOU Partnership
- State of California/IOU Partnership
- Los Angeles County Partnership
- Kern County Partnership
- Riverside County Partnership
- San Bernardino County Partnership
- Santa Barbara County Partnership
- South Bay Cities Partnership
- San Luis Obispo County Partnership
- San Joaquin Valley Partnership
- Orange County Partnership
- SEEC Partnership
- Community Energy Partnership
- Desert Cities Partnership
- Ventura County Partnership
- Local Government Energy Efficiency Pilots
- New Partnerships Programs

- Regional Resource Placeholder
- Gateway Cities Partnership
- San Gabriel Valley COG Partnership
- West Side Cities Partnership
- Western Riverside Energy Partnership
- North Orange County Cities Partnership
- San Bernardino Regional Energy Partnership

Third Party Energy Efficiency Programs

- Small Industrial Facility Upgrades
- Program for Resource Efficiency in Private and Public Schools
- On Demand Efficiency
- HERS Rater Training Advancement
- Community Language Efficiency Outreach
- Multifamily Direct Therm Savings
- LivingWise™
- Manufactured Mobile Home
- California Sustainability Alliance
- Portfolio of the Future
- PACE
- Innovative Designs for Energy Efficiency Activities
- Instant Rebates! Point of Sale Food Service Equipment Program
- On Demand Efficiency for Campus Housing
- Energy Advantage Program for Small Business
- Connect
- Historical Building Energy Efficiency
- Clear Ice
- On-Premise Ozone Laundry

Pursuant to D.18-01-004 Ordering Paragraph 8, SoCalGas hereby provides information of all third-party contracts noted above in Appendix C of this report. SoCalGas describes the activities performed and the successes achieved during the 2017 program year in these programs in the section entitled *Program Description and Strategies* below.

Program Descriptions and Strategies

Statewide Program for Residential Energy Efficiency

The Statewide Residential Energy Efficiency sector program is designated as the California Statewide Program for Residential Energy Efficiency (CalSPREE). CalSPREE offers and promotes both specific and comprehensive energy solutions for residential customers. By encouraging adoption of economically viable energy efficiency technologies, practices, and services, CalSPREE employs strategies and tactics to overcome market barriers while delivering services that support the CPUC's Strategic Plan.

CalSPREE's focus 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 IOUs - consisting of SoCalGas, San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE), and Pacific Gas and Electric Company (PG&E) - have implemented a number of different residential EE subprograms that are in various stages of maturity and availability across the state. CalSPREE integrates all of these subprograms to coordinate efforts and increase comprehensiveness of EE measure delivery.

The CalSPREE includes seven statewide subprogram elements that together comprise the core product and service offerings. These subprograms are: Energy Advisor, Plug Load and Appliances, Plug Load and Appliances Point of Sale, Multifamily Energy Efficiency Rebates, Energy Upgrade California Home Upgrade Program, Residential Heating, Ventilation, and Air Conditioning, and California Advanced Homes Program.

SCG3701 Residential - Energy Advisor

The SoCalGas Residential Energy Advisor subprogram is a continuation of the existing statewide Energy Advisor subprogram within the residential energy efficiency portfolio. Although the IOUs share similar program theories, goals and design elements, each IOU may be implementing a unique tool by a different vendor.

In 2017, the SoCalGas Residential Energy Advisor subprogram continued to help customers understand how and when they have been using energy. Customers have the knowledge and tools available to improve their energy efficiency, energy use management, and where appropriate, will be guided to advancing whole-house energy solutions. The subprogram utilizes behavioral outreach initiatives and interactive tools designed to engage and encourage customers to reduce their energy consumption through subprogram recommendations and, as warranted, IDSM opportunities.

SoCalGas' Residential Energy Advisor subprogram exceeded its 2017 program goal by successfully completing 10,000 completed surveys (either online or printed). Year-end results included over 2,300 online surveys and 13,000 printed surveys.

The SoCalGas Residential Energy Advisor subprogram continued to leverage Advanced Meter data to help reduce residential gas consumption in 2017. A test and learn approach was utilized to determine how to best drive residential customers to conserve natural gas. Residential customers identified as high users were randomly selected and assigned to various treatment and control groups with treatment groups producing an average of 1.60% (2,314,756) therm savings

from December 2016 through March 2017. Additionally, 652,875 Opower paper Home Energy Reports (HER), 2,070,250 Opower eHERs (email HER), 233,719 paper Seasonal Energy Update, 127,616 paper Home Energy Update, and 110,000 SoCalGas paper Usage Reports were mailed while 439,599 customers were enrolled in Bill Tracker Alerts.

SCG3702 Residential - Plug Load and Appliances

The SoCalGas Residential Plug Load and Appliances (PLA) subprogram consists of the Home Energy Efficiency Rebate (HEER), Business Consumer Electronics (BCE) and Appliance Recycling (ARP). The subprogram develops and builds upon existing relationships with retailers and includes recycling strategies and whole house solutions, plug load efficiency, performance standards, and opportunities for integration with local government, water agencies, publicly owned utilities (POUs), and the Integrated Demand Side Management (IDSM) subprogram.

SoCalGas' Residential PLA subprogram achieved success in 2017 through improved and continued efforts with participating retail partners. This included the use of in-store signage, increased program visibility and weekly in-store events with third party retail contractors. In 2017, the Residential PLA subprogram managed to increase visibility in hard-to-reach areas through in-store marketing communication and retail store site visits. The success of these efforts is attributed to multiple marketing and outreach campaigns which contributed to the SoCalGas Residential PLA subprogram meeting or exceeding its respective Program Implementation Plan (PIP) forecasts. The subprogram transitioned rebate processing from a third-party vendor to an in-house department that improved processing time and check payments. A mobile application was also introduced, helping expedite application processing.

The SoCalGas Residential PLA subprogram added natural gas pool heaters to the mix of measures and an incentive kicker for natural gas tankless water heaters in the third and fourth quarters of 2017, respectively, to generate increased customer participation.

The PLA subprogram did not meet overall subprogram objectives for 2017.

SCG3703 Residential - Plug Load and Appliances Point of Sale

The SoCalGas Residential PLA Point of Sale (POS) subprogram is a merger of the former HEER, BCE, and ARP and builds upon existing point of sale retailer relationships and includes Responsible Appliance Disposal (RAD) appliance recycling strategies. PLA POS offers rebates and incentives to customers instantly when they purchase and install Energy Star® qualified appliances such as clothes washers. The subprogram has the added benefit of recycling inefficient refrigerators and freezers as well.

The SoCalGas Residential PLA POS subprogram continued to exceed both annual and program cycle goal savings and objectives in 2017. Much of the continued success was due in part to the continued participation with “big box” retailer and continued in-store events throughout the year that helped aid in awareness of the rebate program.

In 2017, the statewide Residential PLA team continued efforts to more effectively and actively recruit new retail partners and engage with existing partners in developing programs and enhance retail store presence. The goal is to increase retailer/customer participation and utility visibility at retail locations. Residential appliance rebate offerings are the major contenders for future Residential PLA POS subprogram developments and additional programs are being evaluated. Promotions focused on using consistent point-of-purchase marketing material statewide and weekend local store outreach have set the foundation for new targeted promotions and more retailers to participate in the future.

SCG3704 Residential - Multifamily Energy Efficiency Rebates

The SoCalGas Residential Multifamily Energy Efficiency Rebates (MFEER) subprogram offers rebates to multifamily building owners and managers for installation of qualified energy efficiency products in apartment dwelling units and in common areas of apartment complexes, condominiums and mobile home parks. Energy efficiency measures include insulation, water heating and space heating.

In 2017, SoCalGas' Residential MFEER subprogram continued to use the Single Point of Contact (SPOC) to outreach and assist customers with measure information, completing forms and information regarding the various multifamily subprograms. The SPOC was augmented by the use of the whole building consultant who is tasked with using his resources to outreach and enroll customers in SoCalGas' Residential multifamily subprograms including MFEER. In addition, SoCalGas continued to outreach to the multifamily sector via tradeshow, events, print ads and coordination with other SoCalGas Residential multifamily subprograms as well as with the Energy Savings Assistance Program.

In 2017, the SoCalGas Residential MFEER subprogram added a smart thermostat to the mix of measures. Outreach efforts focused on providing multifamily customers with holistic solutions and offerings cross-promotion of SoCalGas programs and services as well.

SCG3705 Residential – Home Upgrade Program

The SoCalGas Residential Energy Upgrade California® Home Upgrade Program (HUP) uses a holistic approach to identify and correct comfort and energy-related deficiencies in single family detached homes. Contractors employ building science principles and use sophisticated diagnostic equipment to detect the cause of home performance related problems, and quickly and accurately address them. There are two options to this program, Home Upgrade and the Advanced Home Upgrade. These options allow the customer to choose from a variety of measures that best suit their home and needs. Some examples of measures used consist of attic insulation, air sealing, duct testing, HVAC change out, hot water heaters, pipe wrap, Showerstart thermostatic control valves, along with combustion safety testing.

By partnering with the three IOUs and three municipalities, SoCalGas Residential HUP exceeded their unit and therm goal by over 331,835 therms and 2,198 projects in 2017 with joint programs in the shared territory with PG&E, SCE, SDG&E, the Los Angeles Department of Water and Power, the City of Burbank and Pasadena Water and Power. SoCalGas continued its

efforts to streamline program reporting requirements, train realtors/appraisers in EE and recruit and train contractors. Building on 2017 improvements, the IOUs have continued to work closely with program participants to identify and resolve application and process challenges through desktop procedure review practices, improved inspection processes and additional training to contractors.

The SoCalGas Residential HUP subprogram barriers in 2017 included: the high cost of projects to customers; ensuring 100% project completion to prevent rollover in 2019; helping contractors make the transition to selling the program measures without the incentive offer once the program sunsets; and program uptake leading to the exhaustion of the program budget.

The subprogram exceeded its unit and therm savings goals for 2017.

Energy Upgrade California® Multifamily

Within SoCalGas Residential HUP resides the Energy Upgrade California® Multifamily (multifamily Whole Building), which is an evaluation subprogram for SCE and SoCalGas as an extension of the existing statewide subprogram. The primary purpose is to test performance based approaches in the multifamily housing retrofit market by assisting property owners and managers make informed decisions regarding energy reductions and savings for their properties. The multifamily Whole Building subprogram promotes long-term energy benefits through comprehensive EE 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. The subprogram utilizes professional energy consultants to perform energy audits using approved multifamily audit tools and procedures to evaluate potential EE measures based on a least-cost, maximum-benefit approach customized to each property's specific needs.

The SoCalGas Residential Multifamily Whole Building subprogram completed four projects in 2017 with the Single Point of Contact helping move properties along the participation process. The limited access to investment capital and insufficient return on investment continued to be a barrier to participation in 2017.

Middle Income Direct Install

The SoCalGas Middle Income Direct Install (MIDI) is a direct install program for customers whose income falls between 201% and 300% of the federal poverty guidelines. MIDI works in collaboration with the income qualified Energy Savings Assistance Program (ESA) using the ESA contractors to initiate leads for MIDI, with a goal of 2,000 units per year. To close the financial gap, no-cost measures are installed, reducing the total amount of money a customer would need to invest in their property in order to participate in HUP or the multifamily HUP Pilot.

MIDI works as designed, and has been able to serve all eligible customers requesting service in SoCalGas territory. Using ESA contractors has allowed MIDI to work with all IOUs which in turns allows the MIDI to serve all eligible customers.

SCG3706 Residential – Residential HVAC

The SoCalGas Residential Upstream Heating, Ventilation and Air Conditioning (HVAC) subprogram provides incentives to distributors for stocking and selling high-efficiency residential HVAC systems. By offering equipment incentives upstream, the subprogram maximizes the opportunities to influence the purchase decision and transformation of the furnace market through the supply chain.

In 2017, the SoCalGas Residential Upstream HVAC subprogram saw an increase in both interest and participation. 2017 marked the highest level of participation to date with an increase of more than four times that of any prior year. Despite this success, distributors have reported continued difficulty in obtaining project and customer data. Inspections also continue to have challenges as the ultimate consumer is often disconnected from the Upstream transaction. However, distributors have become accustomed to the data requirements and have adjusted to accommodate program needs.

The Residential Quality Installation (QI) subprogram provides incentives to participating SoCalGas customers for the installation of high efficiency gas furnaces when installed to Energy Star[®] HVAC Quality Installation specifications by a participating contractor. In 2017, the subprogram enrolled many new HVAC contractors, which aided in producing increased participation. The subprogram successfully implemented a “Summer Kicker” marketing campaign that provided an increased incentive over the standard amount, helping to capitalize on the busiest time of the year for HVAC contractors.

The high cost of equipment and Title 24 enforcement continued to produce challenges for the subprogram. The cost of quality installation and permitting requirements led customers to choose a less expensive installation over a quality installation.

SCG3707 Residential – Residential New Construction

The SoCalGas California Advanced Homes Program (CAHP) is a comprehensive residential new construction subprogram concept with a cross-cutting focus on sustainable design and construction, green building practices, energy efficiency, and emerging technologies. Through a combination of education, design assistance and financial support, the CAHP works with building and related industries to exceed compliance with the California Code of Regulations, Title 24, Part 6, Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Standards), to prepare builders for changes to the Standards and to create future pathways beyond compliance and traditional energy savings objectives. Participation is open to single-family as well as low-rise and high-rise multi-family residential new construction built in an IOU service territory.

In 2017, CAHP energy savings, projects and unit participation surpassed both 2017 and 2013-2016 program cycle targets. The residential new construction market has continued its success year after year. The major barrier in 2017 continued to be the increasing Title 24 standards as the State approaches its Zero Net Energy (ZNE) goals. Changes during the year included incorporating new code cycle changes, and as a result, the mechanism to evaluate financial

eligibility was also changed from a CAHP scoring system to a Delta Energy Design Rating point system. As previously mentioned, the subprogram exceeded its savings targets for 2017.

SCG3808 Residential – Residential HOPPs Central Water Heating Multifamily Building Solution Program

The Central Water Heating Multifamily Building Solution Program (CWHMBS) is a bundled measure program that proposes to address stranded opportunities within the multifamily sector and enable better data access by proactively providing whole-building information to building owners. Specifically, the program will provide incentives for the upgrade of both central domestic hot water system and water usage improvements, thus capturing a multi-measure approach and stranded energy savings that would have been otherwise overlooked. The CWHMBS Program will target owners of existing multifamily master metered buildings for a high impact of energy savings through water heating. SoCalGas will work with water service agencies to implement the CWHMBS Program whenever feasible, allowing for the program to be evaluated by monitoring two key metrics – energy savings (natural gas) and water savings.

The program objectives for the CWHMBS Program fall into two categories: performance and process. The performance objectives of the CWHMBS Program are objectives that will be used to assess the performance of the HOPPs program to ensure it is meeting expectations and is on a path to succeed. The performance objectives will be carefully tracked and will be reported to the Commission so that SoCalGas can ensure that program progress can be conveyed properly. The process objectives are aimed at ensuring that a strong infrastructure for program implementation and evaluation that could support the scaling up of the CWHMBS Program in the future.

To successfully implement the CWHMBS Program, SoCalGas will work with a third-party implementer to perform the initial market assessment and provide a list of targeted customers. This initial market assessment will be a collaborative effort between SoCalGas and the implementer and will target multifamily property owners by leveraging existing relationships that have been established through SPOCs and lists such as TCAC to outreach to property owners. The program will also work with vendors, installers, and retailers to further promote the program.

Statewide Commercial Energy Efficiency Program

The Statewide Commercial Energy Efficiency (CEE) 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 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. 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 CEE Program consists of six core statewide subprogram 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, Mid-Stream Water Heating Rebates, Commercial Direct Install, and local government partnerships that have close ties to Business Improvement Districts.

SCG3708 Commercial - Energy Advisor

The Commercial Energy Advisor program brings together services that support customer education and participation in energy efficiency, and energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

Customers are reluctant to act and commit to energy efficiency if not persuaded by any other enforcement than simply being energy efficient. Natural gas continues to be an inexpensive conduit of energy and ranks low in customer's equipment upgrade policies. Additionally, natural gas driven equipment has achieved mechanical efficacy that nearly decrepit equipment will continue to perform under the most rigorous of environments.

Natural gas continues to be an inexpensive conduit of energy and ranks low in customer's equipment upgrade policies. Additionally, natural gas driven equipment has achieved mechanical efficacy that very old equipment will continue to perform under the most rigorous of environments. CEA provided a total of 591 audits delivered through multiple channels including SoCalGas account executives.

SoCalGas enhanced CEA in 2017 by not only including audit reports, but also recommendations for participation in a suite of other energy efficiency program. From the myriad of programs that help the business to programs that support their employee. The CEA program will continue to be enhanced and will provide a comprehensive suite of energy efficiency options such as financing and bundling of available demand side management measures.

SCG3709 Commercial – Continuous Energy Improvement

Continuous Energy Improvement (CEI) is a non-resource program designed to make energy an organizational priority for customers by employing change management and process improvement strategies to energy management resulting in energy efficiency projects, and driving savings. Energy Advisors provide strategic energy management coaching, consulting, and training. Program milestones for each engagement include forming an energy management team, creating a baseline model of energy intensity, conducting organizational and ASHRAE Level 1 assessments, creating a prioritized pipeline of measures, setting an energy reduction goal, developing a plan to reach the goal, and adopting a strategic energy management. In 2017, two school district engagements showed notable success in the CEI program. CEI provided the framework that allowed them to make informed decisions in moving forward with project implementation and with Proposition 39 funding. The districts assigned personnel to form energy teams where none existed previously. Both districts are also currently finalizing Strategic Energy Management Plans (SEMPs) that will provide energy management structure

moving forward. Both districts are using energy data tracking to run campus competitions that includes auditing all campuses twice per year. Finally, both are forming Green Teams that will include faculty and students. This ensures that the program will be self-sustaining by the school district.

Energy efficiency measures identified – A valuable component of CEI is the identification of measures resulting in a pipeline of bankable projects. In 2017, 183 projects were identified through ASHRAE Level 1 assessments and data analytics, and prioritized by program participants supported by their Energy Advisor.

The participants completed various projects while in the program including LED lighting, HVAC, and other various equipment upgrades. Because of the CEI program, one school district enacted a process to review the output of their solar systems. They found malfunctions at multiple locations where they weren't getting power to the grid. They are currently addressing the malfunctions.

A survey of the utility account executives indicated positive feedback regarding the program. Account executives cited that the CEI program strengthened the customer/utility relationship, increased customer/utility communication, and increased customer awareness of energy efficiency programs.

The restaurant engagements continued to experience turnover at the Energy Champion positions. Both engagements made efforts to assign co-champions to mitigate this, but there was turnover in those positions as well. The restaurant business environment remained volatile, and it made for especially tight budgets regarding project implementation, and in some cases, participation. After multiple locations were closed, there was a new effort to make the remaining locations more efficient. This allowed for multiple projects to be completed in the 4th quarter.

CEI accomplished many objectives throughout 2017 and there were no notable changes to the CEI program in 2017.

SCG3710 Commercial - Calculated Incentives

The Commercial Calculated Incentives subprogram offers incentives for customized new construction, retrofit and retro-commissioning energy efficiency projects. It also provides comprehensive technical and design assistance. Incentives are paid on the energy savings above and beyond baseline energy performance, which include state-mandated codes, federal-mandated codes, industry accepted performance standards, or other baseline energy performance standards. This program also includes the Savings by Design (SBD) subprogram, which serves the commercial new construction segment. SBD promotes integrated design by providing owner incentives, design team incentives, and design assistance to participants who design spaces that perform at least 10% better than Title 24. This program is offered in collaboration with SCE and LADWP in the respective shared territories.

The Calculated Incentives Program also offers the Retro-Commissioning (RCx) subprogram. The goal of the RCx subprogram is to assist customers in reducing their operating costs through

cost-effective energy savings, focused on the identification and implementation of low-cost / no cost operational improvements and on optimizing how existing equipment operates as an integrated system.

SoCalGas continued its collaboration with both SCE and the LADWP in implementing two RCx programs within the utilities' shared service territories. For these SoCalGas collaborations, both LADWP and SCE act as the "lead utility" in implementing these co-funded programs.

As with previous years, the RCx program has experienced reduced uptake in RCx projects due to the implementation of an approach which requires the customer to contract with their own RCx provider for an audit instead of the audit being conducted by IOU-contracted RCx providers. The change in the program business model was intended to encourage customers to move forward with implementing RCx projects, rather than just taking advantage of a "no cost" RCx audit of their facilities, which historically did not always lead to action on the part of customers. The new RCx program approach was designed to increase the success rate in moving projects from the audit phase to the measure-implementation phase. The new model's intent was to place more onus on the RCx Provider as a means of motivating them to take the next step with the customer in implementing measures, thereby increasing the conversion rate of RCx audits to the actual implementation of RCx energy saving measures; however, there continues to be a notable decline in RCx activity using this business model.

The Calculated Incentive subprogram is as complex as the projects it attempts to influence, due to the unique nature of the projects and the particular needs of the segment it is attempting to serve. The increasing complexity of the program found to adversely impact participation. For the overall Calculated Incentive subprogram, SoCalGas participated in the *ex ante* parallel review and incorporated lessons learned into program design.

SoCalGas provided training and performed quality control procedures in order to screen out ineligible projects. Continuous review was performed to improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the CPUC *ex ante* review team.

SCG3711 Commercial - Deemed Incentives

The Commercial Deemed Incentives Subprogram offers rebates to customers in an easy to use mechanism to offset the cost of off-the-shelf energy saving equipment to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit/measure.

The program also offers distributor and manufacturer incentives that aims at eliminating incremental initial cost to the customer via a midstream approach. The program's objective is to assist SoCalGas customers in saving money and energy. The program at the same time educates and motivates SoCalGas customers' plumbers and contractors about the benefits of participating in energy efficiency rebate programs. The primary goal of the Midstream Commercial Water Heater Distributor Rebate program is to increase water heater purchases by having distributors stock and sell high efficient water heaters; have equipment readily available for our SoCalGas

customers at a discounted price; and provide the distributor a rebate directly to them for their efforts.

In 2017, marketing outreach for both food service equipment vendors as well as non-food service equipment in conjunction with SoCalGas' TradePro directory continues to contribute to increased program participation. Food service equipment measures contributed to half of the energy savings achieved.

SoCalGas was able coordinate discounts for bulk purchases of water heaters over 90% efficiency rating in outlying service areas due to the Midstream Commercial Water Heater Rebate Program solid links between the partnering distributors and SoCalGas representatives. The success of the Midstream programs is by the achievements of continued strong relationships between the customers, plumbers, contractors, SoCalGas representatives, and distributors as well being consistent with our outreach and marketing efforts.

The commercial dishwasher and gas modulating valve were added to the 2017 offerings.

The Commercial Deemed program exceeded projected 2017 savings goal objectives due to the combination of the Midstream Commercial Water Heater Rebate Program and to the marketing efforts of the food service outreach as well as the activities of Trade Pro directory. The therm exchange mechanism partnership with SCE was also a valuable savings contributor.

SCG3712 Commercial – Non-Residential HVAC

The Commercial HVAC subprogram delivers a comprehensive set of midstream and upstream strategies that builds on existing programmatic, educational, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality driven market.

Upstream HVAC Equipment Incentive offers incentives to distributors who sell qualifying high-efficiency commercial HVAC equipment to increase the stocking and promotion of such equipment.

Commercial Quality Installation (C-QI) addresses commercial installation practices to ensure that equipment is installed and commissioned per industry standards and also attempts to minimize losses and inefficiencies that can exist at key sub-system level points below the HVAC unit itself. The Commercial HVAC Quality Installation Contractor Education and Customer Awareness programs were based on ACCA standards. ACCA staff and other industry stakeholders in the Western HVAC Performance Alliance (WHPA) collaborated to validate the market transformation groundwork being laid and ensure that quality installation standards could be verified in the field in a sustainable fashion for Commercial HVAC.

Commercial Quality Maintenance (C-QM) addresses commercial maintenance practices to ensure that equipment is serviced per industry standards and that the maintenance efforts support the long-term strategic goal of transforming the trade from commodity-based to quality-based. C-

QM promotes increased quality levels in HVAC maintenance through the use of ACCA standards.

Throughout 2017, SoCalGas worked with the Statewide IOU HVAC program teams individually and through the WHPA on improving elements of the commercial HVAC programs including the development of statewide CQM work papers and coordinating efforts on WE&T and inspection requirements further reducing the administrative burden.

The collaboration of IOUs across multiple WHPA committees plotted a successful course to meet the HVAC Long Term Strategic Plan and market transformation goals in 2017. Finally, there has been progress made ensuring that there is seamless alignment with Assembly Bill 802.

In order to adapt to market forces, regulatory requirements and the changing energy efficiency landscape, SoCalGas continued to evaluate and adjust elements of the program such as introducing tiers to further promote higher efficiency units. SoCalGas worked in conjunction with the IOUs statewide team to review and align incentives for consistency and to achieve continuity across program offerings. A key deliverable identified was the need to develop a matrix to integrate program design, engineering, Evaluation Measurement and Verification and WE&T.

SCG3805 Commercial - Direct Install Program

The Commercial Direct Install sub-program delivers no-cost or low-cost energy efficiency equipment retrofits to small and medium-sized commercial businesses throughout SoCalGas' service territory. The retrofits are to be completed through installation contractors to reduce energy and water usage, and result in resource savings for public and private commercial customers. The program targets these customers in a staged delivery approach that provides program services in specific geographic areas allowing for a more concentrated, directed, and comprehensive program.

SoCalGas partnered with SCE's Commercial Direct Install subprograms in joint service territories to leverage existing infrastructure to layer on natural gas energy efficiency measures to ensure comprehensive energy efficiency solutions for customers. SoCalGas worked with SCE to have their existing direct install contractor(s) to expand what is offered to include natural gas efficiency measures.

SoCalGas partnered with an energy solution contractor to implement Commercial Direct Install program in service territories. The contractor installs no cost measures and co-pay natural gas measures.

SoCalGas also partnered with another existing publicly-owned municipal utility (MOU) Commercial Direct Install program in joint service territories to leverage existing infrastructures to layer on natural gas energy efficiency measures to ensure comprehensive demand-side management solutions for customers. SoCalGas partnered with Los Angeles Department of Water and Power (LADWP) to jointly deliver this program.

The program objective is to capture unlimited energy savings at each medium sized business (SMB) as contractors are incentivized to install the easiest, lowest, or no cost measures available. Provide ways to reduce the business energy costs, save money, minimize the rebate process by installing joint utility measures at each medium sized business (SMB) with a three-step sign-up process. Along with educating a customer about other offered rebate and incentive programs no matter who their public utility services provider is.

SCG3807 Commercial – HOPPS-CRR Program

The SoCalGas Commercial Restaurant Retrofit (CRR) Program, authorized through the High Opportunity Projects and Programs (HOPPs) process, targets the hard-to-reach commercial foodservice sector. The program is designed as a comprehensive, whole-building retrofit program that proposes to address stranded therm savings. Specifically, the restaurant provides enhanced rebates and performance incentives, as well as referrals for rebate programs through partnering with electric and water utilities, for upgrades across multiple upgrade categories. These upgrades include but are not limited to kitchen equipment, building envelope measures, water-saving measures and lighting. To capture stranded therm savings, the program uses the Normalized Metered Energy Consumption (NMEC) process to calculate savings, enabling the program administrator to capture savings at the existing condition baseline. Using the customer-facing name “Restaurant Refresh,” the program targets restaurant owners with education, technical support, on-site energy assessments, enhanced rebates and ‘performance’ incentives based on one-year gas savings measured through the NMEC process.

The program is one of the first NMEC programs launch in the marketplace, and the SoCalGas team has successfully developed processes and procedures to launch similar programs. With implementer contracts in place, the team prepared for launch during summer 2017, working with the CPUC to finalize the Program Implementation Plan and Operations Manual, as well as to prepare Quality Assurance and M&V guidelines. Significant effort has been made to understand the data capture needs, participant eligibility requirements, data modeling requirements and implementation, and customer-facing implementation and marketing. For example, at the time of the Advice Letter submittal for this program, available data for NMEC modeling came in the form of monthly data; with actual participants granting access to hourly interval data, the team has been able to develop more accurate energy models that enable improved certainty in modeling energy savings. This accomplishment paves the way for future NMEC programs, thus utilizing accurate, real-time smart meter data to capture energy savings.

The program formally went live for customers on October 24, 2017, at the SoCalGas Foodservice Equipment Expo. Both before and since launch, the program has developed inter-utility collaborations with the Metropolitan Water District (MWD), SCE and Los Angeles Department of Water and Power (LADWP). Within the partner teams and internally within SoCalGas, account executives have strengthened their relationships with commercial foodservice customers, which have previously been underrepresented in Energy Efficiency program participation.

In the 4th Quarter of 2017, the program focused on outreach to a highly targeted list of eligible customers, and recruited two initial participants for a no-cost energy assessment. To these

customers, CRR has provided highly valuable information on energy and cost savings within their own operations, providing insight and education that may not have been readily accessible to them previously. As CRR participation increases in 2018, the relative impact of such customer engagement will also grow.

As a complex pilot program, CRR has faced some challenges. Program launch occurred later than expected due to delays in finalizing implementer contracts and in coordination with regulatory partners. Additionally, outreach to end-users has proven very difficult, in part due to the nature of the industry (restaurants are notoriously time-constrained, generally unaware of utility assistance programs, and well-guarded from solicitation at a corporate level). These barriers are shaped by program eligibility limitations imposed in order to maintain NMEC data integrity and achieve sufficient energy savings. The program is working to address these challenges in 2018.

Statewide Industrial Energy Efficiency Program

The Statewide Industrial Energy Efficiency (IEE) Program provides services to improve the energy efficiency of industrial facilities in California. The primary services offered to industrial customers include:

- Energy audits covering EE and demand management opportunities;
- Technical assistance in measure 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 are based on deemed energy savings by per unit of equipment and calculated energy savings by per unit of energy.

The Statewide IEE Program includes four statewide subprogram elements that together comprise the core product and service offerings. Each IOU 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.

SCG3713 Industrial - Energy Advisor

The Industrial Energy Advisor program brings together services that support customer education and participation in energy efficiency, and energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

Customers are reluctant to act and commit to energy efficiency if not persuaded by any other enforcement than simply being energy efficient. Although air quality agencies provide a beneficial support to equipment upgrade, the proportionality between combustion efficiency and energy efficiency prevent the choosing an energy efficient option. Natural gas continues to be an

inexpensive conduit of energy and ranks low in customer's equipment upgrade policies. Additionally, natural gas driven equipment has achieved mechanical efficacy that nearly decrepit equipment will continue to perform under the most rigorous of environments.

Natural gas continues to be an inexpensive conduit of energy and ranks low in customer's equipment upgrade policies. Additionally, natural gas driven equipment has achieved mechanical efficacy that very old equipment will continue to perform under the most rigorous of environments. IEA provided a total of 268 audits delivered through multiple channels including SoCalGas account executives.

SoCalGas enhanced IEA in 2017 by not only including audit reports, but also recommendations for participation in a suite of other energy efficiency program. From the myriad of programs that help the business to programs that support their employee. The IEA program will continue to be enhanced and will provide a comprehensive suite of energy efficiency options such as financing and bundling of available demand side management measures.

SCG3714 Industrial – Continuous Energy Improvement

Industrial Continuous Energy Improvement (CEI) is a consultative service to assist industrial customers to engage in long-term, strategic energy planning. CEI helps customers better manage energy using a comprehensive, longer term approach that addresses both capital and behavioral / operational improvement opportunities and creates sustainable practices through a high-level commitment from executive-level management.

Customer assistance services under CEI consist of the following six steps: 1.) Commitment by management with reinforcement, 2.) Organizational and operational assessments of current operations, 3.) Strategic planning including resource commitment and setting energy improvement goals, 4.) Implementation of improvements, 5.) Evaluation of progress towards goals, and 6.) Modification of plans and goals as necessary. These services include establishing baseline energy use, identification of energy savings opportunities, engaging the workforce, tracking of monthly energy use, and quantifying energy savings.

The industrial CEI program has helped customers develop strategic energy plans with energy savings goals, form energy teams and engage employees in behavioral change, identify energy savings opportunities, implement energy savings measures, and quantify energy savings. Key benefits of the CEI program are the long-term planning leading to reduced energy use and employee engagement. In addition, CEI has helped customers adopt continuous improvement in their manufacturing processes leading to increased productivity, improved product quality, and reduced operating costs.

CEI has also benefited customer participation in utility energy efficiency programs by providing a channel for utilities, through account executive engagement, to develop a long-term relationship with customers and a mechanism to recognize energy savings for behavior, retrofit, and operational (BRO) energy saving measures. CEI has provided documentation of program influence on customers' decisions to implement energy savings measures and improved persistence of energy savings.

Beginning in 2013, sixteen industrial customers have enrolled in the current CEI program. Eleven customers completed the program while five customers were off-ramped. The reasons customers were off-ramped included severe down-turns in business (one customer closed entirely), new ownership, and a major reorganization of business operations.

During 2017, CEI engagements were completed with the remaining customers, with one of the customers off-ramped due to major management re-organization. Selected highlights: One customer achieved 21% savings over 4 years of CEI participation, exceeding a savings goal of 15%. A second customer achieved 15% electricity and 21% natural gas savings. As a result, management adopted a policy to implement all energy savings measures with payback less than 6 years; a significant change from past management practice. One stand-out customer joined the Department of Energy's Better Plants Challenge, and adopted the long-term goal of reducing energy intensity by 25% in 10 years.

Examples of business issues that can impact program participation include changes in ownership, manufacturing processes, and product mix. Also, many industrial customers have a short-term horizon for business planning that can limit their ability to implement a long-term energy management program

The complexity and variability of industrial processes complicates energy tracking and the ability to precisely quantify the impact of improvements on energy savings, unlike facilities with consistent energy use patterns such as commercial buildings. Operating data for all factors impacting energy use are not monitored at many facilities. This lack of data can make it difficult to normalize energy use for changes in production variables. Customers typically have limited resources to manage energy use and to monitor changes in production operations for correlation and decisions on energy. There is a need for energy sub-metering and improved process monitoring automation to facilitate the collection of energy and production variables that will facilitate monitoring of energy use and determining energy savings.

Measurement and verification consulting services was continued for two CEI customers after the initial 2-year engagement. The intent was to assist customers in maintaining their CEI activities and to monitor customers' performance, extended monitoring of customers' CEI activities using "light touch."

CEI accomplished many objectives throughout 2017 and geared up for the transition to strategic energy management (SEM).

SCG3715 Industrial - Calculated Incentives

The Industrial Calculated Incentives subprogram offers incentives for customized retrofit EE projects. The 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/demand response initiatives in new construction and retrofit projects. SoCalGas continues to use a Post Installation Review to "true-up" savings for custom projects.

Heat recovery and boiler measure type projects continue to be large contributors of energy savings for the Calculated Incentives subprogram. On-going activities such as energy audits of facilities, walk through surveys, and technical assistance for this sector resulted in recommendations for EE projects with calculations/estimates of energy savings for exceeding industry standard practice baselines.

The Calculated Incentive subprogram is as complex as the projects it attempts to influence, due to the unique nature of the projects and the particular needs of the segment it is attempting to serve. The increasing complexity of the program found to adversely impact participation. For the overall Calculated Incentive subprogram, SoCalGas participated in the *ex ante* parallel review and incorporated lessons learned into program design.

SoCalGas provided training and performed quality control procedures in order to screen out ineligible projects. Continuous review was performed to improve impact methods and models through review of evaluation results, consideration of industry best practices, and collaboration with the CPUC *ex ante* review team.

SCG3716 Industrial - Deemed Incentives

The Statewide Industrial Deemed Energy Efficiency subprogram provides services to improve the energy efficiency of industrial facilities in California, including offering financial incentives based on deemed energy savings. The energy savings are deemed for measures installed. The program is part of a suite of programs within the Statewide Industrial Energy Efficiency Program. It also features rebates per unit measure for installed energy-saving projects and provides the IOU, 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. The subprogram also offers rebates to customers in an easy-to-use manner to offset the cost of off-the-shelf energy saving equipment.

The Industrial Deemed Energy Efficiency Program directly addressed key market factors that led to higher energy costs for California businesses. By providing a menu of prescribed common measures, this simplified the process of reviewing project proposals and provided a per EE measure rebate that reduced the cost of retrofitting outdated and inefficient equipment. This element made it attractive for customers to spend money in the short run to achieve lower energy costs in the long run.

Using itemized EE measures was intended to overcome barriers that prevent many business customers from adopting EE alternatives. The barriers were addressed by itemizing common EE 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. Through a favorable process evaluation, the pipe insulation measure expanded its offering to include higher incentives for larger pipe for 2018.

Pipe and tank insulation and steam process boiler measures were the focus for deemed energy savings in 2017 for the industrial sector, however, the program fell slightly short of the projected 2017 savings goal.

Statewide Agricultural Energy Efficiency Program

The Statewide Agricultural Energy Efficiency (AEE) Program facilitates the delivery of integrated energy management solutions to California's agricultural customers. The program offers a suite of products and services, such as 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 CLTEESP.

The Statewide AEE 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. Due to North American Industry Classification System (NAICS) designations, food processors have traditionally received IOU services through the Industrial program offering. However, there are those facilities with on-site processing that are integrated with 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 subprograms.

SCG3717 Agricultural - Energy Advisor

The Agricultural Energy Advisor (AEA) program brings together services that support customer education and participation in energy efficiency, and energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

Customers are reluctant to act and commit to energy efficiency if not persuaded by any other enforcement than simply being energy efficient. Although air quality agencies provide a beneficial support to equipment upgrade, the proportionality between combustion efficiency and energy efficiency prevent the choosing an energy efficient option. The seasonal application of natural gas equipment for the agricultural sector provides a barrier on rate of return, and timing of upgrades while adhering to program and CPUC guidelines. Support and flexibility from governing bodies would help engage the agricultural sector by providing leniency on custom project implementation, and extending their respective industry standard practice implementation.

Natural gas continues to be an inexpensive conduit of energy and ranks low in customer's equipment upgrade policies. Additionally, natural gas driven equipment has achieved mechanical efficacy that very old equipment will continue to perform under the most rigorous of environments. AEA provided a total of 11 audits delivered through multiple channels including SoCalGas account executives.

SoCalGas enhanced AEA in 2017 by not only including audit reports, but also recommendations for participation in a suite of other energy efficiency program. From the myriad of programs that help the business to programs that support their employee. The AEA program will continue to be enhanced and will provide a comprehensive suite of energy efficiency options such as financing and bundling of available demand side management measures.

SCG3718 Agricultural - Continuous Energy Improvement

The Agricultural Continuous Energy Improvement (CEI) subprogram is a consultative service that is aimed at helping agricultural customers engage in long-term, strategic energy planning. CEI helps customers better manage energy using a comprehensive approach that addresses both technical and management improvement opportunities and creates sustainable practices through a high-level commitment from executive-level management.

Siting the extended length of the CEI engagement and the required resource commitment necessary to benefit from this type of program, there were no new agricultural customers who expressed an interest in enrolling in the program for 2017.

More effective outreach methods in the agricultural customer sector continue to be evaluated for future program enrollment. It has been observed that farming cooperatives represent a potential opportunity for outreach and for sharing of best practices related to long-term strategic energy management.

SCG3719 Agricultural - Calculated Incentives

The Agricultural Calculated Incentive subprogram offers incentives for customized retrofit and retro-commissioning energy efficiency projects. The program also provides comprehensive technical and design assistance.

The Calculated Incentive subprogram is as complex as the projects it attempts to influence, due to the unique nature of the projects and the particular needs of the segment it is attempting to serve. The continued complexity of the program process was found to adversely impact participation. For the overall Calculated Incentive subprogram, SoCalGas participated in the *ex ante* review process and incorporated lessons learned into program design. No significant changes were made in 2017 but overall program participation is moving towards a downward trajectory.

SCG3720 Agricultural - Deemed Incentives

The Agricultural Deemed Incentive Subprogram offers rebates to customers in an easy-to-use mechanism to offset the cost of off-the-shelf energy saving equipment.

The program kept focus on replacing existing energy efficient natural gas equipment, and encouraging customers to move up to higher-than-standard efficiency models when purchasing additional equipment. The deemed rebate offering provided 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 or measure. The program also coordinated its activities with SoCalGas account executives and Commercial and Industrial service technicians to present energy efficiency program details to their customers.

The program removed internal incentive caps for greenhouse curtains to encourage greater participation. As a result, the program contributes its accomplishments to the successful delivery of the greenhouse curtain measure.

The program exceeded the projected 2017 savings goal objectives. Overall the deemed measure selection is small for this customer-base with much of the selection being based on electric water pumping. The most popular incentive measures in the program were the Greenhouse Heat Curtain and Greenhouse Infrared Film. SoCalGas continued to investigate possible deemed options for gas-powered engines.

Statewide Emerging Technologies Program

The statewide Emerging Technologies Program (ETP) supports the California Investor Owned Utility (IOU) Energy Efficiency (EE) programs and helps California meet its energy reduction goals by identifying and screening potential technologies, assessing them to validate performance and customer acceptance, performing in-situ demonstrations and publishing the results of these activities. Well performing technology is recommended for inclusion in IOU customer education and rebate programs for wide use by utility customers.

ETP activities are implemented through three subprograms:

- The Technology Development Support (TDS) subprogram, which seeks to increase technology supply by educating technology developers on technical and programmatic requirements of rebate measures.
- The Technology Assessment Support (TAS) subprogram, which identifies and assesses the actual performance of emerging EE technologies with the goal of increasing the number of measures offered by EE programs.
- The Technology Introduction Support (TIS) subprogram, which helps introduce existing energy-saving technologies that are not already widely embraced by the consumers through demonstration showcases, scaled field demonstrations, and market and behavioral studies, which expose end-users to these technologies in real-world settings. ETP may also use third parties to deploy technologies on a limited scale in the market.

ETP uses a number of tactics to achieve the objectives of its three subprograms. A non-exhaustive list of the key tactics are described in the following sub-program discussion where each tactic may be used to achieve any of the subprogram objectives.

SoCalGas encountered different barriers and problems in the implementation of the Emerging Technologies Sub-Programs which included changing expectations for technology from single technology assessments to integrated “holistic” systems, stringent codes & standards development, limited availability of quality customer sites & customer participation as well as technology availability and affordability to customers. Additionally, the cost effectiveness of

many emerging technologies is sometimes still a challenge for acceptance into customer programs, and the current zero-net energy definition creates difficulty in determining the merit of combined heat and power (CHP) or clean gas technologies. Further, allocation of ETP budget to three subprograms at beginning of cycle or year often creates a mismatch between available funds and actual project opportunities as they arise. This leads to increased use of administrative resources to manage and explain fund shifts between subprograms.

ETP also collaborated with the Portfolio of the Future, which resulted in additional progress overall on EE measurement development. ETP continues to work through the challenges of stringent codes & standards development, technology availability and affordability to customers, as well as the change in paradigm from single technology assessments to integrated “holistic” systems. ETP started and tracked 21 new projects in 2017, comprised of 10 new concepts or technologies and continuing other projects/technologies into later phases.

SCG3721 Emerging Technologies – Technology Development Support

The Technology Development Support (TDS) subprogram provides assistance to private industry in the development or improvement of technologies. Although product development is the domain of private industry, there are opportunities where IOUs can undertake targeted, cost-effective activities that provide value in support of private industry product development efforts. ETP support and guidance can reduce innovator uncertainties and allow them to move forward with promising products. ETP looks for and solicits opportunities to support EE product development, i.e. the process of taking an early-stage technology or concept and transforming it into a saleable product.

ETP uses several activities to support technology developers including:

- Participating in industry, academic and government agency organizations that are also focused on EE technology development and delivery and using leads gained there to work with the developers directly or leveraged with the organizations.
- Periodically participating in a Technology Resource Incubator Outreach (TRIO) symposium, which provides support and networking for EE and demand response (DR) entrepreneurs, investors, and universities with the goal of providing participants the necessary perspective and tools to work with IOUs and ultimately introduce new EE measures to the marketplace.
- Participating in market and behavioral studies to investigate customer needs in targeted sectors and estimate customer reaction to new technologies and solutions. The key activities in which ETP engages is in product efficiency and functionality testing, as well as communication and collaboration with industries. These activities are often conducted on an ad hoc basis, as windows of opportunity arise.

SoCalGas ETP’s TDS strategies employed and activities conducted in 2017 include:

- Assisting a developer of a compact gas flowmeter with telemetry intended for cost-effective appliance gas use measurement for potential energy savings and control applications, including collaborating with SoCalGas in-house gas metering experts and Cal Poly Pomona engineering faculty. The flowmeter received CSA certification in 2016

and began commercialization in 2017. SoCalGas ET is further testing the product for accuracy and usability in 2018.

- Continuing funding and support in developing and fitting a compact furnace with low NOx burner, suitable for zero-net energy (ZNE) and tight homes in California. A field demonstration with co-funding by the CEC is planned to begin in 2018.
- Collaborating with the Emerging Technologies Coordinating Council (ETCC) on various program activities including: a TRIO Symposium and Roundtable event hosted by SCE, a First Look West (FLoW) upstream incubator review and judging event and roundtable hosted at Caltech, a Rocket Fund upstream incubator finalist interview meeting hosted by SCE that included an ET Open Forum on early stage technologies, and two CEC EPIC/Public Interest Energy Research (PIER)-ETP alignment meeting hosted at the CEC and SDG&E.
- Collaborated with peer members and processed technology ideas submitted to the ETCC for screening and collaboration.
- Collaborating with industry directly and through industry and academic partners, such as, but not limited to, the UC Davis Western Cooling Efficiency Center (WCEC), UC Davis Center for Water-Energy Efficiency (CWEE), the Gas Technology Institute (GTI), Electric Power Research Institute (EPRI), Energy Solutions Center (ESC), American Council for an Energy Efficient Economy (ACEEE), and Consortium for Energy Efficiency (CEE), in order to provide targeted support for technology development, identify new opportunities and find collaboration partners.
- Collaborating with and providing technical advice to innovators from universities and other research institutions such as the CalTech/Department of Energy (DOE) FloW program and the associated Rocket Fund, whose goal is to provide funding and entrepreneurial education for academic innovators starting cleantech companies.
- Participating and engaging with industry stakeholders in CEC's natural gas PIER solicitations and projects. Collaborated with external parties and SoCalGas EE program stakeholders in developing RFP responses completing commitment letters to support the achievement of CEC goals and contributed to winning the subsequent awards. Continued project development and support of two ongoing CEC co-funded projects including a demonstration of a low NOx compact furnace for CA tight home construction and ZNE homes.
- Continuing an active partnership with the Los Angeles Department of Water & Power (LADWP) in a strategic approach to integrate and leverage electric and gas utility efforts to achieve CA's energy efficiency goals in the city of Los Angeles. LADWP and SoCalGas collaborated on the post-construction monitoring and verification, data sharing, and outreach of the Playa Vista near-ZNE demonstration project, integrating combined heat and power (CHP), photo-voltaic (PV) and EE measures, and are collaborating on participation with the Rocket Fund.

SCG3722 Emerging Technologies – Technology Assessment Support

Through the Technology Assessment Support subprogram (TAS), ETP evaluates energy efficient measures that are new to the market (or underutilized for a given application) for performance claims and overall effectiveness in reducing energy consumption. A key objective of these assessments is the adoption of new measures into SCG's EE portfolio, where assessment data is

used to develop the required workpapers to introduce new EE measures. Historically, technology assessment is a core strength of ETP and has been critical to EE program success. ETP assessments may develop and utilize data/information from different sources including: in situ testing (customer or other field sites), laboratory testing, or paper studies used to support assessment findings.

In 2017, SoCalGas' ETP employed the following strategies and select activities for the TAS subprogram:

- Transferring assessment results to, participating with and providing guidance and input to Customer Program's Innovation Now! stage-gate process for work paper development on several potential measures which include advanced thermostats, horizontal drain heat recovery, shower data management devices with communication capabilities, and continuing support of studies for the implementation instructions and software modeling of the dual setpoint boiler controllers for combination service.
- Collaborating with ETCC utilities and out-of-state utilities to identify suitable assessment candidates.
- Using the statewide database to report project activities on a quarterly basis, and employing a subset of the database to share with the Consortium of Energy Efficiency Emerging Technology Catalog (CEE ETC) working group to exchange ideas and to leverage co-funding and collaboration opportunities.
- Participating in and supporting four ET quarterly meetings held by the ETCC, focused on agricultural, commercial, residential, and data center topics, respectively.
- Participating in and supporting an ET Open Forum on market ready technologies hosted by PG&E. The Open Forum is an opportunity for developers of new technologies to highlight their products to the ETP.
- Researching and evaluating test reports on a tub-spout water stop technology that were produced by other utilities that were sufficient for SoCalGas' new measure team to use for workpaper development without the need for additional testing by SoCalGas ET.
- Managing CEC PIER funding for an ongoing low-income housing EE retrofit study in cooperation with EPRI, LINC, and SCE. This project was selected for presentation in a CEC sponsored webinar on "ZNE technologies and progress" and later won an EPRI Power Delivery and Utilization award.
- Completing a CEC PIER-funded deep retrofit project for commercial kitchen water heating using multiple emerging technologies to assess integrated benefits including energy and operational savings.
- Managing a CEC PIER funded project to showcase commercial kitchen cookline equipment to assess integrated benefits, including energy and operational savings, led by Fisher-Nickel Inc. under Frontier Energy and GTI.
- Starting a CEC PIER funded project to demonstrate an industrial low-temperature heat recovery system using an Organic Rankine Cycle (ORC), led by EPRI.
- Managing a CEC funded project to understand and improve solar thermal water heating and cost effectiveness, led by UC Davis.
- Starting a lab testing project for venture type steam traps with GTI, cofounded by Nicor Gas.

SCG3723 Emerging Technologies - Technology Introduction Support

Technology Introduction Support (TIS) subprogram supports the market introduction of new and existing, but underutilized, technologies to the market, on a limited scale, through several activities, including:

- Scaled Field Placements (SFP), which consist of placing a measure at a number of customer sites as a key step to gain market traction and feedback. Typically, these measures have already undergone an assessment or similar evaluation to reduce risk of failure. Monitoring activities on each scaled field placement are determined as appropriate.
- Demonstration and Showcase (DS) projects, designed to provide key stakeholders the opportunity to "kick the tires" on proven combinations of measures that advance California Long Term Energy Efficiency Strategic Plan (CLTEESP) and ZNE goals. DS projects introduce measures to stakeholders at a system level and in real-world settings. Potential customers gain knowledge about applications and installations, and the projects help create broader public and technical community exposure and increased market knowledge. Key attributes of DS projects are that they are open to stakeholders and highlight a systems approach rather than an individual technology approach.
- Market and behavioral studies are designed to perform targeted research on customer behavior, decision making, and market behavior to gain a qualitative and quantitative understanding of customer perceptions and acceptance of new measures and of market readiness and the potential for the new measures.
- TRIP (Technology Resource Innovation Program) solicits third-party projects (of up to \$300,000) to deploy emerging technologies on a limited scale to the market.

In 2017, SoCalGas' ETP employed the following strategies and select activities for the TIS subprogram:

- SoCalGas ET, on behalf of the ETCC utilities, successfully managed and executed the Emerging Technologies Summit, a 2.5-day conference with national attention and attendance with more than 150 speakers and over 400 participants.
- Published a technical paper on a commercial near-ZNE demonstration project at the Playa Vista and presented in a national conference, the 2017 West Coast Energy Management Congress.
- Performing primary and secondary research, as necessary, to gain market insight.
- Identifying and screening several technologies to support the AB 793 initiative and used in the development of proposed action plans.
- Engaging with the ETCC by participating in quarterly meetings and presentations, advising on website management and other technology implementation support activities.

SCG3806 Water Advanced Meter Infrastructure Pilot

The Water Energy Nexus (WEN) Shared Network Advanced Metering Infrastructure (AMI) Pilots³ have been established to develop and refine the identification of potential hot water leaks based on analytics of both gas and combined water and gas usage data, and to evaluate the

³ D.15-09-023, Advice No. 5014, Advice No.4992-A.

potential benefits associated with hot water leak detection and resolution. The WEN Shared Network AMI Pilots allow for water utilities to leverage the existing SoCalGas Advanced Meter Infrastructure (AMI) network to collect and transmit hourly water usage data, which is used in the analytics effort. Two separate Commission-regulated water utilities, San Gabriel Valley Water Company and California American Water, are participating in this pilot program, and a 3rd party analytics vendor, Valor Water Analytics, is conducting the combined water-gas analytics.

In 2017, approximately 1,822 water MTUs were installed out of total target of 1,850 and successfully transmitted data over the SoCalGas Advanced Meter Network with an average reception success rate (RSR) of 98% or better. The analytics period for the California American Water WEN AMI Pilot kicked off in Q1 of 2017 and was completed on February 28, 2018. This pilot also successfully utilized hourly water and gas data for the identification and evaluation of potential hot water leaks, identifying 9 potential hot water and anomalous gas usage in 2017. The analytics portion of the AMI WEN Pilot for San Gabriel Valley Water Company was completed in Q3 of 2017. The AMI WEN Pilot Final report will be available in 2018.

The AMI WEN Pilot encountered a challenge with the address matching activity that was required for both San Gabriel Valley Water Company and California American Water pilots since there was no standard facility address format across each of the participating utilities. This activity required additional manual analysis that resulted in a short delay to kick-off the AMI WEN Pilot.

The WEN AMI Pilots have been driving to achieve the following program goals: (1) Network piggybacking, (2) Combined utility data analytics for hot water leak detection, and (3) Determining energy savings from reduced water loss. The first goal was met, as both WEN Shared AMI Pilot participants have deployed their pilot water MTUs and successfully transmitted data over the SoCalGas AMI Network. The second goal was also met, as both water utilities have been able to successfully perform combined utility data analytics for the identification and evaluation of potential hot water leaks. Finally, both of the WEN AMI Pilot participants are in the process of completing the analytics efforts for the third goal in 2018.

Statewide Codes & Standards Program

The Statewide Codes and Standards (C&S) Program saves energy on behalf of ratepayers by influencing regulatory bodies such as the California Energy Commission and the U.S. Department of Energy (DOE) to strengthen energy efficiency regulations. The Program conducts efforts to increase compliance with existing C&S regulations to ensure that the State realizes the savings from new codes and standards, and supports local governments that include reach codes as a climate strategy. The Program also conducts planning and coordination with Investor Owned Utilities statewide as well as with local utilities to optimize collaboration, and code readiness activities to prepare for future codes.

Program advocacy and compliance improvement activities extend to virtually all buildings and appliances sold in California in support of the State's ambitious climate and energy goals. Support for state and federal building codes and appliances standards continues to move California towards residential zero net energy (ZNE) by 2020, non-residential ZNE by 2030, and

the statewide goal set forth by Senate Bill 350 (SB 350) to reduce building energy usage by 50 percent.

Key Initiatives include:

- Advocacy for new or updated sections of California’s Building Energy Efficiency Standards and related ASHRAE activities
- Advocacy for new Title 20 and DOE appliance standards, and related ENERGY STAR® activities
- Training, tools, and resources to support compliance with existing codes and standards
- Development of new cost effectiveness studies to support local government reach codes
- Long term planning and coordination activities to optimize work across California’s utilities

In 2017, SoCalGas lead the Title 20 CASE proposal for tub-spout diverters and submitted the proposal on behalf of the C&S Program team in December 2017. This effort included interviews with manufacturers, test labs, and environmental advocates; participation in CEC public meetings; research into the performance, technical features, and cost of tub spout diverters; and statewide savings calculations. Additionally, SoCalGas led the Title 24 CASE Report for residential drain water heat recovery and completed the proposal on behalf of the C&S Program team in July 2017. This effort included multiple interviews, product research, collaboration with stakeholders, and per-unit savings calculations. Ongoing efforts include reviewing stakeholder comments, reviewing CEC proposed code language, and participating in CEC public meetings for the 2019 Title 24, Part 6 standards.

The SoCalGas Compliance Enhancement team lead the design, development and implementation of a series of Title 24 Part 6 education and training activity targeting commercial architects and architectural firms throughout Southern California. Through a mutual agreement with local chapters of the American Institute of Architects (AIA) the training activity hosted a total 20 trainings with over 481 attendees.

SCG3724 Codes & Standards - Building Codes & Compliance Advocacy

The Building Codes Advocacy subprogram primarily targets improvements to California’s Building Energy Efficiency Standards (Title 24, Part 6). Title 24, Part 6 is updated by the Energy Commission on a triannual cycle. The subprogram also pursues changes to national building codes that impact California through ASHRAE and other national and international code-setting bodies. 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 referenced in Title 24 (e.g., the National Fenestration Rating Council and the Cool Roof Rating Council) for both Part 6 and Part 11 (CALGreen).

The IOUs supported the Energy Commission’s 2019 rulemaking by developing 40 building code proposals contained in 23 CASE reports (some reports contained multiple proposals). The 2019 CASE reports are available online at <http://title24stakeholders.com/2019casetopics/>. The 2019 Standards are expected to go into effect on January 1, 2020.

Residential changes to Title 24 included:

- Code will now require renewables equivalent to total electricity use in most mixed fuel homes, which will assist in meeting state Zero Net Energy goals
- CBECC-Res compliance software includes CO₂ emissions reporting
- CBECC-Res includes the Energy Design Rating (EDR) that includes nonregulated loads, which is comparable to national RESNET rating. The Standards will require a passing EDR score to comply.
- More stringent envelope requirements, such as high-performance attics and quality insulation installation, will yield savings and improved comfort
- Furnace fan power reduction (based on ATS lab testing)
- Changes to water heating requirements, which makes it easier to build all-electric homes

Nonresidential Changes to Title 24 included:

- Occupancy sensor control of ventilation simplified (based on ASHRAE 90.1)
- Automated fume hood sashes automatically close laboratory fume hoods when no one is present
- Induction fan for laboratory exhaust systems have fan speed controls that respond to wind velocity
- Fault detection and diagnostics of economizers expanded to built-up fan systems

General Title 24 advocacy support included:

- User-centered development of code language to improve enforceability in collaboration with the IOU Compliance Improvement team
- IOU sponsored stakeholder meetings to develop consensus in advance of formal workshops
- Review and testing of compliance software

Participation in ASHRAE 90.1 included:

- Updates to hotel guest room HVAC and lighting controls

Support for ASHRAE 189.1 included:

- Commissioning proposal to better align with ASHRAE Standard 202
- Emission factors table for use in complying with respect to the CO₂e component of the performance approach

Implementation challenges in 2017 included concerns about the complexity of the Standards, including the process to comply, remain a barrier to acceptance. In response to industry engagement and Energy Commission input, the trend towards increasing rigor continued in 2017; hence, the cost of building codes advocacy will continue to increase. Some stakeholders continue to claim lack of properly trained labor and permitting delays as factors in meeting the requirements.

SCG3725 Codes & Standards - Appliance Standards Advocacy

The Appliance Standards Advocacy subprogram targets both state and federal standards and tests methods including improvements to Title 20 Appliance Efficiency Regulations by the Energy Commission, and improvements to federal appliance regulations and specifications by the DOE,

Environmental Protection Agency (EPA) ENERGY STAR® Program, ASHRAE, and the Federal Trade Commission (FTC). Advocacy activities include developing Title 20 code enhancement proposals, participating in the Energy Commission public rulemaking process and ASHRAE committees, submitting comment letters in federal standards proceedings, and participating in direct negotiations with industry. Additionally, the program monitors state and federal legislation and intervenes, as appropriate.

Since the federal government currently has a more conservative disposition level towards appliance efficiency standards, the Energy Commission has pursued appliance efficiency with renewed purpose. The IOUs efforts in 2017 include:

- Participated in several Energy Commission webinars and workshops regarding, spray sprinkler bodies, irrigation controllers, commercial & industrial (C&I) fans and blowers, expanded definition general service lighting (GSL) definition, solar inverter roadmap, set top box roadmap, tub spout diverters, low power mode and power factor roadmap, commercial clothes dryer test procedure and portable spas and pool pumps rulemakings.
- Developed CASE studies for the Energy Commission on products including spray sprinkler bodies, irrigation controllers, commercial & industrial (C&I) fans and blowers, expanded definition general service lighting (GSL) definition, solar inverter roadmap, set top box roadmap, tub spout diverters, low power mode and power factor roadmap, commercial clothes dryer test procedure and portable spas and pool pumps rulemakings.
- Completed laboratory testing for commercial clothes dryers with results submitted as part of the CASE studies.

The C&S program advocated for changes to federal appliance standards through various efforts:

- Researched and responded to specific issues related to federal rulemaking and specification processes conducted by the DOE and EPA ENERGY STAR®.
- Participated in stakeholder meetings during rulemakings and specifications processes, resulting in ten rulemaking advocacy letters issued in 2017.
- IOU advocacy letters issued in previous years influenced rulings on seven federal measures taking effect in 2016.
- Participated in DOE's Appliance Standards and Rulemaking Federal Advisory Committee meetings with DOE, industry, and other stakeholders.

DOE standards finalized in 2017 included walk-in coolers and freezers, portable air conditioners, uninterruptible power supplies, air compressors, and packaged boilers.

The current administration is working at a slower pace than in previous years which reduces our opportunity to update federal standards. DOE is focused on process improvements and changes to the overall program rather than individual equipment rulemakings or test procedures.

SCG3726 Codes & Standards - Compliance Enhancement

The C&S Program supports increased compliance with the Building Energy Efficiency Standards and the Appliance Standards after they are adopted. Compliance improvement activities complement advocacy work by maximizing verified savings from C&S activities 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 building and appliance energy standards. Achieving satisfactory compliance with codes and standards is a crucial requirement for capturing the intended energy savings for the long-term benefit of society. High compliance rates are 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 and provides a solid foundation for future robust advocacy efforts.

The Compliance Improvement (CI) subprogram launched a new, easy-to-navigate version of EnergyCodeAce.com. The training team delivered more than 120 Title 24, Part 6 standards-related traditional and virtual classroom training sessions, 20 Decoding Talks, launched a new Code & Coffee live stream series, and created a new learning block series in support of Certified Energy Analysts. A number of new resources and tools were added to the Energy Code Ace library such as the “Lighting Wheel” and factsheets on computer and lamp regulations, while the T20 standards were incorporated into the Reference Ace. Additionally, the CI Subprogram continued development of new dynamic compliance forms in close collaboration with the Energy Commission and designed a prototype of a user interface that industry will soon use to complete the new forms. The CI Team represented all of the subprogram offerings and gathered feedback at over 55 industry events throughout the state.

Other compliance improvement support for Title 24, Part 6 building codes included:

- Enhancing the traditional Residential Standards Essentials course for Plans Examiners and Building Inspectors making it far more activity-based and less lecture intensive.
- A blended learning series designed to support development of Residential Certified Energy Analysts. The new blended learning approach includes a combination of learning blocks that students choose to enter and complete according to their specific competency barriers. Learning opportunities are delivered in various formats including Energy Code Ace’s self-study courses, virtual workshops, and mentoring. For example, residential courses include: Residential Envelope & Solar Systems (workshop), Residential Mechanical Systems (workshop), Residential Modeling Tips (workshop), Analyzing the CF1R (workshop), Residential & Non-residential HERS (self-study), Residential Envelope (self-study), Residential Solar Systems (self-study), and Residential Water Heating (self-study).
- More than 118 live training sessions with approximately 3,000 attendees achieving an average knowledge swing of 20% and overall satisfaction rating of 92%
- Decoding webinars covering six topics related to the 2016 Standards. Each webinar was offered in three to four separate sessions, resulting in completion of 20 decoding webinars with approximately 600 attendees.
- Redesigning the Energy Code Ace website. Sample enhancements include: easier navigation through a new overall search function and the ability to filter offerings by resource type, market actor role, topic, and standard; the opportunity to request courses and expert help; ability to view training offerings by calendar or list view; thumbnail images of resources; and a more robust Reference Ace.

- Outreach via Energy Code Ace by distributing 70 targeted messages, responding to more than 170 requests for assistance, and participating in more than 55 industry events such as: Pacific Coast Builders Conference, California Association of Local Building Officials Education Weeks, AIA Monterey Design Conference, and the California Association of Building Energy Consultants (CABEC) annual conference.
- Transitioning the Certified Energy Analyst (CEA) exam administration to CABEC while supporting exam revisions as needed. Additionally, the CI Subprogram initiated a study designed to assess the difference in the quality of the compliance documents submitted for permits by Certified Energy Analysts and energy consultants who are not certified.

Compliance improvement support for Title 20 Appliance Standards included:

- A new T20 section of the Reference Ace.
- Fully incorporating T20 into the overall Energy Code Ace website.
- Developing a T24/T20 “master resource” which lists the equipment/products in both T20 and T24 that are required to be certified, illustrates the overlap/relationship between T24 and T20, as well as highlighting the fact that some equipment needs to be certified to the Commission for T24 compliance.
- Assessing and implementing compliance improvement solutions for Lighting, Computers and Residential Pool Pump Motors.
- Conducted outreach to major retailers to garner feedback on the preliminary design of a Model-Matching Tool. The objective of the tool is to enable users to quickly compare a batch of retail model numbers with model numbers listed in the Modernized Appliance Efficiency Database System (MAEDBS) to help identify products that have been certified to the California Energy Commission; only products listed in the MAEDBS are legally allowed to be sold or offered for sale in California.

The ability to identify and reach key market actors in the Title 20 standards compliance supply chain, in order to understand their unique compliance barriers, has proven to be far more complex than Title 24, Part 6. New needs assessment and outreach efforts are underway to enable application of the user-centered design process which is at the core of all Energy Code Ace offerings.

SCG3727 Codes & Standards - Reach Codes

In addition to state and national building codes, the C&S Program 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 (reach codes). Reach code support for local governments includes research and analysis to establish performance levels and cost effectiveness relative to Title 24 by climate zone, drafting model ordinance templates to encourage regional consistency, assistance for completing and expediting the application process required for approval by the CEC, and supporting implementation once effective. The subprogram supports local governments seeking to establish residential or commercial energy conservation ordinances for new construction and existing buildings.

Many local jurisdictions have established goals within their Climate Action Plans to reduce energy use and greenhouse gas emissions from buildings through adopting and implementing

local energy ordinances. Given the changing policy and funding priorities at the federal level, cities and counties are experiencing a greater sense of urgency for local action to meet the state's GHG emission reduction goals. This urgency has translated to a greater interest in reach codes as a path to achieve the goals. With reducing GHG emissions as the highest priority, there is a shift in focus from reducing energy use generally to specifically reducing energy use associated with carbon emissions.

2017 program work included the following:

- Completed the following cost-effectiveness studies: CALGreen Tiers 1 and 2 for All-Electric Residential New Construction, CALGreen Tier 3 for Residential New Construction, CALGreen Tier 1 for Nonresidential New Construction, and for the City of Chico, a study covering significant renovations in existing single-family homes.
- Provided technical support to staff at several jurisdictions, including presentation of cost-effectiveness studies, consultations on options and opportunities, review and recommendations regarding proposed ordinance structure, triggers and language.
- Launched the LocalEnergyCodes.com web site which contains all program studies, as well as model ordinance and resolution language which jurisdiction staff may use to facilitate drafting the ordinance. Beginning from a common core helps to support consistency across jurisdictions. The web site also contains links to other providers, state agencies, and other resources. From its launch in July through December, the home page was viewed more than 7,000 times. The Nonresidential New Construction Study was downloaded most often (100 times) followed closely by the Residential New Construction CALGreen Tiers 1 and 2 Mixed-Fuel (94) and All-Electric (84) studies.
- Attended Statewide Energy Efficiency Collaborative (SEEC) Forum. Coordinated and hosted reach codes session with the County of San Mateo and the Cities of Fremont and Santa Monica.
- Began working with ICLEI to determine if the ICLEI ClearPath tool can be a path for tracking reach code impacts.

In 2017, several reach codes were adopted by local jurisdictions and approved by the Energy Commission, based on IOU cost effectiveness studies. Approved local ordinances may be found on the Energy Commissions website:

<http://www.energy.ca.gov/title24/2016standards/ordinances/>

In general, reach codes have a relatively short “shelf life.” Following adoption of new building codes, compliance software must be updated to reflect new building codes before cost-effective (CE) studies can be completed. Then local jurisdictions adopt reach codes based on CE studies, followed by CEC approval. By the time this work is completed, there may be only year or two before the next code becomes effective.

SCG3728 Codes & Standards - Planning Coordination

The planning element of this subprogram includes long-term planning and scenario analyses, modeling of impacts from potential C&S program activities relative to California policy goals and incentive programs, development of business and implementation plans, responses to CPUC

and other data requests, and maintenance of a C&S savings database consistent with evaluation protocols.

The coordination element includes internal and external harmonization with other groups. Internal activities have traditionally included collaboration with several departments: a) incentive, training, and demand response programs, b) policy, regulatory, and corporate affairs, and c) emerging technology and product teams. More recently, as building codes have begun to incorporate distributed generation and batteries, coordination has expanded to strategy integration, distributed generation programs, and others involved in grid management.

Since Codes and Standards impacts the entire state and almost all building types, occupancy categories, and related technologies, external harmonization activities encompass: a) CPUC, California Energy Commission, Air Resources Board, b) other IOUs, municipal utilities, and utilities in other states, c) national advocates such as Appliance Standards Awareness Project (ASAP), Natural Resource Defense Council (NRDC), Northwest Energy Efficiency Alliance (NEEA), Sierra Club, American Council for and Energy-Efficient Economy (ACEEE), Earthjustice, National Consumer Law Center, Consumer Federation of America, d) representatives of various manufacturing companies and industry groups such as the Association of Home Appliance Manufacturers (AHAM), CTA, NEMA, American Gas Association (AGA), and e) water utilities and local governments, and e) other parts of the compliance improvement supply chain: building inspectors, Title 24 consultants, Contractor State Licensing Board (CSLB), etc. In 2017, SoCalGas extended the partnership with the Los Angeles Department of Water & Power for LADWP to actively participate in all Codes & Standards subprograms.

The C&S program impacts EE, PV and storage technologies, utility grids, building and manufacturing industries, the compliance improvement supply chain, EE and demand response (DR) programs, local governments, state and national code setting bodies, ratings organizations, etc. planning and coordination activities are challenging.

Statewide Workforce Education & Training Program

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): PG&E, SCE, SDG&E, and SoCalGas. Education and training are vital components of each of the IOU's energy efficiency portfolio.

SoCalGas Workforce Education & Training continued reaching out for new curriculum, across the energy efficiency industry to offer energy efficiency workforce in support of resource program goals and objectives. Achieving deeper savings, articulating code changes, and developing a well-trained and appropriately skilled workforce represented some of the driving themes for WE&T in 2017. There were also challenges in the last year, such as: keeping pace with local, regional, and state policies and initiatives; trying to coordinate and align WE&T efforts with numerous energy efficiency training implementers; and maintaining commitments to the Strategic Plan, workforce needs, education curriculum, and training standards.

SCG3729 Workforce Education & Training - Centergies

The WE&T Centergies Sub-Program is generally organized around market sectors as a cross-cutting segment to facilitate workforce education and training appropriate for achieving the energy savings, demand reductions and related energy initiatives required of the IOUs.

During 2017, SoCalGas WE&T Centergies conducted 151 training/seminar sessions, 131 outreach consultations, and 310 equipment demonstrations. SoCalGas continued implementing steps to adjust its portfolio offerings to include Integrated Demand-side Management curriculum and draw audiences representing occupations that can have the most impact in the success of the SoCalGas program portfolio. During 2017 WE&T incorporated Skype technology to conduct more enhanced discussion and working sessions with market actors and implementers.

The trainings and seminars provided a mix of existing and new courses developed in collaboration with WE&T partners to meet student needs. Examples include: Building Operator Certification training sessions and webinar series to commercial building operators; building awareness and education in Building Science by offering three classes in this area; hosting the Municipal Green Building Conference and Expo to further awareness and demonstrate examples of success in the area of sustainability; partnering with the Metropolitan Water District to facilitate four California-friendly landscape classes held to promote sustainability and drought awareness; and collaborating with the Home Building Institute (HBI) to provide non-paid internship opportunities in landscape and facilities maintenance to qualified trainees at the Energy Resource Center.

New activities and efforts that were complementary to the continuing WE&T work implemented during 2017 included focusing on ways to build a functional relationship with labor and apprenticeships - as part of a more collaborative training strategy. In addition, SoCalGas expanded its partnership with the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) to design and add the new industry-requested HVAC/R classes to its HVAC training series. SoCalGas also engaged the plumbing and mechanical trades on sustainability, with presentations and hands-on training focused on residential and commercial water-heating in our newly designed water heating demonstration lab. And finally, SoCalGas' WE&T team is collaborating with a water-heating distributor in offering quarterly, in-depth energy efficiency training sessions for premium tankless water-heating systems. The training sessions were developed to help achieve deeper energy savings and increase uptake for efficient tankless water-heating equipment and technology. The training includes interactive product demonstrations, as well as hands-on installation, operation, diagnostics and trouble shooting.

SCG3730 Workforce Education & Training - Connections

The WE&T Connections Sub-Program is organized around downstream and upstream relationships between the IOUs and the educational sector that support workforce development in energy efficiency, energy management, and educating students about green careers. The Connections Sub-Program seeks to promote the understanding of EE, demand side management (DSM), distributed generation (DG), and green career awareness along all educational paths.

The WE&T Connections Sub-Program achieves its EE educational goals by working with community-based organizations, state education agencies, and educational stakeholders. In conjunction with third party vendors, the WE&T Connections Sub-Program provides interactive programs, educational materials, assemblies, and teacher workshops that are aligned with the California Department of Education's content standards.

In 2017, the WE&T Connections program managers continued implementation of programs launched under co-funding arrangement by IOUs with new program vendors. The programs selected were separately targeted to the K-8, 9-12 and post-secondary education level.

In 2017, The WE&T Connections Sub-Program achievements were positive. The PEAK Student Energy Actions Program, which targets K-8 grade educators and their students, exceeded all deliverables in 2017, reaching 6,348 (Goal: 6,000) students of which 71% (Goal: 50%) within the SoCalGas service area. Additionally, the PEAK Program launched the online PEAK Ambassador Model, resulting in increased flexibility and access for participants, particularly those in hard-to-reach and/or underserved communities. The Energize Schools Program, which targets grades 9-12, was also able to exceed its goal of statewide students reached within the SoCalGas service area. Of the schools participating in the program, 69% were categorized as Title 1 schools and 14,605 students reached and finally, the post-secondary school program, with its Education and Internship components, are tracking well on its goals for the number of faculty partners engaged, number of filled internship positions, community project roles accomplished, and campuses reached by the program.

SCG3731 Workforce Education & Training - Strategic Planning

The WE&T Planning Sub-Program involves the management and execution of strategic statewide planning tasks.

During 2017, the SoCalGas WE&T Strategic Planning team spent considerable time in discussion around filings and response comments with stakeholders and intervenors on topics ranging from metrics, disadvantaged worker definition, workforce standards and responsible contractor policy. The time and effort resulted in reasonable progress on contentious issues that still will require considerable discussion and compromise in 2018 to find common ground and agreement on specific application and functional implementation.

The WE&T team transitioned from its stakeholder engagement forum format, which was used for conducting taskforce meetings to using the California Energy Efficiency Coordinating Committee (CAEECC), sub-committee meeting structure for continuing engagement with WE&T stakeholders. Efforts to achieve greater value and outcomes from collaboration with industry, trades, education institutions, policy influencers, and public agencies, to deliver well-trained and appropriately skilled workforce, remain of the highest priority to the IOU WE&T Programs.

SCG3733 Statewide Marketing, Education and Outreach

In March 2016, the Commission authorized an open solicitation for an implementer for Statewide Marketing, Education and Outreach (SW ME&O) in 2017 and beyond per Decision 16-03-029, and in September 2016 approved the results of that solicitation; the selection of DDB of San Francisco per Decision 16-09-020. As per the previously adopted governance structure, the Commission identified responsibilities for the IOUs, particularly that the IOUs act in a supportive role to the statewide implementer. The Commission directed PG&E to serve as the fiscal manager, on behalf of the IOUs, through a contract with DDB without exercising control of, or modifications to, the overall design of the Statewide ME&O program.

DDB's contract became active in October 2016. Since contract execution, SoCalGas has coordinated with and supported DDB to ensure consistency between statewide marketing efforts with SoCalGas maintaining responsibility over local marketing efforts. SoCalGas also provided collaborative feedback on the DDB created 5-Year Roadmap, Annual Joint Consumer Action Plans (JCAPs), all content for the completely re-designed statewide website (energyupgradeca.org), prioritization of marketing topics for the year one JCAP and future JCAPs, and input for statewide campaign strategies and collateral.

SCG3734 Statewide IDSM Program

The California Long Term Energy Efficiency Strategic Plan (Strategic Plan) recognizes the integration of demand-side management (DSM) options, including energy efficiency, demand response, and distributed generation, as fundamental to achieving California's strategic energy goals. To support this initiative, the Investor Owned Utilities (IOUs) have identified integrated demand-side management (IDSM) as an important strategic DSM policy priority and have proposed a series of activities, pilots and other programs in response to the Strategic Plan DSM Coordination and Integration Strategy.

A Statewide IDSM Task Force (Task Force) was formed in 2010 and has continued coordinating activities that promote, in a statewide-coordinated fashion, the strategies identified in the Strategic Plan and the eight integration directives described in Decision (D.)09-09-047 as follows:

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.
2. Development of proposed measurement and evaluation protocols for IDSM programs and projects.
3. Review IDSM-enabling emerging technologies for potential inclusion in integrated programs.
4. Development of cross-utility standardized integrated audit tools using PG&E's developed audits as a starting point.
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., evaluation, measurement & verification (EM&V), and cost-benefit results).

6. Develop regular reports on progress and recommendations to the CPUC.
7. Organize and oversee internal utility IDSM strategies by establishing internal Integration Teams with staff from energy efficiency, demand response, distributed generation, marketing, and delivery channels.
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 programs are coordinated with EE integrated marketing efforts.

Statewide IOU Strategies Implemented in 2017

- Directives 1 & 2 - The Task Force is exploring a phased approach to developing an appropriate methodology to calculate integrated cost-effectiveness and an integrated EM&V approach for IDSM programs and projects. Integrated Cost Effectiveness Research will establish the data needs to inform the understanding of integrated cost effectiveness for IDSM programs and projects. An integrated EM&V whitepaper is expected to show how the IOUs and the CPUC's Energy Division document and attribute energy savings and demand reduction to IDSM project implementation, using methodologies established from evaluation. In 2017, no additional reports were completed.
- Directives 3 & 5 - The Task Force tracked multiple integrated emerging technologies and reviewed various programs, projects, IDSM Pilots and activities to identify integration efforts and opportunities, as well as to develop best practices.
- Directive 4 - The statewide online integrated audits team continues to coordinate to deliver a consistent online integrated audit tool that works with each IOU interface and educates customers on managing their energy use costs. The IOUs created online integrated audit tools for residential and small to medium size business customers with customized audit recommendations based on: customer profiles, operating characteristics, market sector potential, and cost-effectiveness. The IOUs also enhanced existing integrated tools to include solar-related functionality. The IOUs continue to offer on-site integrated audits to small, medium, and large customers.
- Directive 6 - The IOUs submitted four joint quarterly reports for 2017, including an Executive Summary section, to provide Energy Division staff with updates on the eight IDSM directives. All quarterly reports were uploaded and available for viewing on the California Energy Efficiency Statistics Data Portal (EE Stats).
- Directive 7 - The Task Force held regular coordination phone calls to continue to ensure alignment across the state and discuss lessons learned.
- Directive 8 - Delivery of IDSM marketing continues to be more than just promotion of multiple programs within specific tactics like collateral or websites. It is a key component in the planning phases of integrated Marketing, Education & Outreach (ME&O) to help provide the right solutions to the right customer, at the right time. The Task Force tracks, reports and shares best practices related to local integrated marketing campaigns for residential and business customers.

SoCalGas IDSM Strategies Implemented in 2017:

Through a Single-Point-of-Contact (SPOC) strategy, SoCalGas engaged 18 large multifamily portfolio owners, enrolling 8,060 units in the low-income Energy Savings Assistance Program,

as well as other energy efficiency programs such as Multifamily Rebate and On-Demand Efficiency Programs. Through the SPOC, SoCalGas also enrolled the largest senior housing facility in the United States located in downtown Los Angeles into the Energy Savings Assistance Program's Multifamily Common Area Pilot. The facility received an ASHRAE Level II audit, and will undergo retrofits in 2018. SoCalGas' SPOCs have started supporting implementation of Demand Response by promoting installation of smart thermostats in affordable housing portfolios.

SoCalGas continued to partner with other utilities to deliver IDSM solutions that encompass multiple fuel sources, (gas, electricity and water). To date, the IDSM initiative has delivered 31 joint program agreements with municipal utilities that include Los Angeles Department of Water and Power (LADWP), Riverside Public Utilities, Anaheim Public Utilities, Pasadena Water and Power, and Metropolitan Water District (MWD). SoCalGas also continued working SCE and PG&E to deliver joint programs and services in the statewide programs. SoCalGas launched one new partnership program each with LADWP, Anaheim, Pasadena and MWD in 2017. SoCalGas continued to market its utility partnership model to other utilities and external entities by participating and presenting the model in national conferences such as ACEEE's Energy Efficiency as a Resource in 2017.

SoCalGas continued developing and enhancing the IDSM knowledge and capabilities of its internal staff, through in-person joint meetings both internally and with municipal utility partners. SoCalGas held an IDSM summit in July 2017 in partnership with LADWP to inform and educate staff members about IDSM opportunities offered by the two utilities. To promote further integration, as of the fourth quarter of 2017, the operation of the IDSM programs, including energy efficiency, demand response and solar thermal programs, has been consolidated under a single management group. Additionally, SoCalGas has conducted numerous joint EE/Energy Savings Assistance Program (ESAP)/Solar Thermal marketing sessions in 2017, including participation in 163 residential events and 40 business events.

SoCalGas' energy efficiency team continues to work closely with the ESAP team to refine communication and coordination strategy to ensure that customers, particularly multifamily ones, receive comprehensive services and incentives regardless of the occupants' income qualification. The demand for program partnerships with municipal utilities from both SoCalGas program teams and the partner utilities' continued to be robust. However, this demand also needed to be balanced with the availability of program resources. Consequently, both SoCalGas and partner utilities agreed to prioritize program launches based on their impact and strategic importance.

SoCalGas continued to expand its capabilities in delivering comprehensive customer solutions via its partnership programs, for example, with the Engineering Support for Calculated Program Partnership with LADWP, where both utilities jointly review custom energy efficiency projects with both gas and electric opportunities.

SoCalGas continued partnering with major municipal utilities in Southern California and continued to expand its portfolio of joint programs and offerings by launching four new joint programs in 2017. SoCalGas' staff continued working internally to ensure integration among different categories of programs (e.g. EE, ESAP, solar thermal), as well as externally with

municipal and investor-owned utilities to ensure integration of natural gas/electric/water efficiency, solar, demand response and advanced metering offerings, particularly for the multifamily sector, where SoCalGas assigned dedicated multifamily account executives to work exclusively with large multifamily portfolio owners in its territories.

Statewide Financing Programs

Energy efficiency finance offerings are designed to facilitate the adoption of energy efficiency by addressing one of the major barriers to participation: up-front costs. Additionally, finance enables customers to take a holistic approach to projects and acts as a catalyst to implement improvements regardless of capital budgets or schedule constraints. The offerings are designed to help customers produce deeper energy savings. The Statewide Financing options are growing beyond the traditional On-Bill and ARRA-originated Financing programs with the introduction of new financing pilots authorized by the Commission.

SCG3735 Finance - On-Bill Financing

Statewide On-Bill Financing (OBF) offers interest-free, unsecured, on-the-utility-bill loans that work in conjunction with utility energy efficiency programs. OBF is designed primarily to facilitate the purchase and installation of qualified energy efficiency measures by non-residential customers who may lack up-front capital to invest in real and sustainable long-term energy cost reductions. Loan terms range from up to five years for commercial customers and up to ten years for government agency customers. The eligible loan amount is based on the project cost, less incentives or rebates, up to the loan maximum of the OBF product and within the loan term thresholds. Customer loans are repaid through a fixed monthly installment on their utility bills. There is no prepayment penalty and loans are not transferable. Partial or non-payment of loans could result in shut-off of utility service.

During 2017, the OBF program continued working with SoCalGas customer representatives and equipment vendors to encourage customers to participate. The OBF program was closely coordinated with the Local Government Partnerships and Institutional Partnerships on a number of local and state government projects. The partnerships only accounted for a small amount of the OBF volume, however, they accounted for almost half of the disbursed dollar amounts. An updated look and feel was applied to the OBF marketing collateral. The collateral incorporated a new loan limit table and a sample loan calculation. The collateral is being distributed at local community events and through our Local and Institutional partnerships.

The key implementation barrier for natural gas-only OBF continues to be the long payback periods for natural gas equipment. Project payback periods for most gas projects tend to be much longer than the five -year maximum required for business projects to qualify.

There was one program design change to the OBF program in 2017. The maximum loan term for Institutional and State of California increased from 10 to 15 years. This change is expected to allow more projects to qualify for financing as the loan term is tied to the project simple payback period.

SCG3736 Finance - ARRA Originated Financing

The American Recovery and Reinvestment Act (ARRA) Originated Programs utilize ratepayer support to continue successful ARRA-funded programs. These programs were designed to encourage the implementation of comprehensive energy efficiency retrofits by providing access to affordable financing options. SoCalGas has previously provided support for the following two ARRA continuation finance programs:

The emPower Central Coast (emPower) program is an ARRA-Originated Financing Program administered by the County of Santa Barbara and jointly co-funded by PG&E, SCE, and SCG. The program is run in partnership with the Counties of Ventura and San Luis Obispo. The program was designed to encourage the implementation of comprehensive energy efficiency retrofit projects, specifically those that qualify for the statewide Home Energy Upgrade (HUP) program. emPower receives ratepayer funding to provide wrap around services to the HUP program which include; unsecured financing for single-family homeowners, free technical advice via the Energy Coach service, homeowner education and outreach and contractor workforce, education and outreach. The program also provides credit enhancement funds through a loan loss reserve (LLR).⁴ The program leverages both ARRA and IOU ratepayer funding to create a partnership between Santa Barbara, Ventura and San Luis Obispo Counties, HUP, and two (2) local credit unions.

In 2017, emPower engaged with a total of 3,694 interested individuals, of those interested individuals, 3,472 were attendees at 64 marketing and outreach events either hosted or participated in by emPower staff. emPower also partnered with the Community Home Energy Retrofit Program (CHERP) to launch the 50 Home Challenge – Solvang in October, 2017, a grass roots effort to engage an entire community on the benefits and opportunities around energy efficiency, and ultimately inspire 50 homeowners to make energy upgrades to their home. In 2017, emPower was able to use leveraged funding from the California Energy Commission to buy down the interest rate to 3.9% for its emPower loan product.

SCG3737 Finance - New Financing Offerings

The IOUs were authorized by Commission to develop a set of statewide financing pilot programs that offer scalable and third-party capital leveraged financing products that increase the availability of financing for underserved sectors and result in deeper energy savings. Key features of the pilots will be in the form of credit enhancements and on-bill repayment (OBR) to attract private capital support for financing energy improvement projects. New and innovative financing pilots will be developed for the single family residential, multifamily, small business, and non-residential sectors. Ratepayer-supported credit enhancements will be made available to participating lenders offering financial products to qualified single family residential, multifamily, and small business customers. The credit enhancements provide additional security

⁴ An LLR provides reimbursement to a financial institution only in the event of a default on a qualifying loan, up to a given percentage on a portfolio of loans. IOUs provide LLR funds and set eligible energy efficiency measures. Financial intuitions provide capital for EE loans.

to participating lenders to mitigate loan default which is expected to result in more attractive borrowing terms for the customer.

The California Hub for Energy Efficiency (CHEEF) will be administered by the California Alternative Energy and Advance Transportation Financing Authority (CAEATFA). CAEATFA will be responsible for designing and developing program regulations for the Financing Pilots through an existing public rulemaking process. The Residential Energy Efficiency Loan (REEL) program launched July 2016 for single family residential customers. The remaining pilots including the OBR programs are scheduled to launch late 2018.

SoCalGas, as the lead program administrator, along with the other IOUs continued to support CAEATFA in the implementation of REEL and the development of the other financing pilots. During 2017, SoCalGas and the IOUs focused more efforts on local marketing of the REEL program by identifying cost-effective marketing, education and outreach (ME&O) options for both contractors and consumers. As a result of this effort, CAEATFA enrolled over 100 new REEL loans with more than \$1.8m in funding by four participating lenders. At the end of 2017, REEL had 174 participating contractors and approximately 50 contractors completing projects.

SCG3803 Finance - California Hub for EE Financing

The California Hub for Energy Efficiency Financing (CHEEF) was established to design and implement new statewide financing pilots targeting the single family residential, multifamily, small business, and non-residential sectors. The CHEEF infrastructure coordinates the flow of third-party private capital to fund energy improvements, manage the availability of project, loan, and energy consumption data, and ensure a streamlined process for program participants. Key components of the CHEEF infrastructure includes a Master Servicer responsible for the day-to-day administrative operations of the program, a trustee bank responsible for holding and transferring ratepayer funds used for credit enhancements, a contractor manager that provides quality assurance and control (QA/QC) for finance-only projects, and data manager that will make anonymized and aggregated program data available to the public.

In Decision (D.) 13-09-044, the Commission requested the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) to take on the role as CHEEF manager. CAEATFA is responsible for administering the CHEEF which includes developing program regulations for the Financing Pilots through a public rulemaking process, operationalizing program processes and forms, and managing outreach efforts to both contractors and financial institutions. A contract was executed by the investor owned utilities (IOUs) and CAEATFA in September 2014 with the most recent amendment executed in 2017. SoCalGas is the lead utility for the Financing Pilots Program and lead contract administrator for the CHEEF agreement.

In March 2017, the Commission issued D.17-03-026 which amongst other things: 1) restated the Commission's approval of long-term funding for CAEATFA to administer the pilots 2) authorized CAEATFA more control over program design and credit enhancement structure 3) established a deadline for pilot launch by December 2019 and 4) authorized budgets for the IOUs through the end of 2020 for operational activities including marketing. The March Decision also

authorized SoCalGas to continue as the lead utility partner with CAEATFA. CAEATFA now has the flexibility to create pilots that are more attractive for participants through innovative borrower-centric program design.

During 2017, IOUs assisted CAEATFA in coordinating discussion with IOU program staff to investigate project eligibility pathways and utility program integration for commercial and multifamily programs. SoCalGas led a competitive solicitation effort for a new statewide marketing, education, and outreach (ME&O) vendor for the Financing Pilots as directed by the Commission. SoCalGas awarded a new contract to the Financing Pilots ME&O vendor in October 2017 and took over administrative responsibility for the contract. SoCalGas was actively involved in local marketing the REEL program to contractors and customers emphasizing integration with existing programs, engaged in the development of the commercial pilots, and assisted with securing additional flexibility for CAEATFA through comments to the D.17-03-026. Additionally, SoCalGas managed the CHEEF agreement including administration of quarterly invoicing and reporting activities to the Commission and IOUs.

Institutional Partnerships

Institutional Partnerships are designed to create dynamic and symbiotic working relationships between IOUs, state or local governments and agencies or educational institutions. The objective is to reduce energy usage through facility and equipment improvements, share best practices, and provide education and training to key personnel. In 2016, the Institutional Partnerships addressed programmatic challenges impacting energy efficiency projects at the campuses and state facilities as well as providing a concentrated effort to support shared energy efficiency, ZNE, and environmental goals. As described in the energy efficiency Business Plan development process, Institutional Partnerships will be considered part of the Public Sector Program portfolio. Through the energy efficiency Business Planning process, SoCalGas worked with partners to engage them in identification of challenges facing higher education and state agencies, as well as included them in the development of Public Sector strategies.

SCG3738 Institutional Partnership - California Department of Corrections Partnership

The California Department of Corrections and Rehabilitation/Investor Owned Utility (CDCR/IOU) partnership is a customized statewide energy efficiency partnership program that accomplishes immediate, long-term peak energy demand savings and establishes a permanent framework for sustainable, long-term comprehensive energy management programs at CDCR institutions served by California's four large IOUs.

This program capitalizes on the vast opportunities for efficiency improvements and utilizes the resources and expertise of CDCR and IOU staff to ensure a successful and cost-effective program that meets all objectives of the CPUC. The program also leverages the existing contractual relationship between CDCR and Energy Service Companies (ESCOs) to develop and implement energy projects in CDCR facilities.

In 2017 CDCR reinitiated the 2016 retrofit projects that had been put hold and performed Investment Grade Audits. The IOUs and the Program Administration Manger (PAM) supported development of the new projects, ensuring that they reached maximum efficiency and incentive potential. To support more project development, the IOUs performed energy audits of a subset of CDCR's facilities, which CDCR is using to prioritize the next wave of projects.

The program undertook an effort to ensure new construction projects and gas-saving, water conservation projects were clearly tracked and proactively managed. The IOUs provided ongoing training to the ESCOs around changes to IOU financing options (enhanced incentives, rebates and OBF) and processes. Regular management team meetings (every 4 weeks) and executive team meetings (quarterly) have been key to identifying and managing projects, and to proactively addressing any challenges the program may have faced.

CDCR uses over half of the energy consumed by state agencies under the Governor's executive authority; however, CDCR's budget for implementing energy efficiency projects is minimal. However, through the CDCR-IOU energy efficiency partnership program, efficiency projects can be identified and implemented through the IOU core and On Bill Financing Programs. On Bill Financing has been and remains the primary source of funding and in select instances, and is supplemented by either Special Repairs Project funding or Department of General Service's GS Smart program.

The CDCR Partnership faces an ongoing challenge of finding funding for projects. On Bill Financing has been and remains the primary source of funding and is supplemented by Special Repairs Project funding, which amounts to 3% of CDCR's assessed needs. CDCR has also leveraged CEC Revolving Fund Loans in the past. CDCR has been working directly with the Energy Division to discuss difficulties encountered advancing projects through the Partnership. A number of projects have been placed on hold until resolution is reached on how CDCR's projects may be technically reviewed, given that the commercial customer segment may not match CDCR's 24/7 operating conditions; CDCR will continue to work with Commission staff so that projects may continue to be advanced and implemented.

In 2017 alone, CDCR achieved 125% of the total program goal for SoCalGas. The level of achievement was due to OBF success in combination with SCE on a multi-year project.

SCG3739 Institutional Partnership - California Community Colleges Partnership

The California Community Colleges/Investor Owned Utility (CCC/IOU) Energy Efficiency Partnership is a unique, statewide program to achieve immediate and long-term energy savings and peak demand reduction within California's higher education system. The statewide incentive funding for the 2017 program year was utilized to maintain the Partnership program processes and framework established in previous program cycles for sustainable, comprehensive energy management at campuses served by California's four Investor Owned Utilities.

The program has a hierarchical management structure to ensure successful implementation. The Management Team met quarterly to conduct business at the management level, and the Executive Team also met quarterly to discuss overall program status and policy issues. The Partnership also focuses heavily on outreach efforts in several areas, including: (1) development of a comprehensive list of technologies, project types, and offerings to be used by team members during campus visits to help generate project ideas; (2) evaluation of new project technologies for suitability in the Community College market, and: (3) planning and participation in CCC conferences and regional Campus Forums.

The Partnership participated in quarterly Campus Forums in both Northern and Southern California, serving as a venue for districts to share successes and strategies for common challenges faced for facilities management and energy efficiency. The Partnership team presented at these Forums, providing time-sensitive updates on new technologies, information on program implementation, and direct assistance to districts in attendance.

The CCC/IOU Partnership has provided extensive outreach and technical support to the districts within the California Community College (CCC) system in support of their efforts to identify, develop, and implement projects funded through Proposition 39, the California Clean Energy Jobs Act of 2012. The Proposition 39 Program continues to be very successful with over 880 energy projects funded (approximately 460 of which were installed and closed out by the end of 2017).

In early 2017, the partnership restructured the Management Team to streamline meetings by removing IOU Account Representatives from attendance. In addition, meeting frequency was changed from monthly to quarterly. By the end of the year it was apparent that without Account Representatives participation in meetings a significant void in information from the field existed. In December, it was decided that Account Representations should again be members of the Management Team to provide this perspective.

The Management Team participated in five CCC conferences such as the CA Higher Education Sustainability Conference and Community College Facilities Coalition conference to reach a diverse audience of facilities, business officers, administration, and board members. In addition, the team participated in Northern and Southern California quarterly Campus Forums to provide regional informational workshops targeted towards campus facilities and energy managers. Finally, outreach members conducted campus meetings with Facilities and O&M staff to review project opportunities and manage project development efforts both on site at the colleges and while participating in the ACBO Facilities Task Force quarterly meetings.

Despite the above successes, 2017 was a year with changes in management structure by the Chancellors request. This request came about funding issues that reduced the amount of meetings as well as personnel that attended the meetings. Changes in leadership at the Chancellor's Office and increased regulation from the CPUC required changes to longstanding processes and allow SCG to meet its partnership goals.

SCG3740 Institutional Partnership - UC/CSU/IOU Partnership

The University of California/ California State University/ Investor Owned Utility (UC/CSU/IOU) Energy Efficiency Partnership is a statewide program which includes California's four IOU's, PG&E, SCE, Southern California Gas Company (SCG), and SDG&E, as well as the continuation of LA Department of Water and Power (LADWP), in partnership with the UC and CSU. The program generates energy savings through the identification and implementation of energy efficiency projects and through training and education to support those projects. The Partnership consists of three main project types: retrofit, monitoring based commissioning (MBCx), and new construction.

The program has a hierarchical management structure to ensure successful implementation. The Management Team meets every three weeks to conduct business at the operational level and the Executive Team meets quarterly to discuss overall program status and policy issues. The Partnership also has a Training and Education Team that organizes various energy efficiency trainings targeted to university campuses. In addition to representatives from each Utility, the UC Office of the President and CSU University Chancellor's Office each have members on all three program management teams. Inclusion of all Partnership stakeholders at the various management levels provides the UC and CSU campuses with support in their efforts to implement energy efficiency projects. A Program Administrative Manager (PAM) organizes and facilitates team activities, works with individual stakeholders, actively tracks project savings and schedule data in a web-based tracking tool and creates regular reports to show overall status of the program and forecasts relative to goals.

In 2017, with the assistance and input from of the University of California, the IOUs began implementation of various approved High Opportunity Project or Programs (HOPPs) including a whole building program consistent with SB350, AB802 and AB1150 to demonstrate measured savings against existing conditions, pay for performance, and comprehensive whole-building approach to building efficiency. Additionally, the Partnership Data Dashboard was expanded from its first iteration in 2016, which allowed partners to easily access and export current and historical Partnership project data. New charts were added to the site to provide greater visibility to the outlook of the Partnership for UC, CSU and the IOUs. With respect to projects, a significant volume of energy efficiency projects was delivered in 2017 and pipelined for future years. In all, nearly 80 Retrofit, MBCx and New Construction projects were completed at over 20 different UC and CSU campuses (inclusive of UC Med Centers).

Lastly, the Training and Education scholarship program was continued, granting over \$50,000 in funding to UC and CSU campus to attend the energy efficiency related training(s) of their choice, as approved by the Partnership. The Training and Education Team held two workshops in northern and southern California, focusing on whole-building energy performance targets throughout building design, construction and operations.

Some campuses stopped pursuing certain projects due to incentive cuts resulting from non-utility supply hourly analysis. In addition, current Commission policy requiring energy savings above code (Title 24) and industry standard practice baselines is not always aligned with determining project financial impact to support project financing or translating savings to carbon reductions

to meet university carbon goals. MBCx offerings at the various IOUs were discontinued in 2016, limiting project opportunities for UC and CSU, leaving a significant gap from what was a practical and popular delivery method for campuses. Additionally, many custom measures were moved to deemed, decreasing the claimable energy savings and incentives received by universities.

The integration of LADWP into the Partnership and the resulting collaboration between Investor Owned and Public Owned Utilities provides a working model for the Public Sector in California to deliver truly comprehensive energy efficiency programs.

SCG3741 Institutional Partnership - State of California/IOU Partnership

The State of California/IOU Partnership is a Statewide program designed to achieve immediate and long-term peak energy demand savings and establish a permanent framework for sustainable, comprehensive energy management programs at state facilities served by California's IOUs.

The IOU's work collaboratively with the Department of General Services (DGS), coordinate with the established pool of Energy Service Companies (ESCOs) to help implementation of comprehensive facility energy efficiency projects, and work with individual state agencies on technology-specific projects. DGS leverages Department of Finance Energy Smart program, along with the IOU's On Bill Financing, incentives and rebates to provide financing for project opportunities.

The State of California Partnership is a continual and collaborative effort to support DGS to manage projects for Departments without contracting authority. The State/IOU Partnership PAM continues to coordinate between the IOUs and the DGS through regular meetings to ensure that project documentation is shared as needed, projects are tracked, project momentum is maintained, new project approaches are identified, and customer concerns/support items are addressed in a coherent and sympathetic fashion.

In 2017, DGS began the lengthy process of Investment Grade Audits (IGAs) on behalf of various Departments, and worked with the Departments to scope and approve projects. The IOUs supported this effort by training the ESCO pool on IOU program requirements and processes, ensuring IGAs and project scopes included energy efficiency elements that qualify for funding assistance (through either or both enhanced OBF and enhanced incentives/rebates), and that the calculations quantifying the savings were accurate and defensible. The IOUs worked with the State to prioritize agencies that may benefit from ESCO work, both for large and pooled small buildings. While these projects are slow to unfold given various state procurement processes, they are expected to yield large energy savings upon completion.

The IOUs attended the Sustainable Building Working Group meetings, a State of California working group that consist of agency sustainability managers, with the task of planning and implementing all aspects of B-18-12, the Governor's Executive Order. The IOUs attend in a

supporting role to ensure that agency needs regarding energy data for benchmarking are met. The IOUs also use this platform for agency outreach.

Local Government Partnership

SoCalGas' Local Government Partnership (LGP) is unique, complex and multi-dimensional partnership with local government customers. First, local governments are a distinct customer segment that operates with their own unique challenges and needs related to energy efficiency. Second, local governments also serve as a delivery channel for specific products and services when they serve as LGPs. Finally, local governments have a unique role as leaders of their communities. Increasingly, local governments are interpreting their responsibility for community well-being to include reducing GHG emissions, increasing renewable energy usage, protecting air quality, creating green jobs, and making the community more livable and sustainable.

The Local Government Partnership is designed to serve and support local governments by increasing energy efficiency in municipal facilities, provide programs and services to local communities that can help them reduce both operating costs, and greenhouse gas emission levels through energy-efficiency. In 2017, SoCalGas supported Partnerships in achieving their energy efficiency and climate goals. Through the energy efficiency Business Planning process, SoCalGas worked with partners to engage them in the identification of challenges faced by local governments, as well as included them in the development of Public Sector strategies. Moving forward, the Local Government Partnerships will be considered part of the Public Sector Program portfolio.

SCG3742 LGP-LA County Partnership

The County of Los Angeles Partnership supports the energy reduction and environmental initiatives described in the Los Angeles County Energy and Environmental Plan, adopted in 2008, and the objectives of the California Long Term Energy Efficiency Strategic Plan (CLTEESP). Energy Efficiency projects are focused on County owned, Municipal buildings, and consisted of lighting, HVAC, Retro-Commissioning, Steam Boilers, and Savings-By-Design new construction projects at each of the 38 County departments served by Energy Management (County Internal Services Department). Additional efforts with the County Office of Sustainability include program support and coordination for Energy Upgrade California, and Strategic Plan Solicitation activities that expand the County's Enterprise Energy Management Information System (EEMIS), allowing LA County to receive participating City data for analysis to help the city to better manage their energy usage and support the identification of EE opportunities.

The Partnership participated in various successes such as, collaborated with LA County Internal Services Department (ISD) to capitalize on EE opportunities by working with representatives from the 38 County Departments served by ISD for energy management services. Partnerships worked together with ISD, Public Works and the Metropolitan Department of Transportation on strategies to develop energy savings opportunities and strategic implementation forecasts.

Additionally, the Partnership worked with LA County to determine the feasibility for completing Retro-Commissioning projects at eleven facilities and EE retrofits throughout county facilities, successfully contributing therms to the core rebate and incentive programs.

Other program successes included, the continuation of providing required data to LA County Enterprise Energy Management Information System (EEMIS) to support local governments enrolled in County offering. Lastly, the Partnership collaborated with the County Office of Sustainability to provide information to LA County departments on programs offered to improve awareness of EE incentives and rebates.

SCG3743 LGP-Kern Energy Watch Partnership

Kern Energy Watch (KEW) Partnership brings together three utilities, PG&E, SCE, and SoCalGas with twelve local governments to improve energy efficiency throughout Kern County. The County of Kern serves as the implementer and coordinates the energy efficiency efforts of the County of Kern, and the cities of Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco.

In 2017 the Partnership continued its focus on providing useful data to partners from which they could begin to make business decisions. The Partnership continued to work with the San Joaquin Valley Clean Energy Organization (SJVCEO) to provide benchmarking services to those partners that were not able to receive the services in 2016, starting with the Cities of Arvin, Shafter and Taft. SJVCEO completed work with the City of Arvin, but due to project re-prioritization, was unable to complete work in the cities of Taft & Shafter.

At their annual Taste of Downtown Event, the implementer, in partnership with the Bakersfield Downtown Business Association, SoCalGas and Staples Energy, provided information about Staples Energy's Small and Medium Business (SMB) Direct Install services in the downtown Bakersfield area. This proved to be a great opportunity, as Staples Energy is moving forward with a focus on the restaurant segment. With over 60 SMB restaurants in the downtown Bakersfield area, Staples Energy initiated discussions about assessments and potential projects with restaurant owners.

KEW partnered with the County of Kern's 4th District Supervisor to provided energy efficiency information to residents in the City of Wasco and the unincorporated area of Buttonwillow. EE information was handed out to over 75 residents across both areas.

The Partnership held three, All Kern Partnership meetings. These meetings, while not heavily attended, provided an opportunity for partners to receive updated information on IOU programs, statewide legislation, and an opportunity to network with other municipality representatives.

Participation and staff turnover have been the major barriers in the Partnership. Also, due to budget constraints, energy efficiency has taken a back seat to higher priorities in some of the municipalities. Having continued dialogue and providing them with free or low-cost services such as benchmarking and direct install have been ways of keeping them engaged throughout the year.

SCG3744 LGP-Riverside County Partnership

In 2010, the County of Riverside (County) formed a “Partnership” with SCE and SoCalGas which is intended to assist the County in achieving its green policy initiatives and formulate an integrated approach to energy efficiency. This collaborative effort aims to build an infrastructure that would efficiently deliver cost effective EE projects to reduce the “carbon footprint” created by County facilities.

The Partnership improves EE in the County’s municipal facilities, leverages utility resources, customized to the Counties unique needs, to advance EE in the partners facilities. The Partnership also supports the County in meeting CO2 reduction requirement efforts of AB32, as well as contributing toward meeting CPUC energy savings goals and objectives.

To promote growth, the Partnership held bi-monthly Partnership meetings to discuss program status, project tracking and overall program implementation and coordination issues. In addition, the partnership began developing a website to showcase partnership services and offerings to a wider audience. The partnership also conducted an audit of Southwest Detention Center, the audit results are currently pending.

The Partnership faced challenges to supporting the County with many energy efficiency retrofits because the County is determining their strategic direction and whether to implement projects through an energy service company (ESCO). Due to the loss of third party programs the county successfully used in the past, it has been difficult for them to launch new EE projects.

Although the program objectives were not met, the partnership engaged the county in various activities and conducted audits to help identify future projects as well as the installation of three boilers.

SCG3745 LGP-San Bernardino County Partnership

SoCalGas joined the San Bernardino County Partnership Program in 2010 which is a continuation of the 2009 partnership between SCE and the County of San Bernardino.

The Partnership assists the County in achieving its green policy initiatives to formulate an integrated approach to Energy Efficiency. This will be a collaborative effort with the aim to build an infrastructure that would efficiently deliver cost effective EE projects thus reducing the “carbon footprint” created by County facilities. County facilities are targeted for retrofits, retro-commissioning (RCx) and new construction elements.

The partnership held monthly Management Team meetings to discuss program status, project tracking and overall program implementation and coordination issues. In addition, meetings were held regularly with project managers from various County departments to identify opportunities and provide information available on SCG resources and other core program offerings. The top county facilities with the greatest opportunity for reduction in energy consumption were identified and have been targeted for the retrofit, retro-commissioning (RCx) and new construction elements. Leveraging County management staff from various departments

including Special Districts, Sheriff, Internal Services, Library, Fire, and Project Managers in Real Estate Services – Project Management Division, has proven to be an effective means in identifying opportunities that would have not otherwise been supported by SCE or SCG programs.

Quarterly meetings were held to discuss potential EE opportunities and core objectives. The partnership worked to educate the County of San Bernardino project managers and staff on the importance and value of EE. This motivated the county’s staff to look for opportunities to reduce their operating costs by implementing EE projects and conservation practices.

Although energy audits led to therm saving projects delivered through SoCalGas core programs in 2017, the overall therm savings goal for the Partnership was not reached. However, there are a significant therm savings that have been identified in audits and are in the queue for implementation in 2018. An example of one of these therm-savings projects is a controls project at the County’s Twin Peaks facility that was identified in a joint audit.

SCG3746 LGP-Santa Barbara County Partnership

There are two distinct partnerships for Santa Barbara County- South County and North County.

South County Energy Efficiency Partnership

The South County Energy Efficiency Partnership includes SCE, SoCalGas, and municipal governments within the County of Santa Barbara -- including Santa Barbara County and the cities of Santa Barbara, Goleta, and Carpinteria. The program generates energy savings through identification of municipal energy efficiency projects, education and training, and marketing and outreach. Cities complete retrofits of their own facilities and conduct community sweeps as well as outreach to residential and business communities to increase participation in core programs. The partnership acts as a portal for all energy offerings including Low income, CARE, Demand Response, Self-Generation and California Solar Initiative and demand response programs are included. The Partnership provides energy information to all market segments, identifies projects for municipal retrofits, and funnels customers to existing energy efficiency programs. A local non-profit, the Community Environmental Council, provides administrative and programmatic support to the Partners.

Throughout 2017, SCEEP continued to drive city leaders, residents and businesses toward energy efficiency actions through the following activities. SCEEP partners participated in several community exhibits and outreach events in 2017. Events included participation in the Santa Barbara Earth Day Festival, with approximately 32,000 attendees, sponsorship and attendance at The Central Coast Sustainability Summit at UCSB in October, Planning and attendance of the Local Government Commission Statewide Energy Efficiency Collaborative (SEEC) conference in June, hosting a SCEEP Awards Luncheon held in May, and participation in the Goleta Lemon Festival in September.

Additionally, SCEEP continued to partner with the countywide Green Business program, a voluntary certification program supported by SCEEP. More than 90 businesses have been certified through the program.

In 2017, SCEEP continued to coordinate with the County's emPowerSBC program, which provides flexible term unsecured loans up to 15 years for home energy efficiency upgrades. Since launching in late 2011, the program has provided over 1,000 Energy Coach Site visits, which led to over 200 Contractor Reported Completed Projects.

Through SCEEP's inventive programs, rebates, and payment structures, such as on bill financing (OBF), municipal partners pursued the following projects:

- City of Carpinteria: The City updated pool lighting and flood lights through a savings by design project. Additionally, the partner updated the furnaces at the pool facilities and installed a pool cover.
- City of Goleta: Goleta achieved Platinum level in Q4.
- City of Santa Barbara: The City of Santa Barbara advanced in partnership tier level, from silver to gold. The partner completed a LED bi-level lighting project, piloted at the Granada garage, and to be expanded to other City of Santa Barbara parking lots. At Elings Park: The La Mesa pump station was decommissioned, and an additional pump was bypassed. Water controls at the park were also completed. The Police Department, Savings by Design project was completed.

Despite the efforts, the program is falling short of expectations because of serious difficulties to identify and complete energy efficiency projects.

The SCEEP partnership provided trainings available to City and County employees, builders and architects on CalGreen Standards through a one-day workshop, and Energy Audit Skills and Practices through two several day workshops. As part of ongoing Toolbox trainings, the SCEEP partnership hosted eleven Energy Manager Meetings; Energy Efficiency Outreach at Community Events and participated in four community events, including the Santa Barbara Earthday Event, The Central Coast Sustainability Summit, the Green Business Program Luncheon, and the Annual Awards and Energy Performance Luncheon.

North Santa Barbara Energy Watch Partnership

The Santa Barbara County Energy Watch Partnership is a joint effort between PG&E, SoCalGas and the Santa Maria Valley Chamber of Commerce. The Partnership's participating municipalities are Buellton, Solvang, Guadalupe, Santa Maria and the County of Santa Barbara. The program generates energy savings through identification of municipal EE projects and Direct Install projects for businesses. The program also provides education, training, marketing and outreach for all Utility Core Programs within Energy Efficiency and Customer Assistance.

The Partnership held 3 Auditing Training Workshops that were attended by municipalities and agencies. A two-day workshop was co-sponsored by the CEC, and two one-day workshops were co-sponsored by the San Luis Obispo Partnership. The partnership organized and held the 2017 Energy Efficiency and Sustainability Summit at the Santa Maria Fair park. The event featured key presenters from across the State to discuss energy efficiency, water and sustainability. It was attended by municipalities, agencies and members of the general public. The partnership coordinated 3 successful outreach events in hard-to-reach communities. The events were held in Guadalupe, Orcutt and Los Olivos. The Partnership's non-profit grant program assisted agencies

within the region to become more energy efficient. The partnership hosted a Top Staff Luncheon which was attended by representatives from all municipalities: Santa Maria, Guadalupe, Buellton, Solvang and the County of Santa Barbara as well as CEC, EmPower and other agencies. The partnership continued its collaboration with the Santa Barbara County Green Business Program, EmPower Central Coast, and other agencies and organizations to extend the outreach message of energy efficiency and sustainability. The partnership had a sponsorship presence and made presentations at events, including the Santa Maria Chamber of Commerce Annual Trade Show, and the Solvang Grow Your Community Expo.

Benchmarking and planning with cities and municipalities has proven difficult to accomplish, mostly because of municipal budgets, staff and priorities. The partnership is reengaging municipalities for 2018 and offering assistance through Civic Spark and other programs.

SCG3747 LGP-South Bay Cities Partnership

The South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership Program provides integrated technical and financial assistance to help the South Bay Cities effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable. The Program provides a performance-based opportunity from SCE and access to all SoCalGas core programs and incentives for Member Cities to increase energy efficiency in local government facilities and their communities through energy saving actions.

In 2017, the Partnership exceeded the therm savings requirements for the program. Additionally, the Marketing and Outreach activities exceeded its scheduled goal this year with 68 exhibit events, eight presentations, three business expos, one city staff training, two volunteer trainings, five workshops and four overviews of SBCCOG programs. Through the various marketing and outreach opportunities, roughly 150 SoCalGas EE Kit cards were collected.

SCG3748 LGP-San Luis Obispo County Partnership

San Luis Obispo County Energy Watch (SLOEW) is a partnership amongst the County of San Luis Obispo (County), PG&E, SoCal Gas, and participating Cities and Special Districts. SLOEW is a comprehensive program that provides information and energy management services to targeted customers regarding energy use and cost associated with facilities and infrastructure. This information is used to identify, finance, and implement energy and cost saving energy efficiency measures, as well as track building performance. The mission of the SLOEW Partnership is to contribute to a vibrant and resilient San Luis Obispo County through reduced energy cost, use, and demand, and decreased greenhouse gas emissions. The SLOEW Partnership's vision is to be the primary and trusted resource addressing energy and climate challenges in San Luis Obispo County. In 2017, SLOEW was engaged in two strategic plan activities: benchmarking and climate action planning.

SLOEW implements five elements, three of which focus on energy management targeting specific local government agencies. SLOEW staff work with agency staff to inventory and

benchmark the energy use and cost of building facilities and utility infrastructure on a bi-annual basis. In addition, SLOW implements a climate services program described below and a Direct Install program (with PG&E).

In 2017, SLOEW worked with many of the cities in the region to identify needs for targeted audits and energy efficiency projects including Morro Bay, Arroyo Grande, San Luis Obispo, and Paso Robles. In October, SLOEW co-hosted the Central California Energy Workshop with the San Joaquin Valley Clean Energy Organization, at the Veterans Hall in San Luis Obispo. In addition, SLOEW partnered with CivicSpark, an AmeriCorp fellowship program that increases the capacity of local government agencies to address climate change in California, to inventory and benchmark the energy use and cost of all special district building facilities and utility infrastructure. These reports were presented to various stakeholders at ten special districts in May 2017. SLOEW helped the County of San Luis Obispo complete a nearly five million dollar energy efficiency project. In 2017, SLOEW also worked with the County of San Luis Obispo to begin identifying additional energy efficiency projects to be implemented at several of its building facilities in the future. SLOEW staff supports and coordinates the County's implementation of measures identified in the County's EnergyWise Plan (EWP). Staff provides tracking and reporting of the County's progress towards its goals of reducing energy use from County facilities by 20% and overall GHG emissions by 15% from baseline levels (2006) by 2020 through monitoring of the implementation measures. In 2017, key program successes included the creation of protocol compliant community GHG emissions inventory for 2015. Working with Civic Spark fellows to identify and record community GHG emissions reduction actions completed to date.

Working in a territory with two different utilities continues to be challenging; however, SoCalGas and PG&E continue to work on getting consistency in program offerings as well as interpretation of CPUC policies.

SCG3749 LGP–San Joaquin Valley Partnership

The Valley Innovative Energy Watch (VIEW) is a Local Government Partnership (LGP) between PG&E, SCE, Southern California Gas Company (SCG) and local governments in Kings and Tulare counties (Kings County, cities of Avenal, Corcoran, Hanford, and Lemoore; Tulare County, cities of Dinuba, Farmersville, Lindsay, Porterville, Tulare, Visalia, and Woodlake). The partnership is implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO).

The VIEW Partnership identifies opportunities for improved energy efficiency in municipal infrastructure; offers customized incentives for municipal projects; conducts EE trainings; hosts and participates in outreach events to drive participation in core utility programs; and supports the California Long Term Energy Efficiency Strategic Plan. The Partnership supports peer best practice sharing through the Peer to Peer Working Group (P2P), the Rural Hard to Reach Local Government Partnerships' Working Group (RHTR), the San Joaquin Valley Energy Watch Collaborative (SJVEWC), and the California Energy Efficiency Coordinating Council (CAEECC) as a general member, and on the Public Sector and Cross Cutting subcommittees.

In 2017, the VIEW Partnership held three quarterly meetings in addition to eight Lunch & Learns with VIEW Partner cities. The City of Hanford completed their Energy Action Plan and the City Council accepted the document in December 2017. The City of Woodlake completed their Energy Action Plan with presentations schedule for council review and acceptance in quarter one of 2018. Lastly, the Partnership participated in twelve P2P monthly member calls/in person meetings.

SCG3750 LGP-Orange County Partnership

The Orange County Cities Energy Efficiency Partnership Program includes the cities of Huntington Beach, Westminster, Fountain Valley, Costa Mesa, Newport Beach, City of Irvine and the City of Santa Ana as well as SCE and SCG. In addition to identifying and implementing EE retrofits for municipal facilities, the Partnership also funds community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions. In addition, the partnership goals include strategic plan activities, such as climate action planning, updating the Energy Action Plans, code compliance, and reach codes.

Partnership activities focus on implementing energy efficiency in municipal facilities specifically, and in the community in whole. The Partnership establishes energy savings goals through energy efficiency retrofit of city-owned facilities, funded by Partnership technical assistance to identify and scope projects and enhanced incentives. The Partnership also funds community education, marketing and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions. Another key element of the partnership is the strategic plan activities where the city is supported in creating and accomplishing long term sustainability goals in climate action planning, code compliance, reach codes and other strategic plan initiatives.

The partnership had numerous achievements throughout 2017, such as outreach events conducted in the Cities of Santa Ana, Newport Beach, Irvine, Huntington Beach and Fountain Valley.

SCG3751 LGP-SEEC Partnership

The Statewide Energy Efficiency Collaborative (SEEC) is an alliance between three statewide non-profit organizations, Local Government Commission (LGC), ICLEI for Local Governments, the Institute for Local Governments (ILG) and California's four IOU's. It was established to facilitate action by California cities and counties to reduce greenhouse gas emissions and save energy. The collaborative employs a variety of strategies to catalyze local climate and energy action, including education and tools for energy efficiency and climate action planning, venues for peer-to-peer networking, technical assistance to implement, track and assess the progress of cities and counties. SEEC also provides the support for participation in the Beacon Program. A key component of the Partnership is the Statewide Energy Efficiency Best Practice Local Government Coordinator (BPC) whose main priority is to track and measure local government progress for meeting the goals outlined in the CA Long Term Strategic Plan. The BPC also helps

plan and execute the Annual SEEC forum, and serves as a resource for energy efficiency and sustainability to local governments.

The usage of the SEEC ClearPath tool remains very strong, with 2017 representing the highest number of login sessions of any year for ClearPath's existence. SEEC ClearPath continues to increase its sophistication with the addition of top-down calculators to the planning module, the SEEC Resource Portal, and the SEEC Learning Management System (LMS), which offers California local governments and stakeholders continuous access to content and interactive educational opportunities.

In 2017, LGC hosted four webinars, totaling 609 registrants and 293 direct participants. LGC was the lead coordinator of the 8th Annual SEEC Forum in Fresno CA, for which a total of 281 participants attended and shared overwhelmingly positive feedback in the post-forum survey. In 2017, ILG recognized 57 local agencies who participated in the Beacon Program at the combined city-county Spotlight Awards event. ILG published and posted 35 Best Practices booklets on individual Beacon Participant Profile pages as well as produced the Beacon Award Video for viewing at League of Cities Annual Conference.

ILG also recognized SoCalGas as the Utility Partner of the Year, for their continued support of the program by securing local govt partnerships participation and a year-long pilot project with their Gateway Cities Partnership

The LMS has engaged 141 participants, who have completed 472 topic-based learning plan assignments. Leveraging LMS content and functionality, the ICLEI staff provided technical support to the first SEEC GHG emissions inventory cohort, allowing 15 cities to create new emissions inventories. ICLEI Green Button Integration to Clearpath Development Plan was completed in July 2017.

In 2017, LGC redesigned the ZNE Hub to ensure that it is easy to navigate by web users and continued to add relevant resources to keep the ZNE Hub up-to-date. The introductory resources include key 101-level resources including those developed by the CA Energy Commission and New Buildings Institute. They also provide sections on better Defining ZNE; as well as Policy Drivers related to ZNE.

In coordinating with lead members of the Statewide Codes and Standards Group, the BPC hosted a webinar aimed at developing local energy codes to increase building energy efficiency beyond current standards. The webinar provided local governments an opportunity to learn more about developing their own local "reach" codes and follow-up opportunities to receive one-on-one support with a subject matter expert from the Codes and Standards Group.

SCG3752 LGP-Community Energy Partnership

The Community Energy Partnership (CEP) is a SoCalGas Local Government Partnership focused on achieving energy savings and behavior change in residential, nonresidential, and municipal sectors. The CEP's three core program elements are consistent with the SoCalGas Master Program Implementation Plan: Government Facilities, California Long Term Energy

Efficiency Strategic Plan Activities (Strategic Plan), and Core Program Coordination, and enhancing the leadership role of local governments in energy management.

In early 2017, the CEP consisted of SCG, SCE, Santa Monica, Santa Clarita, and The Energy Coalition. In response to Advice Letter (AL) 5130, the cities of Santa Clarita and Santa Monica transitioned from the Community Energy Partnership (CEP) to the WSEP in July 2017. Although CEP is a non-resource program, it does have annual therm savings targets that are achieved through municipal energy efficiency projects.

In 2017, CEP promoted SoCalGas' core programs to residents at outreach events, distributed Local Government Partnership e-blasts for Partner education and training and promoted SCG Partnership resources to the Santa Clarita staff at educational presentations. Additionally, the Partnership facilitated meetings and calls with city and utility partners and pursued audits at the Santa Monica Main Library to identify therm saving measures.

SCG3753 LGP-Desert Cities Partnership

The Desert Cities Energy Partnership Program (DCEP) is a local government partnership comprised of Blythe, Cathedral City, Desert Hot Springs, Indian Wells, Palm Springs, Rancho Mirage, Agua Caliente tribe, La Quinta, Coachella, Indio, Imperial Irrigation District (IID), SCE, and SoCalGas. The program is designed to assist local governments to effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality and ensure that their communities are more livable and sustainable.

This Partnership will focus on installing measurable and persistent EE and conservation devices for the benefit of the cities, their constituencies, the State of California, and California IOU ratepayers. Partnership activities focus on implementing energy efficiency measures in municipal facilities specifically. The partnership establishes energy savings goals through city-identified projects, funded by partnership incentives and technical assistance. The partnership supports city and community EE efforts through marketing and outreach funds.

During 2017, DCEP team members attended events throughout the year to promote the work of the Partnership, the programs offered, and increase awareness about EE. The team met monthly to discuss program goals, milestones, and marketing, training, and EE projects. This meeting was rotated to different cities to encourage participation from cities that are significantly spread out. The Partnership also held working group meetings quarterly with the cities to discuss their ongoing projects. The annual Energy Summit

SCG3754 LGP-Ventura County Partnership

This program works in conjunction with SCE and SoCalGas, the Ventura County Regional Energy Alliance (VCREA) continued as the Local Government "implementing partner" for the Ventura County Partnership Program. VCREA works to coordinate efforts among public agencies, including local jurisdictions, schools, and special districts, as well as businesses and residents of Ventura County. The Local Government Partnership Program's (LGP) focus is to

undertake energy efficiency projects, offer energy efficiency training, support residents through education and outreach, and consider opportunities for long-term strategic energy efficiency planning as part of the 2013-2017 program cycle. The Partnership Program has been the cornerstone of the VCREA program, providing a strong connection to public agencies and the VCREA mission.

VCREA's mission is to establish Ventura County, its communities and neighboring regions as the leader in developing and implementing durable, sustainable energy initiatives that support sensible growth, healthy environment and economy, enhanced quality of life and greater self-reliance for the region by reducing energy demand and increasing energy efficiency practices.

Throughout 2017, VCREA identified and coordinated three projects and hosted over 35 community outreach events and presentations. VCREA hosted 15 trainings and workshops that were inclusive of Title 24 regulations, HVAC contractor training and energy efficiency auditing techniques. VCREA also collaborated efforts with multi-family and low-income utility programs, Community Action of Ventura County, County Public Health, The Energy Coalition, Community Environmental Council, South County Energy Efficiency Partnership, and Local Government Commission.

Five cities from our Partnership were honored with Beacon Spotlight Awards by the Institute for Local Govt, which is a partner in the Statewide Energy Efficiency Collaborative and funded by the investor-owned utilities. These awards were for energy and GHG reductions as well as best practice sharing. VCREA continues efforts with Climate on the Move, a regional inventory of greenhouse gas emissions, and partnership with the Local Government Commission through the support of the CivicSpark fellowship program.

VCREA hosted a successful biannual reception to recognize the achievements of our partners and presented 7 awards in recognition of their achievements and efforts. A total of five cities advanced in the SCE Energy Tier Level Program resulting in current city standings to be: five Silver, two Gold, and four Platinum. In addition, VCREA received approximately \$205,000 additional Strategic Planning funding to support from Edison and SoCalGas for efforts such as regional benchmarking, Energy Action Plans (EAPs), and revolving energy efficiency loan fund.

In 2017, VCREA launched the long-awaited Ventura County Green Business (VCGB) certification program for small to medium sized local business. To be certified, participants must comply with all environmental regulations and meet program standards for saving water, conserving energy, preventing pollution, and minimizing waste.

In partnership with emPower Central Coast, VCREA provided outreach, support and educated residents on energy efficient best practices, energy rebates and incentives. Numerous community events, quarterly newsletters, and regional informational kiosks have all assisted with supporting the needs of residents and education all on efficiency and program availability.

SCG3755 LGP-Local Government Energy Efficiency Pilots

In Decision (D.) 12-05-015, the CPUC authorized funding to SoCalGas for Local Government Partnerships to pilot new approaches for implementing EE. South Bay Cities Council of Governments (SBCCOG) introduced a new program in 2014, the Green Buildings Challenge (GBC) program. SBCCOG's Green Buildings Challenge program was launched in September 2015. The GBC program engages local property managers and business tenants to adopt sustainability initiatives. Through friendly competition, participants pursue hard-to-reach goals by acting on selected activities to achieve measurable energy savings results. This is a non-resource program, with all therms being delivered through the SoCalGas core programs.

Since 2015, The Green Building Challenge, with support of the SBCCOG, South Bay Environmental Services Center (SBESC), SoCalGas and SCE, accomplishments have included participation from over 175 businesses, over 700 businesses contacted, with approximately 70% of participants having participated in partner programs and Challenge activities, such as Direct Install program, energy efficiency audit, energy efficiency programs, or received rebate application support.

The Pilot faced numerous barriers in 2017 including, longer than anticipated business enrollment in the GBC. Also, the competitive aspect of the challenge was a hindrance to some businesses, as some businesses expressed concerns about poor performance with competitors. Currently, the Pilot performance is being evaluated to determine whether the concept should continue in the region and or be adopted in other areas.

SCG3773 LGP-New Partnership Programs

In D.12-11-015, the CPUC authorized funding for Southern California Gas Company for the purpose of adding new Local Government Partnerships (LGP) subject to the approval of the CPUC. These new LGP's will continue to promote EUC. Deep energy retrofits were a priority in the 2013-2017 program cycle.

Expansion Opportunities include closing the gap between partnerships that currently have partnerships with SCE and adopting those partners into SoCalGas LGP programs.

SCG3774 LGP-LG Regional Resource Placeholder

In D.12-11-015, the CPUC authorized the formation of the SoCalREN to implement SoCalREN's Authorized Work which includes three sub-programs, EUC Residential program, Finance program and the Southern California Regional Energy Center (SoCalREC) programs for public agencies in SCE and SoCalGas service territories. In this Program, SoCalGas serves as a Lead Utility to provide fiscal oversight, day-to-day contract management and overall monitoring of SoCalREN programs. SoCalGas also works collaboratively with SoCalREN on program coordination to achieve seamless program offerings and avoid customer confusion.

During 2017, SoCalGas and SoCalREN build on the successful program coordination and leveraging in 2016 to continue the improvement and refinement of the coordination practices.

Additionally, SoCalGas successfully maintained a secure bill file delivery system designed to provide data to utility manager systems like EEMIS (Enterprise Energy Management and Information System). The utilities and SoCalREN continue the regular project coordination and communication through various coordinating committees across many programs. Overall, the Program met its objectives for 2017.

SCG3776 LGP-Gateway Cities Partnership

The Gateway Cities Energy Partnership Program (GCELP) is a local government partnership between the Cities of South Gate, Norwalk, Downey, Lakewood and Lynwood (the “Cities” or “Partners”) along with SCE and SoCalGas. The partnership program works to raise energy efficiency awareness, promote long-term energy reduction goals within municipal building stock and coordinates with partner cities to cross promote residential and business utility energy efficiency programs. In addition, the partnership program completes targeted retrofit and retro-commissioning projects in municipal facilities. Cities within the Gateway Cities are the targets of this Program.

Partnership activities focus on addressing energy usage in municipal facilities and in the community. The Partnership places great emphasis on having partners lead their communities by example; by first concentrating on their own municipal facilities. This partnership program will provide energy efficiency education, technical assistance, retro-commissioning (RCx) as well as design consultation and energy analysis of new construction and renovation project plans. Analysis of municipal facilities will be conducted to identify demand reduction projects with energy conservation measures (ECM) alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit project in each of the targeted cities.

The Gateway Cities Energy Partnership provided specialized energy efficiency offerings to participating local governments, residential and business communities. Leveraging of communication infrastructure assisted in informing local communities about the wide variety of energy efficiency and demand reduction offerings available to them and encourage participation. The Partnership continued development of the program infrastructure and conducted regular monthly update meetings throughout 2017.

The Partnership participated in seven significant and well-attended partner community outreach events in 2017, with over 4,000 residents attended the Norwalk’s Community Connect Event. Additionally, the Partnership participated in the BOC Level I training for building operators, with two or more years’ experience in building operation and maintenance, who wish to broaden their knowledge of the total building system. The Cities of Lakewood and Lynwood have completed and formally adopted their Energy Action Plans which incorporated goals and objectives for future years of planned retrofit projects to reduce energy usage at municipal facilities.

SCG3777 LGP-San Gabriel Valley COG Partnership

The San Gabriel Valley Energy Wise Partnership (SGVEWP) is a collaboration between the San Gabriel Valley Council of Governments (SGVCOG), SCE, and SoCal Gas (SCG). The primary objectives of the SGVEWP are as follows:

1. Identify opportunities for municipal building energy efficiency retrofits and assist cities in implementing these projects and accessing SCG financial incentives and technical resources;
2. Leverage the SGVCOG's communication infrastructure to inform member agencies about existing SCG energy efficiency, conservation and demand response programs and encourage participation; and
3. Develop specialized energy efficiency offerings to local governments as well as residential and business customers.

Overall, the Partnership's program objectives were met. The Partnership updated the SGVWP website, www.sgvenergywise.org, to include recent news and events and completed a winter-preparedness outreach campaign that included social media posts, and newsletter articles. The Partnership coordinated distribution of information to member agencies by leveraging existing communication channels, including the COG's committee structure, and attended nearly 30 Marketing events in 2017. In addition, SGVEWP conducted training sessions, including an annual kick-off update, and completed construction of a database that contains information on San Gabriel Valley cities' facilities, energy usage, year built and square footage. Lastly, the Partnership initiated a campaign for outreach of the SCG ESA program, successfully providing ESA brochures to 16 WIC Centers and conduct workshops/presentations which, among other topics, provide information regarding ESA and how to register.

SCG3779 LGP-West Side Cities Partnership

The West Side Energy Partnership (WSEP) is a Southern California Gas Company (SoCalGas) Local Government Partnership focused on achieving energy savings and behavior change in residential, nonresidential, and municipal sectors. The WSEP's three core program elements are consistent with the SCG Master Program Implementation Plan: Government Facilities, California Long Term Energy Efficiency Strategic Plan Activities (Strategic Plan), and Core Program Coordination, and enhancing the leadership role of local governments in energy management.

In early 2017, the WSEP consisted of SoCalGas, Culver City, and The Energy Coalition. In response to the 2016 California Public Utilities Commission direction to distribute local government partnerships regionally, Santa Clarita and Santa Monica transitioned from the Community Energy Partnership (CEP) to the WSEP in 2017. Additionally, the partnership saw the City of Beverly Hills and West Hollywood join later in the year, and looks forward to welcoming the City of Malibu joining in early 2018.

Although WSEP SoCalGas is a non-resource program, it does have annual therm savings targets that are achieved through municipal energy efficiency projects.

The partnership assisted Culver City identify savings opportunities, and funneled an Energy Management System Project to the SoCalGas custom incentive program. The partnership also promoted core EE programs to residents at outreach events, and distributed Local Government Partnership e-blasts for Partner education and training including promoting SOCALGAS Partnership resources and programs to Culver City staff. As part of the expansion of the Westside Cities partnership the Partnership coordinated and conducted recruitment meetings for cities onboarding the WSEP. The partnership also completed audits at the Santa Monica Main Library to identify therm saving opportunities, and developed a project scope. As part of the marketing efforts the Partnership developed a website to serve as a resource for cities and utility partners. The partners shared SoCalGas project highlights at Culver City and Santa Monica Council Meetings, and assisted Culver City apply for the Beacon Award and Cool Planet Awards for recognition of efforts towards energy efficiency. Midway through the 2017 program year the cities of Santa Clarita, Santa Monica, Beverly Hills and West Hollywood transitioned from the various partnerships to the WSEP.

SCG3783 LGP-Western Riverside Energy Partnership

The Western Riverside Energy Partnership (WREP) is a partnership that consists of SCE, SoCalGas, WRCOG and fourteen of its member jurisdictions. The goal of the Partnership is to identify and implement energy efficiency retrofits along with promoting / incorporating best sustainable practices to residents of Western Riverside County.

In 2017, the Partnership conducted an educational tour of a local business in Riverside known as Ice Energy. Ice Energy creates thermal battery storage systems that help reduce the peak demand of air conditioning systems. Partnership staff coordinated with SoCalGas' Program Manager for development of tour flyer as well as promotional outreach to members involved in the Partnership. Attendees got to learn about Ice Energy's products and learned about a new technology that can be implemented at their facilities.

Partnership staff and SoCalGas' Program Manager conducted various outreach and one-on-one meetings with member jurisdictions. The goal of these meetings was to gain a further understanding of members energy goals as well as to continue promotion of offering that both SCE and SoCalGas provide as being enrolled in the Partnership. Partnership staff coordinated with SoCalGas' Program Manager to promote the 4th Annual Holiday LED Light Exchange Program & Energy Efficiency Kit giveaway. Residents of Western Riverside County received a no cost low flow shower head and three faucet aerators. In total, over eighty energy efficiency kits were distributed at holiday themed events during the month of December.

Implementation barriers occurred within 2017 resulting in limited representation of a few member cities. In the past, the Partnership has had some staff transitions at a few partners cities and it has been a challenge to find a new point of contact. This problem can result in limited participation at meetings, networking and outreach events.

Overall, the Partnership performed well above goal and assisted in various jurisdictions with community outreach events, project identification / audits, and continued promotion of sustainable best practices for our members in Western Riverside County

SCG3801 LGP- North Orange County Cities Partnership

The North Orange County Cities Energy Partnership (NOCC), consisting of SoCalGas, SCE, cities of Brea, Buena Park, Fullerton, La Habra, La Palma, Orange, Placentia, and Yorba Linda, plus vendor implementing partner, The Energy Coalition, is a SoCalGas Local Government Partnership focused on achieving energy savings and behavioral change in residential, non-residential, and municipal sectors. The NOCC supports local governments to implement local government actions that are identified in the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan).

Although NOCC is a non-resource program, it does have annual therm savings targets that are achieved through municipal energy efficiency projects. NOCC identified and claimed therm savings from a pool cover project in Buena Park and a boiler project in Fullerton generating a combined savings over 16,000 therms. The partnership promoted SoCalGas' core programs to residents at outreach events and distributed Local Government Partnership e-blasts for Partner education and training. NOCC also promoted SoCalGas Partnership resources and programs to the La Habra city staff at an educational lunch & learn. Coordinated and conducted municipal facility energy benchmarking workshop for partner cities and other public agencies. Coordinated and conducted Partnership orientation meetings with newly appointed partner city contacts. Facilitated monthly NOCC meetings and completed two audits to identify therm saving measures and developed project scope and prepared materials for the upcoming Strategic Planning energy benchmarking project. The NOCC also developed the partnership website to serve as a resource for city and utility partners.

Though the program meet its annual therm savings targets, limited opportunities for energy efficiency audit development were reported due to relatively low natural gas loads at municipal facilities.

SCG3802 LGP- San Bernardino Regional Energy Partnership

The San Bernardino Regional Energy Partnership is a joint partnership with both SoCalGas and SCE with San Bernardino Council of Governments (SBCOG) as the implementer. The Partnership was approved and added to the Local Government Partnership Program for SoCalGas and SCE in April 2015. The goal of the San Bernardino Regional Energy Partnership is to provide an Energy Efficiency Partnership program to cities within the county that are not currently participating in other Partnerships through SoCalGas and who do not operate their own utilities. The Partnership will demonstrate deep energy retrofits, focusing on municipal retrofits at the 12 participating jurisdictions, which include the cities of Chino, Chino Hills, Fontana, Highland, Montclair, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Upland, and Town of Yucca Valley.

The primary objectives for the San Bernardino Regional Energy Partnership are to promote integrated EE through identifying and assisting in the coordination of opportunities for cost-effective implementation of natural gas and electric energy-savings technologies as well as coordinate community outreach and training efforts to educate consumers and promote programs. Additionally, to identify and offer financial packages that bundle practical utility

incentives, with various monetary incentives aimed at improving the participation of residents, businesses and local government agencies.

The Partnership conducted monthly and quarterly meetings with partnering cities to discuss program goals, milestones for marketing, training, and EE projects. The Partnership participated in coordination meetings with the Regional Energy Network to identify EE opportunities and review EE progress with the cities of Chino Hills, Fontana, Highland, San Bernardino, Rancho Cucamonga, Redlands and Rialto. The Partnership used TRC Solutions for technical assistance support for the Partnership in 2017. A rebate for the City of Highland's boiler replacement was issued in 2017. EE Starter Kits were distributed at six Holiday Light Exchange events across five cities. New Partnership marketing materials were created including event flyers, table clothes and portfolio folders.

While the program did not meet its therm savings goal, the partnership continued to engage actively with partner cities and participate in multiple community events, providing each partnership city with a kiosk to display SoCalGas core programs.

Third Party Programs

SCG3757 3P-Small Industrial Facility Upgrades

The Small Industrial Facility Upgrades Program assists SoCalGas industrial customers in becoming more energy efficient and productive through the implementation of efficient technologies and processes. The program offers proven measures currently used in SoCalGas' Energy Efficiency Calculated Incentive Program (EECIP) and Energy Efficiency Rebates for Business (EERB) program. These measures include calculated custom process improvements as well as deemed measures as well as measures and technologies with low market penetration.

The Program was exposed to a wide variety of customers providing a large potential candidate pool for the program. Customers were reached in a variety of methods, including directly at the plant level, through corporate management, account executives, and equipment suppliers. These efforts along with a customer-centric approach has resulted in the building of strong relationships with the end use customer. Additionally, these relationships are the basis for success in the Program. The Program strives to be a trusted energy adviser for customers, which in turn leads to engagement from stakeholders required to develop new opportunities and ultimately to successful project completions. The success in building strong relationships is illustrated by the fact that over fifty percent of customers in the program have continued to work with SoCalGas on multiple projects.

The evolving requirements and expectations for documentation, especially related to influence, dampened the successful development of new projects in 2017. The Program continues to expend great efforts to develop and maintain customer engagement, despite the challenges in identifying and providing acceptable, available, documentation for custom project influence and baseline determinations.

Additionally, due to various challenges at the facility level, project installation and commissioning schedules commonly slip, which caused multiple projects to push into 2018 for estimated installation. The program is unable to control facility schedule changes, and always works closely with key stakeholders to track the projects and their installation dates. The program will continue to build the pipeline of projects to manage the risk of not meeting terms goals due to schedule changes at the facility level.

The Program changes were based on any changes made to process, eligible measures, and documentation requirements per SoCalGas program and policy guidance.

The Program successfully progressed projects from the pipeline through to the fully installed phase and paid customer incentives based on the completed projects. Additionally, the program's pipeline is closely managed, both by maintaining existing reserved projects and by continuing to develop and reserve new projects, positioning the Program for success in 2018.

SGC3758 3P-Program for Resource Efficiency in Private and Public Schools

The Program for Resource Efficiency in Private and Public Schools (PREPPS) is targeted toward qualifying private institutions of learning of all levels as well as public K-12 schools in the SoCalGas service area. The goal of PREPPS is to reduce gas energy costs, greenhouse gas emissions and improve school district facility operations to enhance the learning environment.

PREPPS provides school facilities with project opportunity evaluations, energy efficiency recommendations, technical services, and cash incentives. Bonus incentives are available for customers who complete projects within a specified time-period. Incentives for deemed and calculated measures are equivalent to rates currently offered by SoCalGas' core energy efficiency programs for the same measures.

PREPPS saw many successes in 2017, for example, first quarter participation was strong compared to prior years leading to solid participation against first quarter goal. In addition, an increase in number of committed projects over the previous year and improvement in program performance based on stronger first quarter Q1. Additional effort put into enhancing vendor relationships which converted to several deemed projects and a focus on Private Religious Schools has created new relationships with expectation of project commitments in 2018. Lastly, the program developed case study marketing pieces to be published in 2018.

The program faced barriers in 2017 such as reduced number of installed projects compared with the year prior due to school project timelines. In addition, gas-only program limits accessibility to some schools that would benefit from offering a more comprehensive program that includes electric, gas, and water savings. Campuses also have significant amounts of deferred maintenance and other issues that divert attention and resources away from energy efficiency. Lastly, the complexity of custom-calculated project processes makes smaller-scoped projects not cost-effective. As a result, PREPPS has had to withdraw from small projects that do not generate the investment required to undergo a custom project.

No program changes were made in 2017. PREPPS achieved a percentage of its savings goal for 2017 while continuing to increase enrollment of new participants and maintain relationships with existing participants.

SCG3759 3P-On Demand Efficiency

The On-Demand Efficiency Program (ODE) is a direct install program that decreases natural gas consumption of central domestic hot water systems with recirculation loops in multifamily buildings while maintaining occupant satisfaction with the hot water delivery. Demand controls on hot water recirculation systems turn off the recirculation pump when it is not needed, thereby reducing heat loss from the loop, boiler fire time, and natural gas consumption. This program identifies multifamily properties with central domestic water heating systems and installs on-demand controllers that are feasible for the water heating system.

In 2017, the ODE program delivered well above its target goals and showed a trend of consistently obtaining both its therm savings and dwelling unit goals. There was no noticeable slow-down in project acquisition in 2017, a trend that is expected to continue with the number of projects installed increasing year-to-year. Due to the expansion of the program's customer base and targeting of its marketing to both larger management companies as well as individual owners of apartment complexes, the program installed measures for an expanded range of customers relative to type of ownership and building size in 2017 compared to the two years prior.

During 2017, multiple changes were implemented to improve program success. One noteworthy change was the addition of a method to identify projects with hot water issues before installation wherein the return line temperature is checked prior to installation. While contractors are still working on effective implementation, this has allowed installed to gain a better understanding of which projects have legacy plumbing issues before the controller is installed. This will then allow the customer to be notified that there are plumbing issues that will need to be taken care of and controller adjustments can be made proactively.

SCG3760 3P-HERS Rater Training Advancement

The HERS Advanced Rater Training Program is a SoCalGas third-party non-resource program. The program promotes, develops, and delivers training to currently certified Home Energy Rating System (HERS) raters, energy analysts, heating, ventilation, and air conditioning (HVAC) technicians, building department officials, other building trade professionals, residential homeowners, and technical students with a focus on participants involved in new and existing engineering and construction in the SoCalGas service territory. The curriculums address technical and administrative elements of energy ratings, energy efficiency standards including changes based on updated Title 24 requirements, and industry best practices.

In 2017, the Program continued to leverage its existing partnerships with venue partners including trade organizations, technical schools and state colleges, HVAC distributors and utilities. Production goals were met or exceeded.

In 2017, 55 classes were delivered. Over one thousand students attended classes during the year with an average attendance of 19.9 students per class, a slight increase in attendee average from the previous year.

A comprehensive update of the Program website was made to ensure that connectivity, browser compatibility, function and security were all up-to-date and conformed to industry standards. In addition, the website was updated with new course descriptions and marketing notices. The program improved cross-marketing of classes with venue partners and among other SoCalGas programs increased awareness and enrollment during the year. Phone outreach for classes continued to augment e-mail marketing efforts resulting in increased uptake in enrollments.

Program implementation barriers or problems encountered during the year were relatively low and were overcome. Attrition rates for some classes can be unpredictable based on numerous factors such as undeclared cancellations, inclement weather and other unforeseen conditions.

Summer month classes have historically been the most challenging to consistently fill due to the demand for HVAC technicians and other professionals in the field. In order to address this challenge, evening classes were scheduled in some instances to improve enrollment. The Program's strong relationship with technical school partners have become an integral strategy in keeping enrollment numbers strong during this period.

As mentioned above, there was a comprehensive update of the Program website to improve connectivity, browser compatibility, functionality, and marketing material. In addition, a new Diverse Business Enterprise (DBE) sub-contractor was also engaged toward the end of 2017, so the program plans to have increased DBE spend in the future.

Program objectives were met and/or exceeded in 2017. Production was steady, ahead of schedule, and successful.

The Program has evolved over the years allowing the development of relevant and timely curriculum while delivering production in a more efficient manner. The main focus is to provide students with quality training which conforms to codes and standards while adhering to Program budget guidelines. Innovative training methods encouraging hands-on participation have proved to be highly popular and effective among participants.

Larger classes have necessitated developing long-term relationships with venues which are able to accommodate increased numbers of students while maintaining a suitable and effective learning environment. Direct engagement with students through hands-on participation continues to be a strong component of the curriculum, enabling attendees to better understand and apply subject matter in their capacity as HVAC and building professionals. The Program continues to refine and improve its delivery as it determines ways to strategically and operationally align with the Workforce Education and Training goals of SoCalGas.

SCG3762 3P-Community Language Efficiency Outreach

The Community Language Efficiency Outreach (CLEO) Program is a highly targeted residential energy efficiency marketing, outreach, education and training program. It specifically targets Vietnamese, Indian, Chinese, Korean, Hispanic (Spanish-speaking) and African American (VICK-HA) SoCalGas customers. The program has a unique, 100% in-language strategy which serves a key role in overcoming the English as a second language market barrier. It also targets hard-to-reach, low and medium income customers.

The program markets SoCalGas programs and offers energy efficiency education and training and participates in community events, where customers are encouraged to fill out energy efficiency surveys and sign up for free EE Kits. CLEO's marketing efforts encourage and create participation in SoCalGas energy efficiency programs. In 2017, CLEO also targeted SoCalGas customers in other Southern California Power Producers Association (SCPPA) municipal cities.

The program emphasized on working with faith-based organizations and community-based organizations, especially in Hispanic communities. This effort resulted in a participation increase of 300% in the Hispanic community as compared to the previous year.

The program also continued to reach out to foodservice business customers to educate them on SoCalGas foodservice programs and Energy Resource Center workshops. The program provided in-language assistance as required for the attendees.

The program had the most significant impact on middle to low-income customers who clearly demonstrated a stronger interest in energy efficiency program offerings. This also extended to increased participation in the incentives and services offered by SoCalGas and facilitated by CLEO - as compared to higher income customers.

In 2017, the program clearly met and significantly exceeded its program goals. CLEO provided 9 in-language seminars, 80 booths, 2 schools, 305 foodservice surveys, 1130 EE surveys and 1591 EE Kits sign-up. The program also hosted two energy education school workshops.

SCG3763 3P- Multifamily Direct Therm Savings

The Multi-Family Direct Therm Savings Program (marketed as “Energy Smart”) targets owners and managers of multi-unit residential properties. The program encourages participation by providing energy efficient products and installation at no cost to the end-use customer. Marketing activities focus primarily on apartment building owners and managers.

The Energy Smart Program provided the highest level of customer service, sales outreach, and field installations in 2017. Approximately 817 sites participated in the program with 52,305 energy efficient devices installed. The Energy Smart team provided a high level of customer service, both in the office and in the field, which resulted in favorable customer satisfaction surveys. In 2017, the program received an overall satisfaction rating of 98.6 out of 100 from customers responding to a survey questionnaire generated by Medallia, 3rd party survey tool. In June 2017, the full SoCalGas service territory was released to The Energy Smart Program for installation.

The major challenge and implementation barrier in 2017 was maintaining a full installation schedule. The program faced rejection for various reasons including that sites had already been retrofitted by another contractor or sites had partnered with a contractor that could offer more items like toilets. Also in 2017, customers did not see the value in participating in the program when gas and water were cheap and California was not experiencing drought conditions. The lack of motivation in participating in conservation efforts were disappointing in 2017.

SCG3764 3P-LivingWise®

LivingWise is a residential energy education and savings program delivered through schools. SoCalGas collaborated with eight different California municipalities, utilities and water agencies (Valencia Water Company, Casitas Municipal Water District, Golden State Water, California American Water Co., City of Torrance, City of Santa Barbara, Mission Springs Water District, and Moreno Valley Utilities) to implement this program.

The take-home measure installation approach to this educational program delivers increased energy literacy, optimum installation rates, and a deeper understanding of energy efficiency

concepts, including Integrated Demand Side Management (IDSM). Teachers are encouraged to implement the program in its entirety and return Student Surveys for EM&V reporting. The program optimizes energy savings and behavior change while supporting core classroom curriculum and allowing teachers to control the timing and pace of delivery.

The Program’s educational content is aligned with State Learning Standards as well as the rigorous expectations of Science, Technology, Engineering, Mathematics disciplines (STEM) and is offered to eligible teachers as an elective (supplemental) program. Teacher enrollment is high, and overall, the program participant express being highly satisfied with the program.

The program served approximately 35,000 sixth grade students as it delivered its 2017 goal. Further, SoCalGas independent customer satisfaction evaluation awarded the LivingWise program with an “Overall Satisfaction” score of 90% (nine out of 10 participants rated the program “Very Good” or “Excellent”).

The biggest program challenge is managing the varies co-sponsorships. The program partners with municipalities and issues may arise that relate to budgets and the timing of these entities’ funding availability as well as finetuning the program marketing. To finetune the program marketing collateral, the program staff worked with SoCalGas to rebrand both the kit and related educational materials to utilize SoCalGas’ trademark and logo.

SCG3765 3P-Manufactured Mobile Home

The Manufactured Mobile Home Program (MMHP) is designed to provide energy efficient gas measures on a comprehensive basis to manufactured mobile home SoCalGas customers. These energy efficient measures include duct test and seal, kitchen and bathroom faucet aerators, low flow showerheads and tubspouts, and thermostatic shutoff showerheads.

In 2017, solid infrastructure, marketing strategies and certified crews resulted in steady production levels and strong overall program performance. The program team, together with the Program Advisor, worked to organize systems which maximized the program budget to provide cost effective energy savings for customers in the hard to reach sector. The program fully reported energy savings achievements in gross therms and Key Performance Indicator goals.

SCG3768 3P-California Sustainability Alliance

The California Sustainability Alliance is a non-resource program of the SoCalGas designed to increase and accelerate adoption of energy efficiency by packaging it with complementary “sustainability” measures (i.e., energy and water use efficiency, renewable energy, waste management, and transportation management). In this manner, energy efficiency can be achieved more effectively and cost effectively, increasing net societal benefits and maximizing benefits to California ratepayers. The scope includes multiple activities dedicated towards (1) building demand for energy efficiency and environmental sustainability; (2) advancing and promulgating the body of sustainability best practices, tools, and techniques; (3) leveraging the collective resources of all partners - public and private; local, state, and federal; and (4)

developing educational and outreach materials to widely disseminate the body of emerging and existing best practices.

The Green Buildings portion of the program ran a student design competition in coordination with Cal Poly Pomona. In addition, it wrote a report including a case study demonstrating how health and wellness in buildings can encourage deeper penetration of energy efficiency and another a whitepaper *Making the Case for Multiyear Facility Planning in Energy Efficiency Programs*. This whitepaper had accompanying memo for SoCalGas staff with key opportunities to optimize customer relationship and achieve long-term, cost-effective energy savings. Lastly, the program updated the *Green Leasing Toolkit* and wrote an addendum to the report focused on mixed use commercial building spaces.

For the Sustainable Communities portion, the program studied the *Opportunities to Promote Sustainable Building Practices in Transit-Oriented Development in LA County* and explored their application to two specific extensions to the Metro transit system.

For Green Local Government, the program studied the integration of blue-green infrastructure into the planning efforts of edge cities, and conducted a case study exhibiting the potential for water-energy savings.

The program undertook other activities in 2017, including updating the program website and adding an archive section. The program also presented at the 2017 Municipal Green Building Conference and Expo with SoCalGas and a guest expert co-presenting material on how the increasing concern over occupant wellness interacts with sustainability initiatives. The program sponsored the Carbon Neutral Design Studio at Cal Poly Pomona School of Architecture. The program was responsible for delivering one award and developed 4 new projects.

SCG3769 3P-Portfolio of the Future

The Portfolio of the Future (POF) is a non-resource program aimed at filling the gap between existing technology offerings (i.e., measures) in SoCalGas' energy efficiency portfolio and new, emerging technologies. POF seeks to enable the inclusion of emerging natural gas efficiency technologies and new business models to identify candidate natural gas applications in all sectors for possible inclusion in SoCalGas' portfolio. This entails identifying, evaluating, and demonstrating new technologies and then working to facilitate their inclusion in SoCalGas' program offerings.

In 2017, POF identified several promising measures – such as lodging occupancy controls, wireless pneumatic thermostats, and residential aereosealing – and continued work on the development of measures from past years such as ventilation load reduction and residential ozone laundry.

The primary indicator of POF program success is the number of new technologies that are brought into SoCalGas' energy efficiency portfolio, and their estimated incremental savings potential. Overall, in 2017, the program was successful in meeting its targets.

SCG3770 3P-PACE

The PACE Energy Savings Project (PACE ESP) is a multi-ethnic outreach program that actively promotes the SoCalGas energy efficiency programs to its residential and small business customers. The program focuses on customers who belong to the Chinese, Filipino, Korean, Hispanic and Vietnamese communities living in Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties. PACE ESP conducts its outreach efforts in the native languages of these communities to promote better understanding and increased participation in these programs.

PACE ESP met and exceeded all its target goals and tasks in 2017. Program success was attributed directly to the outreach specialists who conveyed the information directly to the community members and participated in community events. Furthermore, PACE ESP specialists conducted seminars and presentations that target community members via outreach activities in their native languages, presented energy efficiency concepts, distributed in language information materials to target communities, and coordinated with formal and information leaders of the community.

The program identified several implementation barriers in 2017 including timeliness and availability of energy efficiency and rebate application forms, as well as collateral materials needed for outreach activities.

The program made one noteworthy changes in 2017. The program reformatted the “Ways to Save Energy” survey was revised to incorporate bar codes to facilitate processing of results. The new survey format was launched in the third quarter of 2017.

In 2017, PACE ESP conducted six workshops/seminars and eight presentations and participated at 68 ethnic community events. As part of these efforts, PACE ESP made contact with over 800 small business customers and roughly 3,100 residential customers. This resulted in over 1,900 completed Ways to Save Energy surveys—formerly known as Home Energy & Water Efficiency Surveys. Lastly, the PACE ESP program enrolled over 1,500 residential customers to receive free EE kits by mail.

SCG3771 3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)

The Innovative Designs for Energy Efficiency Activities 365 (IDEEA365) program provides opportunities for third-party contractors to propose and implement new programs. This Energy Efficiency program design allows for a “continuous solicitation” portfolio cycle to encourage new targeted and innovative technologies, program concepts, and offerings without having to wait for a new program cycle to begin.

The program process creates a mechanism for competitive solicitations for third-party programs that may improve cost-effectiveness and helps achieve deeper retrofit savings. The “continuous” solicitation concept is promoted by offering two unique solicitation types, Targeted and Innovative. Targeted Solicitations support utility identified program gaps, market needs, and

technologies while Innovative solicitations encourage both existing and new service providers to develop and submit innovative program ideas. With the Innovative process, SoCalGas periodically offers an open Request for Abstracts (RFA) to give the providers of energy efficiency programs the opportunity to present their ideas and concepts for possible funding and implementation. In the Innovative process, upon receipt of abstracts, SoCalGas coordinates program selection and review with internal cross functional groups and an active Peer Review Group (PRG) consisting of program stakeholders to provide advisements. After reviews, scoring, and approval by internal and external stakeholders, the selected abstracts move to a second stage which requires more detailed information. For Targeted programs, the solicitation is done in a single stage with only an RFP. Scoring and selection of proposals is completed in the same way for both Innovative and Targeted solicitations. The selected programs then proceed to contracting, completion of internal and regulatory required documentation, and then funded via fund shift from the available IDEEA365 budget. All bids and communications were posted via the statewide Proposal Evaluation and Program Management Application (PEPMA) website. In 2016, PowerAdvocate was added to serve as the central point for all other Program activities such as guidelines, templates, submissions, and subsequent communications with potential bidders. Revisions to the processes and ‘lessons learned’ from prior year’s activities were constantly evaluated and implemented to the extent possible for future solicitations. The ongoing challenge of the program solicitation process is developing and implementing a process that is expedient while still ensuring a consistently ‘level playing field’ with a transparent, methodical evaluation process at all stages.

Similar to 2016, circumstances of 2017 were driven primarily by outside initiatives including AB802, AB793, and approved Advice Letter required changes to program activities. The program staff was utilized to work with a cross cutting team of stakeholders outside of the Third-Party program portfolio to plan, lead, and complete the following solicitations:

- AB 802 – HOPPS Commercial Restaurant Retrofit program
- AB802 – HOPPS Central Water Heating Multi-Family Building Solutions Program
- AL4950 –Small Business Direct Install: Small Business Gas Solutions program
- AB793 Commercial Energy Management Technology program
- AB793 Residential Energy Management Technology program

At the end of 2017, these program solicitations were at various stages of evaluation, selection contracting, and implementation.

In addition to the solicitation activities, work to identify program gap and market potential analysis was another area of effort. It was determined that this effort was important to more efficiently identify and pursue new EE third party programs. During this process, it also became a resource that contributed to the 2017 Business Plan and rolling portfolio efforts

The solicitation process went through an extensive review and redesign during 2017. The goal was to evaluate the process, design a more systematic approach for program solicitations and establish procedures, templates, supporting documents, and other resources so the entire process

SCG3793 3P-IDEEA365-Instant Rebates! Point of Sale Foodservice Rebate

The Instant Rebates! Point-of-Sale Foodservice Rebate Program (Instant Rebates) enables non-residential SoCalGas end-use customers to receive point-of-sale (POS) rebates when they purchase eligible, high-efficiency equipment from participating vendors. Equipment vendors receive a sales incentive for every piece of eligible high-efficiency equipment for which they submit an online rebate application. Sales incentives are designed to offset a portion of vendors' administrative burden, financial carrying costs of fronting rebates to customers and overhead associated with stocking and selling more high-efficiency equipment. The Program Implementer provides turnkey program implementation services to SoCalGas for Instant Rebates.

For 2017, the program had highly favorable customer ratings. In addition, the program enrolled eight new vendors and re-enrolled seven vendors that had little to no participation in the previous year. Increasing program participation resulted in participating vendors making changes to their stocking and sales practices to meet new demand for rebate-eligible equipment and that customers increasingly asked for high-efficiency equipment because of program incentive awareness.

The program encountered some unique challenges in 2017, namely from regulatory changes. For example, several workpaper revisions resulted in reduced therm savings for several measures. Changes to claimed savings within same year causing an adjustment to program rules created a sudden surge of participation resulting in drastic reduction of available incentives.

Several program changes were made in early 2017 to address slow program growth and limited participation. For example, new eligibility and scope changes were implemented to stimulate participation. Improvement were also made to the inspections process to appropriately target specific measures.

Overall, the program exceeded its original annual savings goal as well as its Diverse Business Enterprises spending commitment. The program also decreased the payment time to participating vendors from fourteen-days to eight. As mentioned above, the program enrolled eight new and re-engaged seven non-participating vendors to expand the program's geographical coverage to a total of thirty-two vendor stores are enrolled in Instant Rebates.

SCG3796 3P-IDEEA365-On-Demand Efficiency for Campus Housing

The On-Demand Efficiency for Campus Housing Program (ODECH) addresses a method of decreasing the natural gas consumption of central domestic hot water systems with recirculation loops in campus housing buildings while maintaining occupant satisfaction with the hot water delivery. Demand controls on hot water recirculation systems turn off the recirculation pump when it is not needed, thereby reducing unnecessary heat loss from the loop, reducing the boiler fire time, and thus reducing the natural gas consumption. ODECH finds potential sites and installs on-demand controllers that are appropriate for the water heating system, sustainable, save natural gas and electricity and reduce greenhouse gases by burning less natural gas for water heating while maintaining occupant satisfaction with the hot water delivery.

In 2017, the ODECH program met dwelling unit goal. The overall sales continued to show change for 2017 resulting in the program meeting goal. The program staff sent out emails monthly which contributed to an increase in program enrollments and overall awareness of the program.

SCG3797 3P-IDEEA365-Energy Advantage Program for Small Business

The Energy Advantage Program (EAP) is a non-resource third party energy efficiency program selected by SoCalGas through the IDEEA365 for 2014-2015, extended through 2017. EAP is designed to educate hard to reach, small and medium business customers about energy savings opportunities, to support installation of incremental cost-effective energy efficiency projects, and to achieve savings for SoCalGas through facilitating rebates and incentives for energy efficiency measures.

In 2017, the program implementer enrolled and delivered turnkey program services to sixteen (16) small and medium business customers including hotels, commercial (offices, entertainment), restaurants facilities and a refrigerated warehouse. Energy audits were performed and presented, which identified both therm savings, and kWh savings for those audits co-funded by Los Angeles Department of Water and Power to address electric savings.

As a result of implementation support services, including rebate and incentive support and referrals to available programs, EAP delivered therm savings through the Energy Efficiency for Rebates Program and kWh savings through electric measures implemented or currently being implemented and incentivized through Los Angeles Department of Water and Power (LADWP). EAP expended program costs to DBE subcontractors, leading the program to exceed the Diversity Business Enterprise (DBE) goal of 38% for 2017.

In 2017, SoCalGas and the Program Implementer agreed to add the ability to perform program services for non-profit facilities which had previously been ineligible for services. The Program Implementer performed outreach to all customers who had engaged with the EAP program to ensure that all projects were captured for reporting purposes and to educate them about available support resources for any additional questions. Though EAP did not meet the performance goals, the program did market to lenders and partners by holding branch-wide workshops and trainings.

SCG3798 3P-IDEEA365-Connect

The Connect Program (Connect) is a non-resource third-party developed program which utilizes a portfolio approach to energy efficiency to develop a long-term energy savings pipeline to establish Commercial Real Estate (CRE) and utility relationships that result in beneficial situations for both CRE and utility stakeholders. Connect leverages relationships with the top CRE property management firms in SoCalGas' territory to gain the data and building access required to successfully engage the CRE market. Any potential energy savings are routed back through SoCalGas energy efficiency resource programs for rebates, incentives, and tracking and reporting of them savings.

In 2017, the Program had significant reach within SoCalGas' territory and achieved three key successes. The program met or exceeded key performance indicators for benchmarking, program enrollment, building assessment, business cases, signed installation agreements and therm savings. The program also converted energy conservation measures (ECMs) identified in past years, demonstrating the benefit of a multi-year program and onboarded two new CRE partners.

The CRE market is a unique industry with multiple stakeholders and varying value propositions based on an individual's role in the industry. As a result, energy efficiency projects face unique barriers that the Connect program must address. For example, the City of LA implemented a new ordinance (Benchmarking and Los Angeles Existing Buildings Energy and Water Efficiency), requiring properties larger than 20,000 square feet to benchmark and report electric, gas and water consumption to the city of LA, which forces buildings located in LA to benchmark, reducing the value of a Connect benchmark. Another challenge is that commercial property owners and managers view electric and gas utilities as a single expense line item that should be managed in concert. Connects focus on gas only audits and efficiency support is in some instances turned down because it lacks a review of electric measures, which account for most of utility costs. Lastly, there is some uncertainty of full program participation timeline. The CRE industry is focused on risk mitigation and is unlikely to participate in any program without a full understanding of the costs, benefits, and timing of that program from the onset.

The program made some noteworthy changes in 2017. The program added a project tracking software to further improve project follow-up with customers who underwent an energy audit through the Connect Program. The program also coordinated with local trade organizations to promote the Connect Program to their membership. Last of all, the program developed a deep database of buildings to use for benchmarking for future program participants.

SCG3799 3P-IDEEA365-Historical Building Energy Efficiency

The Historic Building Energy Efficiency Program (HBEEP) is a residential non-resource program focused on energy efficiency upgrades to historic single-family homes. HBEEP addresses a gap in targeting a unique building portfolio that includes older single-family homes located in designated historic building districts within the SoCalGas service territory. This customer base is typically constrained by specific building alteration guidelines aimed to preserve neighborhoods with distinct architectural and cultural characteristics. HBEEP's model is designed to assist homeowners of historic buildings learn how restoration and preservation activities can be combined with energy efficiency upgrades. The program model is also designed to provide mentoring and training to home performance contractors. The strategy of the program is to initially target owners/buyers of pre-1940 homes located in designated historic building districts such as the City of Los Angeles' designated Historic Preservation Overlay Zones (HPOZs) and enroll customers in SoCalGas' energy efficiency rebate and incentive programs (e.g., Energy Upgrade California® Home Upgrade).

In 2017, program implementation activities continued based on HBEEP's original program design. Minor changes were implemented to improved efficiencies and reduced administrative burdens. Program implementation activities resulted in the following:

Seventeen Home Upgrade participating contractors received training/mentoring specifically in restoration construction and historic preservation. HBEEP Participating Contractors conducted a total of 48 home energy audits and provided 48 historic homeowners participating in the SoCalGas Energy Upgrade California Home Upgrade Program with home energy assessments. Twenty-two of these homeowners received a comprehensive advanced home energy assessment, while twenty-six received a Home Performance with Energy Star home upgrade assessment. In addition HBEEP participating Contractors conducted a total of 19 home energy audits and provided 16 homeowners with a comprehensive advanced home energy assessment and 3 homeowners with a Home Performance with Energy Star home upgrade assessment.

HBEEP is heavily affected by Energy Upgrade California Home Upgrade Program requirements, changes, and incentive budget restrictions

SCG3800 3P-IDEEA365-Clear Ice

Clear Ice is a turnkey gas savings energy efficiency program for SoCalGas customers' new and existing ice rinks. It offers a calculated incentive on an industrial vortex technology called REALICE. With this technology, water used for ice making and resurfacing no longer needs to be heated to from 120°F – 160°F and ambient un-heated water at approximately 60°F can be used.

REALICE is a relatively new technology in the United States and there is a need to conduct targeted and repeated communications to each rink's decision makers including both rink operators and rink owners. One key market barrier is to modify an entrenched behavior by the rink operators whose normal practice is to use heated water heated for ice resurfacing. To modify this behavior, a technical description of how and why the technology works, total savings, and other program adopters are just some of the talking points presented to the rink owners and operators.

Currently, only one customer has installed this technology. Additional customers have indicated an interest in the technology based on the return on investment, combined incentives and the increasing program uptake. Program staff will continue to pursue potential cliental, present ongoing customer training, develop marketing materials and conduct outreach presentations to all rinks in the SoCalGas service territory.

SCG3804 3P-IDEEA365-On-Premise Ozone Laundry (OPOL)

The On-Premise Ozone Laundry (OPOL) program targets small to medium sized hotels, fitness and health centers (including nursing homes, convalescent homes, hospices and hospitals) with 250 or fewer rooms and an on-premise laundry operation. The program installs ozone laundry technology in customer's on-premise laundry facility. Ozone technology provides cleaning and disinfection capabilities, is most effective in cold water, and shortens the wash cycle thereby eliminating the need for hot water and decreasing the total gallons of water per load. This program thus reduces natural gas, electricity, and water consumption for the customer.

The program has adjusted the marketing strategies and personnel resources, which has resulted in a steady increase in program performance and participation. The program has also encouraged the development and leveraging of market relationships that have resulted in a collaborative effort in introducing ozone technology as an effective energy efficiency measure. These partnerships will lead to greater therm savings potential due to greater market penetration.

The program has faced challenges working with some customers who are also customers of a leading laundry material company. The successful implementation of the ozone technology into the market sector reduces the need for certain materials in the laundry process, thus reducing the amount of product customers have historically purchased. Due to the negative impact on the product suppliers, the program has been faced with delayed responses and lack of availability to make the required material adjustments in the laundry process.

Additional barriers to program implementation centers around current rebate limitations relative to project costs. Smaller business owners are the most difficult to reach because they often lack the washer size capacity in their on-premise laundry facility to qualify for significant project cost reductions. This is due in part to the current rebate structure of per pound of washer capacity, which normally results in a larger cost-share for the smaller hard-to-reach customer.

The program has adjusted its outreach and implementation based on continuous feedback and monitoring of marketing and sales to continually deliver success. The program has also made refinements to reporting and invoicing processes to improve data management, reporting, and overall program efficiency.

The program has successfully introduced and educated the targeted sector customers on the innovative ozone technology. Customer interest, participation and enrollment have steadily increased throughout the implementation period. Additionally, post-installation maintenance and service visits have ensured continuous program participant satisfaction as well as the continued use of the technology.

Water Energy Nexus

In 2017, SoCalGas has continued its diverse offering of programs that educate on water savings, delivering energy savings measures associated with the savings of hot water, as well as partnering with water agencies for cross-promotion. SoCalGas worked jointly with the other investor owned utilities (IOUs) and stakeholders in planning toward the improvement of tools and protocols regarding water energy. Through Decision (D.)17-12-010, the recommendations of the IOUs regarding these improvements were adopted. Further, through this decision the CPUC determined that the Water Energy Nexus rulemaking (R.13-12-011) be closed to address remaining issues in the other identified forums and appropriate rulemakings.

Water Energy Nexus Cost Calculator

As directed in D.16-12-047, the Joint IOUs developed a Plan of Action to update the Water Energy Nexus (WEN) Embedded Energy Cost Calculator (Water-Energy Calculator). This Plan of Action addressed the three updates required by the D.16-12-047 and provides next steps to implement the necessary changes. Within that plan, results of the study commissioned by SoCalGas to determine the value representing the natural gas embedded in the water system were determined for the Water-Energy Calculator. The Commission's W-E Calculator currently utilizes a default value of zero for gas intensity and does not calculate embedded energy savings for natural gas. This study confirmed that while there is much less natural gas used for water sector purposes, the number is not "zero" and recommended that a default value not be prescribed for statewide use.

Shared Network Advanced Meter Infrastructure Pilots

The WEN Shared Network Advanced Metering Infrastructure (AMI) Pilots⁵ were established in 2016 to develop and refine the identification of potential hot water leaks based on analytics of both gas and combined water and gas usage data, and to evaluate the potential benefits associated with hot water leak detection and resolution. The WEN Shared Network AMI Pilots allow for water utilities to leverage the existing SoCalGas Advanced Meter Infrastructure (AMI) network to collect and transmit hourly water usage data, which is used in the analytics effort. Two separate Commission-regulated water utilities and a 3rd party analytics vendor are conducting these efforts.

The WEN AMI Pilots have been driving to achieve the following program goals: (1) network piggybacking, (2) combined utility data analytics for hot water leak detection, and (3) determining energy savings from reduced water loss. Both of the WEN AMI Pilot participants are in the process of completing the analytics efforts for the third goal along with the AMI WEN Pilot final report in 2018.

Water Utility Partnering Activities

SoCalGas has maintained several water-energy nexus activities and partnerships. In 2017, SoCalGas continued its partnership with Los Angeles Water and Power (LADWP) and Los Angeles Metropolitan Water District (MWD) to co-deliver water energy nexus activities. These activities include the Energy Smart Landscape seminars co-taught with MWD. SoCalGas also utilized its current programs and partnerships to expand future water energy partnered offerings. One such example is the Commercial Restaurant Retrofit program, in which MWD funds calculated water savings incentives. Another example is SoCalGas' partner program with MWD where low income customers receive water savings rebates from MWD through SoCalGas' ESA low income program. The LADWP/SoCalGas water energy nexus partnership continued its successful achievements through its direct install activities, one such activity installed various water energy measures in the multi-family segment.

SoCalGas continued its LivingWise® residential energy education and savings program. LivingWise® is a school-delivered residential program that is sponsored through collaboration

⁵ D.15-09-023, Advice No. 5014, Advice No.4992-A.

between SoCalGas and 12 different California municipalities or water agencies. In 2017, the LivingWise® program involved sixth grade students, teachers and households reaching households to install and educate water energy activities.

California Sustainability Alliance

In 2017, the California Sustainable Alliance, created a report that provided an overview of blue-green infrastructure strategies, best practices, and barriers to inform city planners and other governmental officials on how to integrate blue-green infrastructure into their city efforts. The intent was to inform edge cities about blue-green infrastructure through a case study with the city of Morro Bay, which serves as a success story of how edge cities can become more urbanized while growing in harmony with the environment. Edge cities are defined as cities outside of a major metropolitan area that are becoming more urbanized as that area expands. The report also highlights opportunities for utilities to engage with city planners to break down barriers to implementing blue-green infrastructure projects.

Blue-green infrastructure combines two key concepts that are becoming increasingly important as cities aim to contribute to the State’s climate change-related objectives: energy efficiency and sustainability. Blue-green infrastructure includes strategies that allow cities to work in harmony with the environment, become more resilient to droughts and floods, and save energy in the process.

Other Water Energy Related Program Activities

In 2017, SoCalGas continued its offering of energy efficiency measures that can achieve direct water savings to residential and non-residential customers. In addition, many of these measures received approval through the Energy Division’s *Ex Ante* Review team for use with the W-E calculator to report embedded energy savings. These measures are listed in the table below:

EE Program Sector	Measures Offered that Achieve Direct Water Savings
Residential	Auto-Diverting Tub Spout with Thermostatic Shut-off Valve
	High Efficiency Clothes Washer*
	Low Flow Showerhead*
	Residential Faucet Aerator*
	Thermostatic Shower Valve*
	Water Savings Kit*
Non-Residential	Commercial Faucet Aerator*
	Gas Combination Oven*
	Gas Pressureless Steamer*
	Laminar Flow Restrictor
	Low Flow Pre-Rinse Spray Valve*
	Ozone Laundry

*Measures with approved embedded electric energy savings

SoCalGas plans to expand its offer of EE measures which can achieve direct water savings to residential and non-residential customers in 2018 through the development of new deemed EE savings measure workpapers.

Budget

Program expenditures are not broken out by measure or by water energy related activities and rather are included in the overall expenditures listed in Appendix B.1, Updated Monthly Report, for the following programs listed below:

Program
SCG3702 RES-Plug Load and Appliance
SCG3703 RES-Plug Load and Appliances - POS
SCG3705 RES-Home Upgrade Program
SCG3707 RES-RNC
SCG3711 COM-Deemed Incentives
SCG3761 3P-MF Home Tune Up
SCG3763 3P-MF Direct Therm Savings
SCG3764 3P-Livingwise
SCG3765 3P-Manufactured Mobile Home
SCG3793 3P-IDEEA365-Instant Rebates!
SCG3805 COM-Direct Install Program
SCG3806 AMI Water Pilot

SECTION 1 ENERGY SAVINGS

The purpose of this table is to report the annual impacts of the Energy Efficiency portfolio of programs implemented by SoCalGas for the 2017 year. The annual impacts are reported for 2017 in terms of annual and lifecycle energy savings in natural gas savings in MMTh (million therms). The report shows annual savings (Installed Savings) that reflect installed savings, not including commitments. The values in the Installed Savings column include savings from the Low-Income Energy Savings Assistance Program, and Codes and Standards work (Low Income ESA and C&S savings are broken out as separate line items in Table 6 - Savings by End-Use).

Table 1

A	B	C	D
Table 1:			
<i>Electricity and Natural Gas Savings and Demand Reduction (Gross)</i>			
Annual Results	2017 Installed Savings [1]	CPUC 2017 Adopted Goals (D.15-10-028)	% of Goals (2017)
<i>2017 Energy Savings (GWh) – Annual</i>	11.8		
<i>2013-2017 Energy Savings (GWh) – Annual</i>	48.9		
<i>2017 Energy Savings (GWh) – Lifecycle</i>	133.7		
<i>2017 Energy Savings (GWh) – Lifecycle</i>	604.4		
<i>2017 Natural Gas Savings (MMth) – Annual [2][5]</i>	39.5	30.3	130%
<i>2013-2017 Natural Gas Savings (MMth) – Annual [2]</i>	154.2	132.0	117%
<i>2017 Natural Gas Savings (MMth) – Lifecycle [3]</i>	138.0		
<i>2013-2017 Natural Gas Savings (MMth) – Lifecycle [3][4]</i>	1,021.8		
<i>2017 Peak Demand savings (MW)</i>	5.0		
<i>2013-2017 Peak Demand savings (MW)</i>	23.2		

[1] Results from activity installed in 2017.

[2] Includes savings associated with Low Income Energy Savings Assistance and Codes and Standards programs.

[3] Does not include lifecycle savings associated with SoCalREN and Codes & Standards programs for 2017.

[4] Does not include lifecycle savings associated with SoCalREN, Low Income Energy Savings Assistance, and Codes and Standards programs for 2013, 2014, and 2015.

[5] Gross Codes & Standards program savings for 2017 includes savings from market effects (5%) as calculated in CEDARS. Gross Codes & Standards program savings without market effects is 24,469,088 therms.

SECTION 2 EMISSION REDUCTIONS

The purpose of this table is to report the annual incremental environmental impacts of the Energy Efficiency portfolio (for both electricity and natural gas) of programs implemented by SoCalGas during the 2017 program year. Parties agreed that the impacts should be in terms of annual and lifecycle tons of CO₂, NO_x, and PM₁₀ avoided and should come from the cost-effectiveness tool.

Table 2

A	B	C	D	E	F	G
Table 2:						
<i>Environmental Impacts (Gross)</i>						
Annual Results	Annual tons of CO2 avoided	Lifecycle tons of CO2 avoided	Annual tons of NOx avoided	Lifecycle tons of NOx avoided	Annual tons of PM10 avoided	Lifecycle tons of PM10 avoided
2017 Portfolio Targets [1]						
2017 SoCalGas Total [2][4]	404,821	5,408,728	627,289	8,399,677	925	10,519
2013-2017 SoCalGas Total [3][4]	1,285,722	17,912,300	1,924,410	26,789,406	4,532	56,361

[1] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 established SoCalGas' gas emission reduction targets for the 2013-2014 program cycle. SoCalGas' Compliance Advice Letter 4725 approved by the Commission on January 26, 2015 established SoCalGas' gas emission reduction target for the 2015 program year. SoCalGas did not file a compliance filing for 2016 and does not have portfolio targets assigned for 2016. Portfolio targets were not established for 2017 in SoCalGas' Compliance Advice Letter 5023-A, approved June 8, 2017.

[2] Results from activity installed in 2017 only.

[3] Results from activity installed in 2013-2017.

[4] Environmental impacts do not include any impacts associated with SoCalREN or Low Income Energy Savings Assistance programs.

SECTION 3 EXPENDITURES

The purpose of this table is to report the annual costs expended by SoCalGas in implementing the 2017 Energy Efficiency portfolio. The report is broken out into the Administrative Costs, Marketing/Education/Outreach Costs, and Direct Implementation Costs categories for the following program classifications: 1. IOU Programs, 2. Local Government Programs (Partnership Programs), 3. Third Party Programs (Competitive Bid Program), and 4. EM&V reported for IOU and Joint Staff individually. The next set of expenditures represents budget and expenditure dollars outside of portfolio: 1. SW ME&O, 2. OBF/Revolving Loan Pool, and 3. Energy Savings and Assistance Program (ESA).

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Table 3

Table 3
2017 Expenditures, including expenditures on past cycle commitments paid in 2017

Authorized Forecast Budget														Total 2017 Expenditures (booked out by budget year funding source)												
IOU	Program ID	Program Name (Add rows to include all programs)	Program Implementer (Use Drop Down Menu)	Primary Sector (Use Drop Down Menu)	ESPI Program Category (Use Drop Down Menu)	Delivery Channel (Use Drop Down Menu)	2017 Adopted Budget (See A.L. 962-A, 962-B, 962-C, 962-D, 962-E, 962-F, 962-G, 962-H, 962-I, 962-J, 962-K, 962-L, 962-M, 962-N, 962-O, 962-P, 962-Q, 962-R, 962-S, 962-T, 962-U, 962-V, 962-W)	2017 Administrative Cost (Invoiced as per budget Add-on Letters)	Administrative				Direct Implementation				PA Administered M&O		SW M&O/C	EM&V		On Bill Financing Loan Pool				
									Non-IOU Implementer		IOU		Non-Incentive		Incentives & Rebates		2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget		2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget		2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget
									2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget		2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget		2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget	2017 Expenditures from 2017 Budget
		SH-PA Programs																								
SCG	SCG1701	RES-PA Energy Advice	RES	Residential	Resource	Downstream	757,809	47,949					1,991,383													
SCG	SCG1702	RES-PA Lead and Appliances	RES	Residential	Resource	Downstream	4,191,026	74,070					601,124	2,745,151	4,153,674					662,241						
SCG	SCG1703	RES-PA Lead and Appliances - P&S	RES	Residential	Resource	Midstream	2,387,104	14,734					193,368	153,603	1,752,070					437						
SCG	SCG1704	RES-MFER	RES	Residential	Resource	Downstream	1,075,122	68,573					55,023	337,551	221,554					75,714						
SCG	SCG1705	RES-Home Upgrade Program	RES	Residential	Resource	Downstream	6,771,145	447,024					246,906	2,548,111	3,196,789					250,360						
SCG	SCG1707	RES-REAC	RES	Residential	Resource	Downstream/Investment	1,209,024	19,000					11,671	49,161	198,145					2,425						
SCG	SCG1708	COM-Energy Advocate	COM	Commercial	Resource	Not Applicable	2,472,028	246,600					114,222	771,570	488,753	1,884,065				118,865						
SCG	SCG1709	COM-Energy Advocate	COM	Commercial	Resource	Not Applicable	556,008	42,855						310,070												
SCG	SCG1710	COM-E2	COM	Commercial	Resource	Not Applicable	200,120	10,283						2,684	6,790					12,884						
SCG	SCG1711	COM-Calculated Incentives	COM	Commercial	Resource	Downstream	3,445,704	110,402					147,010	1,272,006	32,483	1,227,517				179,578						
SCG	SCG1712	COM-Discount	COM	Commercial	Resource	Midstream/Investment	6,977,511	195,251					174,654	1,759,959	2,272,917					1,022,456						
SCG	SCG1713	COM-Small-Biz HVAC	COM	Commercial	Resource	Downstream	238,282	18,309					1,087	84,479												
SCG	SCG1714	IND-Energy Advocate	IND	Industrial	Resource	Not Applicable	4,657,718	43,124						17,544	175,648											
SCG	SCG1714	IND-E2	IND	Industrial	Resource	Not Applicable	124,017	17,728						1,477	75,979					69						
SCG	SCG1715	IND-L-Advanced Incentives	IND	Industrial	Resource	Downstream	9,144,400	724,401					318,414	2,543,860	59,004	1,027,657				110,979						
SCG	SCG1716	IND-Shared Incentives	IND	Industrial	Resource	Downstream	1,048,599	109,624						43,714	476,498					292,325						
SCG	SCG1717	AG-Energy Advocate	AG	Agribusiness	Resource	Not Applicable	19,703	1,405						76,439							1,478					
SCG	SCG1717	AG-E2	AG	Agribusiness	Resource	Not Applicable	32,200	1,216						1,778												
SCG	SCG1718	AG-E-Advanced Incentives	AG	Agribusiness	Resource	Downstream	2,488,175	201,462					61,089	464,081	43,770	82,381				82,381						
SCG	SCG1719	AG-Discount Incentives	AG	Agribusiness	Resource	Downstream	962,429	71,811					90,967	284,510	925,577					78,199						
SCG	SCG1720	AG-Technical Implementation Support	AG	Agribusiness	Resource	Not Applicable	47,773	4,091						15,117												
SCG	SCG1721	AG-Technical Assessment Support	AG	Agribusiness	Resource	Not Applicable	598,518	36,804					19,301	481,710												
SCG	SCG1722	AG-Technical Implementation Support	AG	Agribusiness	Resource	Not Applicable	544,717	16,824						16,824												
SCG	SCG1724	C&S-Building Codes & Compliance Advisory	COM	Commercial	C&S	Not Applicable	209,995	20,468					5,311	190,907												
SCG	SCG1725	C&S-Apprentice Standards Advisory	COM	Commercial	C&S	Not Applicable	167,482	16,300					10,100	26,521												
SCG	SCG1726	C&S-Compliance Enforcement	COM	Commercial	C&S	Not Applicable	312,907	23,641					11,261	21,207												
SCG	SCG1727	C&S-Brush Code	COM	Commercial	C&S	Not Applicable	85,574	8,203					1,647	15,937												
SCG	SCG1728	C&S-Code Enforcement	COM	Commercial	C&S	Not Applicable	1,183,113	17,462					1,085	1,085												
SCG	SCG1729	W&E-C&S	COM	Commercial	Resource	Not Applicable	2,448,497	211,482					79,891	2,088,621						149,218						
SCG	SCG1730	W&E-C&S	COM	Commercial	Resource	Not Applicable	429,952	40,207					16,904	264,916												
SCG	SCG1731	W&E-Stormwater Planning	COM	Commercial	Resource	Not Applicable	47,773	7,911						19,313												
SCG	SCG1732	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	581,750	60,414					11,321	351,303						1,869						
SCG	SCG1733	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	48,465	4,867						17,576												
SCG	SCG1734	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	1,885,145	127,499					13,049	14,716						107,460						
SCG	SCG1735	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	279,500	27,900					33,107	207,000						40,572						
SCG	SCG1736	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	1,750,000	176,000					6,787	113,837						45,990						
SCG	SCG1737	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	1,500,000	150,000					14,991	79,000						2,339						
SCG	SCG1738	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	460,000	50,000					41,418	112,226						8,188						
SCG	SCG1739	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	500,000	60,000					5,000	40,000						3,190						
SCG	SCG1740	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	995,000	99,000																		
SCG	SCG1741	W&E-Stormwater	COM	Commercial	Resource	Not Applicable	563,000	55,000																		

SECTION 4 COST-EFFECTIVENESS

The purpose of this table is to provide an annual update on the cost-effectiveness of the portfolio of programs being implemented in the 2017 program year. The targets above are at the portfolio level, so an annual average is used in order to compare the current annual estimates of cost-effectiveness with the cost-effectiveness levels that were estimated at the time the portfolios were adopted. The report includes the SoCalGas results and goals.

Table 4

A	B	C	D	E	F	G	H	I	J
Table 4:									
<i>Cost Effectiveness (Net)</i>									
Annual Results	Total Cost to Billpayers (TRC)	Total Savings to Billpayers (TRC/PAC)	Net Benefits to Billpayers (TRC)	TRC Ratio	Total PAC Cost	PAC Ratio	PAC Cost per kW Saved (\$/kW)	PAC Cost per kWh Saved (\$/kWh)	PAC Cost per therm Saved (\$/therm)
2017 Total [2][8][9]	\$ 199,814,588	\$ 348,287,043	\$ 148,472,455	1.74	\$ 63,820,888	5.46	N/A	N/A	\$ 0.30
2013-2017 Total [3][4][5][6][7]	\$ 738,216,720	\$ 1,051,670,887	\$ 313,454,167	1.42	\$ 328,186,221	3.20	N/A	N/A	\$ 0.31

[1] SoCalGas' Compliance Advice Letter 4449-G, 4449-G-A, and 4449-G-B, filed January 13, 2013, April 23, 2013, and May 29, 2013, respectively and approved by the Commission on June 12, 2013 established the cost-effectiveness of SoCalGas' 2013-2014 portfolio. SoCalGas' Compliance Advice Letter 4725 approved by the Commission on January 26, 2015 established the cost-effectiveness of SoCalGas' 2015 program year. SoCalGas did not file a compliance filing for 2016 and does not have portfolio targets assigned for 2016. Portfolio targets were not established for 2017 in SoCalGas' Compliance Advice Letter 5023-A, approved June 8, 2017.

[2] Results from activity installed in 2017 only.

[3] Results from activity installed in 2013-2017.

[4] Includes SoCalGas' 2013 shareholder incentive payment of \$3,075,647, submitted in AL 4542 and approved by the Commission on December 11, 2013.

[5] Includes SoCalGas' 2014 shareholder incentive payment of \$5,824,913, submitted in AL 4661 and approved by the Commission on December 18, 2014.

[6] Includes SoCalGas' 2015 shareholder incentive payment of \$4,153,869, submitted in AL 4826 & AL 4859 and approved by the Commission on December 3, 2015.

[7] Includes SoCalGas' 2016 shareholder incentive payment of \$3,538,297, submitted in AL 5024 and approved by the Commission on December 15, 2016.

[8] Includes SoCalGas' 2017 shareholder incentive payment of \$852,892, submitted in AL 5024 and approved by the Commission on December 18, 2017.

[9] Does not include costs and benefits associated with Low Income Energy Savings Assistance Programs, Emerging Technologies Programs, and SoCalREN.

SECTION 5 BILL PAYER IMPACTS

The purpose of this table is to report the annual impact of the energy efficiency activities on customer bills relative to the level without the energy efficiency programs, as required by Rule X.3 of the Energy Efficiency Policy Manual version 5, adopted in D.05-04-051.

Table 5

A	B	C	D	E
Table 5:				
<i>Ratepayer Impacts</i>				
	Electric Average Rate (Res and Non-Res)	Gas Average Rate (Core and Non-Core)	Average First Year Bill Savings (\$)	Average Lifecycle Bill Savings (\$)
2017	\$/kwh	\$/therm		
SCG	N/A	\$1.08	\$42,679,905	\$149,109,797

[1] SoCalGas' 12-month residential weighted average transportation rate for 2017 is \$0.72143 per therm.

[2] SoCalGas' 12-month average procurement rate in 2017 was \$0.35895.

[3] Ratepayer impacts are derived from 2017 gross savings accomplishments and the average rate.

[4] The average First Year Bill Savings are calculated by the 2017 first year savings multiplied by the Gas Average Rate.

[5] The average Lifecycle Bill Savings are calculated by the 2017 lifecycle savings multiplied by the Gas Average Rate.

SECTION 6 SAVINGS BY END-USE

The purpose of this table is to show annual portfolio savings by Residential and Non-Residential end-uses and those savings attributable to the Low Income Energy Savings Assistance Program, and Codes and Standards work.

Table 6

A	B	C	D	E	F	G
Table 6:						
<i>Annual Savings By End-Use 2017 Only [1][2]</i>						
Use Category	GWh	% of Total	MW	% of Total	MMTh	% of Total
Appliance or Plug Load	1.46	12%	0.31	6%	0.54	1%
Commercial Refrigeration	0.00	0%	0.00	0%	0.00	0%
Codes & Standards	0.00	0%	0.00	0%	27.36	69%
Food Service	0.00	0%	0.00	0%	1.60	4%
HVAC	4.71	40%	2.91	58%	0.87	2%
Irrigation	0.00	0%	0.00	0%	0.02	0%
Lighting	-	-	-	-	-	-
Non-Savings Measure	0.00	0%	0.00	0%	0.00	0%
Process Distribution	-	-	-	-	-	-
Process Drying	-	-	-	-	-	-
Process Heat	0.00	0%	0.00	0%	1.56	4%
Process Refrigeration	-	-	-	-	-	-
Recreation	0.00	0%	0.00	0%	0.35	1%
Service	0.00	0%	0.00	0%	0.10	0%
Service and Domestic Hot Water	0.95	8%	0.00	0%	3.02	8%
Whole Building	4.65	40%	1.81	36%	2.31	6%
Low Income Energy Efficiency	-	-	-	-	1.55	4%
SoCalREN	-	-	-	-	0.22	1%
SCG ANNUAL PORTFOLIO SAVINGS	11.8	100%	5.0	100%	39.5	100%

[1] Results from activity installed in 2017 only.

[2] Includes savings associated with SoCalREN and Low Income Energy Savings Assistance programs.

[3] Gross Codes & Standards program savings for 2017 includes savings from market effects (5%) as calculated in CEDARS. Gross Codes & Standards program savings without market effects is 24,469,088 therms.

SECTION 7 COMMITMENTS

The purpose of this table is to allow the utilities to report commitments which will be produced within the 2018 program year (commitments entered into during the previous and current program cycle but which are not expected to produce installed savings until after December 2017). This information will be useful for the Commission's resource planning purposes by enabling program activities to be linked to a particular funding cycle.

Table 7

A	B	C	D	E
Table 7				
<i>Commitments</i>				
Commitments Made in the Past with Expected Implementation after December 2010-2012				
	Committed Funds	Expected Energy Savings		
2010-2012 [2][4]	\$	GWH	MW	MMth
Resource	853,423	0	0	0.4
Non-Resource	521,766	0	0	0
Codes & Standards	-	0	0	0
SoCalGas Total	1,375,188	0.0	0.0	0.4
Commitments Made in the Past Year with Expected Implementation after December 2015				
	Committed Funds	Expected Energy Savings		
2013-2015 [1]	\$	GWH	MW	MMth
Resource	-	0	0	0
Non-Resource	-	0	0	0
Codes & Standards	-	0	0	0
SoCalGas Total	-	0.0	0.0	0.00
Commitments Made in the Past Year with Expected Implementation after December 2016				
	Committed Funds	Expected Energy Savings		
2016 [1]	\$	GWH	MW	MMth
Resource	-	0	0	0
Non-Resource	-	0	0	0
Codes & Standards	-	0	0	0
SoCalGas Total	-	0.00	0.00	0.00
Commitments Made in the Past Year with Expected Implementation after December 2017				
	Committed Funds	Expected Energy Savings		
2017 [1][3][4]	\$	GWH	MW	MMth
Resource	23,189,723	0	0	15.0
Non-Resource	970,100	0	0	0.0
Codes & Standards	70,000	0	0	0.0
SoCalGas Total	24,229,823	0.00	0.00	15.0

[1] SoCalGas recognizes 2017 to be a bridge period of the 2013-2017 funding cycle based on the decision D.15-10-028. D.15-10-028 defers the accounting issues associated with the Rolling Portfolio to future disposition, and instead, refers to 2017 as a status quo year for accounting items. As a result of 2017 being a part of the 2013-2017 funding cycle, the Energy Efficiency Policy Manual, Version 5 allows PAs to carryover/carryback funding during the current program cycle without triggering a review/approval process based on the fund shifting rules.

[2] Committed and encumbered funds are associated with the 2010-2012 program cycle as of 12/31/2017.

[3] Committed and encumbered funds are associated with the 2013-2017 program cycle as of 12/31/2017.

[4] Non-Resource encumbered funds include funds encumbered from Evaluation, Measurement & Verification programs.

SECTION 8

SHAREHOLDER PERFORMANCE INCENTIVES

In 2017, the Commission awarded SoCalGas an earnings amount of \$2.58 million, calculated from the results of the 2015 and 2016 program period. The IOUs will file their respective ESPI advice letters on September 3rd of this year. The first 2017 ESPI award claims are expected to be approved by the Commission no later than December 31 of this year. The second 2017 ESPI awards claims will be submitted for approval to the Commission on September 1 of the following year. The following table is provided to inform the Commission of ESPI awards received for the prior program cycle years of the 2013-2017 program funding cycle.

Table 8

A	B	C	D	E	F	G
Table 8						
<i>Shareholder Incentives (ESPI)</i>						
Program Year	2013	2014	2015	2016	2017	2018
Forecast [1][5][6]					\$6,200,673	\$ 4,310,258
Actual [1][2][3][4][5]	\$ 3,689,563	\$ 4,041,753	\$ 2,714,022	\$ 1,647,321		

[1] Excludes offset of \$3.7 million against approved awards for energy efficiency shareholder incentives in 2017 and 2018 from the 2006-2008 EE Risk/Reward Incentive Mechanism Settlement Agreement.

[2] ESPI payment authorized for PY 2013 in 2014 and 2015 from respective resolutions G-3497 and G-3510.

[3] ESPI payment authorized for PY 2014 in 2015 and 2016 from respective resolutions G-3510 and G-4807.

[4] ESPI payment authorized for PY 2015 in 2016 and 2017 from respective resolutions G-4807 and G-4897.

[5] Partial ESPI payment authorized for PY 2016 in 2017 from resolution G-4897. The second ESPI award claim will be submitted to the Commission for approval on September 3, 2018. SoCalGas did not file a compliance filing for 2016 and did not estimate an ESPI award value for PY 2016.

[6] SoCalGas' Compliance Advice Letter 5023-A included an estimated ESPI award value of \$6,200,673 for PY 2017.

[6] SoCalGas' Compliance Advice Letter 5183-A included an estimated ESPI award value of \$4,310,258 for PY 2018.

Appendix A – SoCalGas Program Numbers

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3701	RES-Energy Advisor		
SCG3702	RES-Plug Load and Appliances		
SCG3703	RES-Plug Load and Appliances - POS		
SCG3704	RES-MFEER		
SCG3705	RES-Home Upgrade Program		
SCG3706	RES-Residential HVAC		
SCG3707	RES-RNC		
SCG3708	COM-Energy Advisor		
SCG3709	COM-CEI		
SCG3710	COM-Calculated Incentives		
SCG3711	COM-Deemed Incentives		
SCG3712	COM-NonRes HVAC		
SCG3713	IND-Energy Advisor		
SCG3714	IND-CEI		
SCG3715	IND-Calculated Incentives		
SCG3716	IND-Deemed Incentives		
SCG3717	AG-Energy Advisor		
SCG3718	AG-CEI		
SCG3719	AG-Calculated Incentives		
SCG3720	AG-Deemed Incentives		
SCG3721	ET-Technology Development Support		
SCG3722	ET-Technology Assessment Support		
SCG3723	ET-Technology Introduction Support		
SCG3724	C&S-Building Codes & Compliance Advocacy		
SCG3725	C&S-Appliance Standards Advocacy		
SCG3726	C&S-Compliance Enhancement		
SCG3727	C&S-Reach Codes		
SCG3728	C&S-Planning Coordination		
SCG3729	WE&T-Centergies		
SCG3730	WE&T-Connections		
SCG3731	WE&T-Strategic Planning		
SCG3734	IDSM-IDSM		
SCG3735	FIN-On-Bill Financing		
SCG3736	FIN-ARRA-Originated Financing		
SCG3737	FIN-New Financing Offerings		
SCG3738	LInstP-CA Department of Corrections Partnership		
SCG3739	LInstP-California Community College Partnership		
SCG3740	LInstP-UC/CSU/IOU Partnership		
SCG3741	LInstP-State of CA/IOU Partnership		
SCG3742	LGP-LA Co Partnership		
SCG3743	LGP-Kern Co Partnership		
SCG3744	LGP-Riverside Co Partnership		
SCG3745	LGP-San Bernardino Co Partnership		

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3746	LGP-Santa Barbara Co Partnership		
SCG3747	LGP-South Bay Cities Partnership		
SCG3748	LGP-San Luis Obispo Co Partnership		
SCG3749	LGP-San Joaquin Valley Partnership		
SCG3750	LGP-Orange Co Partnership		
SCG3751	LGP-SEEC Partnership		
SCG3752	LGP-Community Energy Partnership		May 2017
SCG3753	LGP-Desert Cities Partnership		
SCG3754	LGP-Ventura County Partnership		
SCG3755	LGP-Local Government Energy Efficiency Pilots		
SCG3757	3P-Small Industrial Facility Upgrades		
SCG3758	3P-PREPPS		
SCG3759	3P-On Demand Efficiency		
SCG3760	3P-HERS Rater Training Advancement		
SCG3761	3P-MF Home Tune-Up		March 2017
SCG3762	3P-CLEO		
SCG3763	3P-MF Direct Therm Savings		
SCG3764	3P-LivingWise		
SCG3765	3P-Manufactured Mobile Home		
SCG3768	3P-CA Sustainability Alliance		
SCG3769	3P-PoF		
SCG3770	3P-PACE		
SCG3771	3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)		
SCG3773	LGP-New Partnership Programs		
SCG3774	LGP-LG Regional Resource Placeholder		
SCG3775	CRM		
SCG3776	LGP-Gateway Cities Partnership		
SCG3777	LGP-San Gabriel Valley COG Partnership		
SCG3778	LGP-City of Santa Ana Partnership		May 2017
SCG3779	LGP-West Side Cities Partnership		
SCG3781	LGP-City of Redlands Pilots		May 2017
SCG3783	LGP-Western Riverside Energy Partnership		
SCG3793	3P - IDEEA365 - Instant Rebates! Point of Sale Food Service Equipment Program		
SCG3796	3P-IDEEA365-On Demand Efficiency for Campus Housing		
SCG3797	3P-IDEEA365-Energy Advantage Program for Small Business		
SCG3798	3P-IDEEA365-Connect		
SCG3799	3P-IDEEA365-HBEEP		
SCG3800	3P-IDEEA365-Clear Ice		
SCG3801	LGP - NOCC		
SCG3802	LGP - SANBAG		
SCG3803	SW-FIN-California Hub for EE Financing		
SCG3804	3P-IDEEA365-On-Premise Ozone Laundry		
SCG3805	COM-Direct Install Program		

Program ID	Program Name	Date Added (new programs)	Date Removed
SCG3806	Water AMI Pilot		

Appendix B.1 – Updated Monthly Report

The Updated Monthly Report can be found on the CEDARS website:
<https://cedars.sound-data.com/monthly-reports/statewide-dashboard>

Appendix B.2 – Updated Quarterly Report

The Updated Quarterly Report can be found on the EEStats website:
<http://eestats.cpuc.ca.gov/Views/Documents.aspx>

Appendix C – Third-Party Contract Information

Program ID #	Program Name	Primary Sector	Sector	Delivery Channel	Vendor	Length	Dollar Value
SCG3757	3P-Small Industrial Facility Upgrades	Non-Residential	Industrial	Resource	CLEAResult Consulting Inc.	9 years, 1 month	
SCG3758	3P-PREPPS	Non-Residential	Commercial	Resource	CLEAResult Consulting Inc.	9 years, 1 month	
SCG3759	3P-On Demand Efficiency	Residential	Residential	Resource	Benningfield Group Inc.	9 years, 1 month	
SCG3760	3P-HERS Rater Training Advancement	Residential	Residential	Non-Resource	CLEAResult East Operating LLC	8 years, 10 months	
SCG3762	3P-CLEO	Residential	Residential	Non-Resource	Global Energy Solutions Inc.	9 years, 1 month	
SCG3763	3P-MF Direct Therm Savings	Residential	Residential	Resource	Honeywell International	9 years, 1 month	
SCG3764	3P-LivingWise	Residential	Residential	Resource	Resource Action Plan LLC	9 years	
SCG3765	3P-Manufactured Mobile Home	Residential	Residential	Resource	Eagle Systems International Inc. dba Synergy Corporation	9 years	
SCG3768	3P-CA Sustainability Alliance	Cross-Cutting	Residential, Commercial, Industrial, Agricultural	Non-Resource	Navigant Consulting Inc.	9 years	
SCG3769	3P-PoF	Cross-Cutting	Residential, Commercial, Industrial, Agricultural	Non-Resource	Navigant Consulting Inc.	9 years	
SCG3770	3P-PACE	Cross-Cutting	Residential and Commercial	Non-Resource	Pacific Asian Consortium in Employment	9 years, 11 months	
SCG3771 *	3P-Innovative Designs for Energy Efficiency Activities (IDEEA365)	Cross-Cutting	N/A	Non-Resource	N/A	N/A	
SCG3793	3P-IDEEA365-Instant Rebates! Point-of-Sale Foodservice Rebate	Non-Residential	Commercial	Resource	Energy Solutions	5 years, 3 months	
SCG3796	3P-IDEEA365-ODE for Campus Housing	Non-Residential	Residential and Commercial	Resource	Benningfield Group Inc.	3 years, 11 months	
SCG3797	3P-IDEEA365-Energy Advantage Program for Small Business	Non-Residential	Residential, Commercial, Industrial, Agricultural	Non-Resource	CB&I Environmental & Infrastructure, Inc.	3 years, 6 months	
SCG3798	3P-IDEEA365-Connect	Non-Residential	Commercial and Industrial	Non-Resource	Waypoint Building Group, Inc.	4 years, 6 months	
SCG3799	3P-IDEEA365-HBEEP	Residential	Residential	Non-Resource	ICF Resources LLC	3 years, 2 months	
SCG3800	3P-IDEEA365-Clear Ice	Non-Residential	Commercial	Resource	Cypress Ltd	3 years, 2 months	
SCG3804	3P-IDEEA365-On-Premise Ozone Laundry	Non-Residential	Commercial	Resource	Blackstone Research Solutions Inc.	4 years, 6 months	
						Total	\$113,543,838.21

Notes

* The Innovative Designs for Energy Efficiency Activities 365 (IDEEA365) program provides opportunities for third-party contractors to propose and implement new programs. This Energy Efficiency (EE) program design allows for a "continuous solicitation" portfolio cycle to encourage new innovative technologies, program concepts, and offerings without having to wait for a new program cycle to begin. As such, IDEEA365 is not tied to a specific contractor and does not have contract information.

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-28

SOCALGAS EXHIBIT

**SoCalGas's Comments to US Department of Energy's
Supplemental Notice of Proposed Rulemaking re Gas Furnaces**



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**BEFORE THE
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
UNITED STATES DEPARTMENT OF ENERGY
WASHINGTON, DC**

Energy Conservation Program)
for Consumer Products:) **Docket No. EERE-2014-BT-STD-0031**
Energy Conservation Standards) **RIN 1904-AD20**
For Residential Furnaces)

SOUTHERN CALIFORNIA GAS (SoCalGas®) COMMENTS:

In response to the United States Department of Energy’s (DOE) Supplemental Notice of Proposed Rulemaking (SNOPR) regarding non-weatherized gas furnaces (NWGF) and mobile home gas furnaces (MHGF), as well as the introduction of a separate product class for non-condensing furnaces with a designated input rating threshold, SoCalGas respectfully submits our comments and analyses on the impact to our customers should this standard advance. We commend DOE for revisiting energy conservation standards for residential furnaces and appreciate this opportunity to provide the following comments about this SNOPR.

SoCalGas has been delivering clean, safe and reliable natural gas to its customers for more than 140 years. We are the nation’s largest natural gas distribution utility, serving 20.9 million consumers through 5.8 million meters in more than 500 communities. The company’s service territory encompasses approximately 20,000 square miles in diverse terrain throughout Central and Southern California, from Visalia to the Mexican border.

California leads the nation in energy policy. The state’s Investor Owned Utilities are advancing energy efficiency not only to protect the environment but also to serve our residential, commercial and industrial customers. For decades, SoCalGas has been actively pursuing strategies to promote the efficient use of natural gas and energy efficiency. We have driven advancements in natural gas equipment and low emissions technologies and invested significantly in the advancement towards renewable natural gas and distributed generation.

We appreciate the DOE’s efforts to find a resolution by recommending a split standard. However, the analysis shows that even with the split standard, it continues to be an economic hardship on Southern California customers. SoCalGas submitted two sets of analyses to the original NOPR that provided a comprehensive evaluation of the underlying inputs, assumptions and methods of DOE’s life cycle cost (LCC) analysis and data filtered by region (California and Southern California). We have now conducted a

second analysis based on the updated LCC calculations and associated technical support document (TSD) released with the SNOPR.

Notwithstanding our proven commitment to advancing energy efficiency and our long-standing support of DOE’s efficiency actions, SoCalGas respectfully requests the DOE review the summary of findings below and address all concerns with the TSD and LCC prior to issuing a final rulemaking. We have provided the supporting documents again for your review as well as a recalculation of the impacts to our customers conducted based on the SNOPR.

SUMMARY OF FINDINGS:

- 1) Economic infeasibility for Southern California customers. The California climate and market is drastically different than the states representing the “Rest of the Country,” however, the DOE has regionally categorized California with this group. For this reason, we have conducted a non-weatherized gas furnace (NWGF) LCC analysis using the DOE’s applied model with updated Annual Energy Outlook (AEO) 2016 forecast pricing in the table below. To summarize:
 - a) The average savings for Southern California is over 99 percent less than the “Rest of the Country” region California is identified under for the proposed split standard, putting our customers at a severe disadvantage and making this economically infeasible;
 - b) The simple payback for Southern California is more than three times the “Rest of the Country” region California is identified under for the proposed split standard, making this not cost-effective;
 - c) The average payback for impacted customers in Southern California is more than double the “Rest of the Country” region, again, making this not cost-effective.

Table 1.1 – Lifecycle Cost Analysis for NWGFs¹

Metric	Location	Split Standard Threshold [kBtu/hr]				
		55	60	65	70	75
Average Savings [\$]	National	\$629	\$662	\$621	\$637	\$637
	North	\$607	\$669	\$607	\$621	\$610
	Rest of Country	\$644	\$654	\$638	\$656	\$677
	California	\$383	\$715	\$260	\$281	-\$37
	Southern California	\$3	\$229	\$169	\$187	-\$5
Simple Payback Period [yrs]	National	6.7	6.6	6.8	6.7	6.6
	North	7.3	7.2	7.3	7.2	7.0
	Rest of Country	5.3	4.9	5.0	4.8	5.0
	California	10.4	7.7	11.6	11.0	11.8
	Southern California	19.0	11.0	13.8	11.4	12.5
Average Payback Period [yrs]	National	11.7	10.7	10.0	10.1	10.0
	North	10.6	10.1	10.4	10.5	10.6
	Rest of Country	12.5	11.3	9.6	9.7	9.2
	California	21.3	17.2	19.4	20.5	24.4
	Southern California	26.1	21.7	16.3	17.3	21.0

Assumptions: AEO 2016; 92% AFUE for large furnace category; residential buildings only for California due to sample size; results omitted when there are < 10 samples above the threshold per DOE.

¹ NegaWatt, “Evaluation of DOE Supplemental Proposed Rulemaking on Residential Furnace Standards Life Cycle Cost Analysis: Inputs and Results with Emphasis on Southern California,” pages 9-10, December 20, 2016.

In keeping with SoCalGas' commitment to energy efficiency, we would have welcomed this rulemaking had it proven to be economically feasible to our customers.

- 2) Burden on low-income communities. DOE's own analysis shows that low-income consumers in the "Rest of Country" region may bear a larger burden than other consumers with this rulemaking, despite the split standard.² This burden is compounded by the fact that low- and fixed-income homeowners typically live in smaller spaces, which require less energy to heat and therefore will achieve less annual savings. Additionally, low- and fixed-income renters will likely be forced to deal with higher rents when landlords are required to install high-efficiency furnaces, passing the cost to the renters, contrary to DOE assertions.

DOE maintains that these increased costs are necessary and worthwhile given the energy needs of the nation. The US Census Bureau estimates that nearly a quarter of California residents live in poverty. With a total state population of 38.7 million people,³ that percentage amounts to approximately 9.7 million residents statewide and over 5.2 million within SoCalGas' service territory. This rule may create an undue burden on a significant number of vulnerable residents who do not have the economic flexibility to absorb what might seem to some to be an incidental cost.

- 3) Increases energy consumption. The increased costs of moving to a 92% AFUE minimum efficiency gas furnace from the current industry standard of 80% AFUE, particularly in the retrofit market where the switch from non-condensing to condensing furnaces require changing the flue and providing a condensate drain, make fuel-switching (using split-system or mini-split heat pumps) an attractive alternative to consumers on a cost, rather than performance, basis. A switch from gas to electricity space heating will, however, *increase* source energy consumption due to the inefficiencies of losses in generation, transmission and distribution of electricity.⁴ This is particularly true if the heat pumps with lower performance are selected for cost reasons and when, on very cold weather days, heat pumps don't function well, built-in backup resistance heaters are triggered. The resulting increased source energy use is contrary to the stated goals of the legislation that provides the basis for efficiency standards. The introduction of a 55,000 Btu/h split standard does not change the potential for fuel switching and therefore does not reduce the potential for the increase in source energy consumption, negating the intent of the rulemaking.
- 4) Data requires additional clarification and transparency. The TSD requires clarification on the probability distribution, labor rate, and teardown analysis inputs into the LCC calculation. DOE's LCC calculation is complex and additional documentation and justification for some critical input data is necessary for stakeholders to accurately assess the methodology of the calculations. We have several concerns with this approach:
 - a) Appendix 8B of the TSD⁵ includes some rudimentary statistics background about probability distributions and a table showing the distributions. However, stakeholders are not provided sufficient details and/or information to review and determine the reasonableness and equitability of the inputs on more than one hundred probability distributions.

² Table 11.3.10 and Table 8.6.10 of the TSD, <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0217>

³ January 2015 population, California Department of Finance

⁴ NegaWatt, "Evaluation of DOE Supplemental Proposed Rulemaking on Residential Furnace Standards Life Cycle Cost Analysis: Inputs and Results with Emphasis on Southern California," page 6, section "General Observations, Three," December 20, 2016.

⁵ <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0217>

- b) RS Means, a reference cited by DOE, includes city-level labor rates but DOE up-sampled that data to statewide or multi-state averages before using it.⁶ We recommend that the city level data be used instead to improve the regional accuracy of the LCC results.
- c) The DOE used teardown analysis to create the furnace first cost input for the LCC model. Per Chapter 5 of the TSD, the DOE did physical teardowns of 31 models, virtual teardowns of 46 models, and obtained some real-world manufacturer selling prices. However, DOE does not provide detailed selection criteria, nor make, model, and specifications of the equipment that were studied. Stakeholders are unable to confirm the representativeness of the selection and the conclusions drawn.

With additional clarification on these important items, stakeholders will be able to better understand and review the LCC calculations that are believed to be yielding overstated LCC savings.

- 5) No-New-Standards Case Furnace Assignment Methodology: SoCalGas, along with various stakeholders were concerned with the no-new-standards case furnace assignment methodology during the NOPR phase. In the SNOPR, the DOE discussed this comment but did not implement any improvements. Furthermore, the addition of the split standard makes the accuracy of this methodology even more critical. National energy savings are calculated against the no-new-standards case. It therefore makes a significant difference whether a building sample is placed in the small furnace category, and is thus certainly not impacted, or placed in the large category and potentially impacted.

The DOE's no-new-standards-case furnace efficiencies are based on shipment data and an AHRI directory of furnace products. The shipment data is at best, categorized by state and by condensing versus noncondensing and the directory does not include sales data. This is very coarse data to apply to the specific buildings in the RECS database. DOE states that they have requested sales data but have not received it. We recommend that DOE and the manufacturers further pursue the sharing of non-proprietary data given its importance in improving the accuracy of the selection model. We also recommend that the DOE use building specific data (e.g. heating load) when assigning a furnace efficiency during each trial to improve accuracy.

The DOE's furnace capacity section model is currently based on building square footage, outdoor design temperature, and the aforementioned shipment and directory data. It does not include building specific data such as building age or heating load. The DOE responded to a comment during the October 17, 2016 public meeting stating that home vintage was not an input into their furnace capacity assignment algorithm. Given the importance of building envelope tightness when evaluating HVAC sizes and energy/thermal efficiency, the absence of this information in the no-new-standard furnace selection model makes the DOE's offer of a new split standard inadequate.

The DOE also assumes that furnaces are typically oversized and therefore consumers that would otherwise choose a furnace that has a capacity slightly above the threshold in a given split standard would downsize in order to purchase a cheaper furnace.⁷ DOE cites two sources to support their choice of a 35 percent oversizing factor. The possibility that existing oversizing factors may vary by retrofit versus new construction, region, capacity range, home vintage, air conditioning requirements, and home size is not addressed.

- 6) LCC Savings Overstated: DOE's predictive LCC model results combine general assumptions and a limited consumer model that overstate LCC savings compared to a more robust Consumer Economic

⁶ TSD, page 8D-37, <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0217>

⁷ Appendix 8M of the TSD provides a brief explanation of the downsizing methodology.

Decision-making (CED) framework methodology,⁸ offered by GTI. In response, DOE discussed this comment in the SNOPR but did not change the consumer model. DOE did not further utilize the American Home Comfort Study as GTI and others recommended. They also did not address the significant deviation the GTI model shows from what DOE claims to be the LCC results.

We recommend that prolonging furnace replacement by way of deep maintenance repairs should be accounted for as a consumer choice in the fuel switching model. This may be the most economical option for some retrofit consumers who need equipment with capacity above the threshold but for which switching to electric equipment would be too expensive. If this option were added, it will increase the accuracy of the fuel switching model and reduce nationwide savings. Additionally, a consumer's choice to prolong aged equipment may delay the commercialization of higher efficient equipment, invariably, adversely affecting the consumers with overstated LCC savings.

- 7) Aged Price Forecasts: DOE's use of AEO 2015 price forecasts for energy prices is outdated. We recommend that DOE implement AEO 2016 price forecasts into a revised LCC spreadsheet and SNOPR immediately rather than when the final rule is determined. This would give stakeholders a chance to review and understand the true impacts the price forecast changes would have on the LCC outputs.

Attached for your further review and consideration is (1) the GTI technical analysis originally provided at the time of our NOPR comment submission, and (2) an updated NegaWatt technical analysis of supplemental TSD.

CONCLUSION

SoCalGas has dedicated decades to advancing efficiencies in energy use and our results in that area are substantial. We will continue to work to drive higher efficiency standards wherever it is proven to be cost effective for our customers. Our efforts have realized savings equivalent to almost 152 million therms over the past five years and over 560 million therms since 1990. Currently, we run 82 energy-efficiency programs, have an annual savings goal of over 25 million therms, an annual budget of \$89.5 million and employ 186 people to deliver these programs. In addition, our low-income energy efficiency programs have treated over 569,000 low-income households with energy efficiency upgrades at no cost to those households. In 2014 alone, we avoided 170,000 tons of CO₂ emissions. Our energy efficiency programs alone have also helped to create over 8,000 jobs in California.

We would like to reiterate our support for the DOE for their tremendous effort in trying to update the energy conservation standards for residential furnaces. We thank the DOE for the opportunity to be involved in this process and encourage the DOE to carefully consider the recommendations outlined in this letter prior to the issuance of a final decision.

Sincerely,



Lisa Alexander
Vice President, Customer Solutions

⁸ GTI, "Technical Analysis of DOE Notice of Proposed Rulemaking on Residential Furnace Minimum Efficiencies and Its Impact in Southern California," pages 6-9, July 7, 2015.

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-29

SOCALGAS EXHIBIT

**SoCalGas, SDG&E and SoCal Edison Comments on SNOPR for Energy Conservation
Standards for Residential Conventional Cooking Products**

SoCalGas, SDG&E and Southern California Edison Comments on SNOPR for Energy Conservation Standards for Residential Conventional Cooking Products

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November 2, 2016



Mr. John Cymbalsky
U.S. Department of Energy
Building Technologies Program
Mailstop EE-5B
1000 Independence Avenue, SW.
Washington, DC 20585-0121

Dear Mr. Cymbalsky:

This letter comprises the comments of Southern California Gas Company (SoCalGas), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) (collectively referred to herein as the Southern California Investor Owned Utilities or SoCal IOUs) in response to the Department of Energy (DOE) Energy Conservation Standards Supplemental Notice of Proposed Rule (SNOPR) for residential conventional cooking products.

The SoCal IOUs represent some of the largest utility companies in the Western United States, serving over 20 million customers. As energy companies, we understand the potential of appliance efficiency standards to cut costs and reduce consumption while maintaining or increasing consumer utility of the products. We have a responsibility to our customers to advocate for standards that accurately reflect the climate and conditions of our respective service areas, so as to maximize these positive effects.

We appreciate this opportunity to provide the following comments about this SNOPR. We commend DOE for revisiting energy conservation standards for residential cooking products that were last updated in the April 2009 Final Rule and planning to establish standards for gas and electric residential cooking products.

1) The SoCal IOUs support DOE adopting prescriptive design requirements only for conventional ovens. We support DOE adopting performance requirements for electric and gas cooking tops since the August 2016 Test Procedure SNOPR proposed a test method to fully capture energy consumption.

The SoCal IOUs support adopting prescriptive design requirements for the control system of conventional ovens and continuing to prohibit constant burning pilot lights in conventional gas ovens. As noted by DOE, there are uncertainties in calculating performance-based standards using the conventional oven test procedure that DOE has proposed to repeal in the August 2016 Test Procedure SNOPR. More specifically, the test procedures for conventional ovens do not fully capture energy consumption in commercial-style ovens. As such, prescriptive requirements circumvent the issues associated with the test procedures while effectively prohibiting and encouraging specific designs. However, for cooking tops, the SoCal IOUs support DOE adopting performance requirements, which are based on the cooking tops test procedures proposed in DOE's August 2016 Test Procedure SNOPR.

- 2) The SoCal IOUs reviewed all product classes within the DOE proposed trial standard level (TSL) 2 and found all calculations and rationale for each to be reasonable, with the exception of Product Class 3 (gas cooking tops). To resolve this while maintaining the viability of commercial-style features, we support TSL 2 but with efficiency level (EL) 0 for Product Class 3.**

We commend DOE for their goal of maintaining all commercial-style features in TSL 2 and for the low payback periods for the majority of product classes. However, we are concerned about the 26.1 percent of gas cooking top consumers that will be adversely impacted by TSL 2 as shown in Table 8.2.58 below from the Technical Support Document (TSD)¹ and the summary tab of the life cycle cost (LCC) spreadsheet².

Table 8.2.58 No-New-Standards Case Efficiency Distribution for Gas Cooking Tops in 2019

Efficiency Level	Water TP IAEC (kBtu/year)	Market Share (%)
Baseline	1,105	26.1
1	924	24.0
2	838	36.7
3	730	13.2

This metric of average payback period is calculated against the no-new-standards case and non-affected consumers (i.e. those assigned to EL 1 and higher since they already comply) are ignored. To create the no-new-standards case, DOE assigns an efficiency level to each home using a “consumer-choice model” that takes into account consumers’ sensitivity to first cost, historical shipments, equipment price data, and housing type³. Per the table above, 26.1 percent of gas cooking top customers are assigned to EL 0 (i.e. “baseline”) and it is this group that has an average payback period of 19.7 years. This is a substantial quantity of gas cooking top consumers who will be adversely impacted with a poor payback period.

We agree with DOE that EL 2 for gas cooking tops is not desirable because consumers should retain their ability to purchase gas cooking tops with all available commercial-style features. Therefore, we recommend TSL 2, with EL 0 (baseline) for Product Class 3. This will yield only a fractional reduction in national energy savings of 0.06 quads⁴.

- 3) The SoCal IOUs support DOE’s decision to consider induction heating as a technology option for electric smooth cooking tops instead of creating a separate product class.**

In response to the February 2014 Request for Information on cooking product standards, the California IOUs comment letter expressed support for induction heating to be considered as a technology option for electric smooth cooking tops.⁵ We continue to support DOE’s decision to consider induction heating as a technology option for electric smooth cooking tops.

¹ TSD p.8-50, <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0005-0052>

² <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0005-0049>

³ TSD p. 8-46 & 8-47, <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0005-0052>

⁴ TSD p. 10-13, <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0005-0052>

⁵ <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0005-0011>

As stated in this SNOPR, DOE found that induction heating has the same enhanced utility as electric cooking tops with smooth elements by being easier to clean than electric cooking tops with coil elements while providing the same basic function of cooking or heating foods. We support DOE's conclusion that while induction cooking tops are only compatible with ferromagnetic cooking vessels, there is no unique consumer utility associated with induction cooking tops which would warrant a separate product class. DOE's lifecycle cost analysis accounted for the replacement costs of ferromagnetic cooking vessels, which are required to cook with induction cooking tops. DOE also conducted standby power testing on full-surface induction cooking tops and found the standby power required was below the average standby power for other tested cooking tops.

The SoCal IOUs support the analysis, as presented in this SNOPR, of residential induction cooking tops that are available on the market, including DOE conducting testing and tearing down multiple sample units. The SoCal IOUs also support DOE's decision to consider induction heating as a technology option for electric smooth cooking tops instead of creating a separate product class since induction heating provides the same utility electric smooth cooking tops with electric resistance heating.

4) The SoCal IOUs recommend that DOE use the most updated publication of the Annual Energy Outlook (AEO 2016) to improve the accuracy of the LCC results.

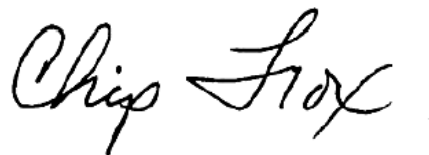
DOE uses AEO 2015 for their energy price forecasts, but AEO 2016 is available⁶ and more accurate. We recommend that DOE update their LCC spreadsheet, SNOPR, and all cost related calculations for each TSL. DOE should then confirm or update the recommended TSL as needed.

In conclusion, we would like to reiterate our support to DOE for establishing standards for conventional cooking products. We thank DOE for the opportunity to be involved in this process and encourage DOE to carefully consider the recommendations outlined in this letter.

Sincerely,



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⁶ <https://www.eia.gov/forecasts/aeo/index.cfm>

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-30

SOCALGAS EXHIBIT

**Methodology for Evaluating Cost-Effectiveness of Commercial Energy Code Changes Report
Prepared by Pacific Northwest National Laboratory for US Dept. of Energy**

Methodology for Evaluating Cost-Effectiveness of Commercial Energy Code Changes

R. Hart, B. Liu

August 2015

Prepared by Pacific Northwest National Laboratory

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Methodology for Evaluating Cost-effectiveness of Commercial Energy Code Changes

R Hart
B Liu

August 2015

Prepared for
the U.S. Department of Energy
under Contract DE-AC05-76RL01830

Prepared by
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Summary

This document lays out the U.S. Department of Energy's (DOE's) methodology for evaluating the cost-effectiveness of energy code and standard¹ proposals and editions. The evaluation is applied to new provisions or editions of ANSI/ASHRAE/IES² Standard 90.1 and the International Energy Conservation Code. The methodology follows standard life-cycle cost (LCC) economic analysis procedures. Cost-effectiveness evaluation requires three steps: 1) evaluating the energy and energy cost savings of code changes, 2) evaluating the incremental and replacement costs related to the changes, and 3) determining the cost-effectiveness of energy code changes based on those costs and savings over time.

Cost-effectiveness can be evaluated for an individual code change proposal or an entire edition-to-edition upgrade of an energy code. Multiple parties are interested in building energy codes, and they have different economic viewpoints. To account for this, and the fact that the ASHRAE Standing Standard Project Committee (SSPC) 90.1 has established an economic analysis procedure, three scenarios have been established for the cost-effectiveness methodology:

1. **Scenario 1** (also referred to as the *Publicly-Owned Method*): LCC analysis method representing government or public ownership (without borrowing or taxes).
2. **Scenario 2** (also referred to as the *Privately-Owned Method*): LCC analysis method representing private or business ownership (includes loan and tax impacts).
3. **Scenario 3** (also referred to as the *ASHRAE 90.1 Scalar Method*): Represents a pre-tax private investment point of view, and uses economic inputs established by the ASHRAE SSPC 90.1.

In evaluating code change proposals and assessing new editions of commercial building energy codes, DOE intends to calculate multiple metrics selected from the following:

- Life-cycle cost net savings (a.k.a., net present value (NPV) of savings)
- Savings-to-investment ratio (SIR)
- The ASHRAE 90.1 scalar ratio
- Simple payback period

NPV of savings based on LCC is the primary metric DOE intends to use to evaluate whether a particular code change is cost-effective. Any code change that results in an NPV of savings greater than to zero (i.e., monetary benefits exceed costs) will be considered cost-effective. The payback period, scalar ratio, and SIR analyses provide additional information DOE believes is helpful to other participants in code change processes and to states and jurisdictions considering adoption of a new code.

Economic parameters are chosen to represent the economic impact of a typical commercial building ownership or tenant situation. DOE's approach is to consult appropriate sources of publicly available information to establish assumptions for each financial, economic, and energy price parameter, following

¹ Throughout this document, when referring to energy codes, energy standards are included, as they become adopted into code, and are evaluated for their impact as an adopted code.

² ANSI – American National Standards Institute; ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers; IES – Illuminating Engineering Society; IESNA – Illuminating Engineering Society of North America (IESNA rather than IES was identified with Standard 90.1 prior to 90.1-2010)

the guidelines established in this methodology. DOE intends to update parameters for future analyses to account for changing economic conditions, and document the source of each parameter in the specific analysis.

Acknowledgments

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Reid Hart, PE
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Acronyms and Abbreviations

ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BECP	Building Energy Codes Program
DEER	Database for Energy Efficient Resources
DOE	U.S. Department of Energy
EIA	Energy Information Administration
EISA	Energy Independence and Security Act of 2007
FEMP	Federal Energy Management Program
HVAC	heating, ventilating, and air-conditioning
ICC	International Code Council
IECC	International Energy Conservation Code
IES	Illuminating Engineering Society
LCC	life-cycle cost
MEP	mechanical, electrical, and plumbing
MHC	McGraw-Hill Construction
NIST	National Institute of Standards and Technology
NPV	net present value
PNNL	Pacific Northwest National Laboratory
PPI	Producer Price Index
SIR	savings-to-investment ratio
SSPC	Standing Standard Project Committee

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1.0 Introduction

The U.S. Department of Energy (DOE)¹ has developed and established a methodology for evaluating the energy and economic performance of commercial energy codes. This methodology serves two primary purposes. First, as DOE participates in the codes and standards development processes, DOE will use the methodology described herein, where appropriate, to ensure that DOE's proposals are both energy efficient and cost-effective. Second, when a new edition of ANSI/ASHRAE/IES² Standard 90.1 is published, DOE will evaluate the new standards and codes³ as a whole to estimate expected energy savings and assess cost-effectiveness, which will help inform states and local jurisdictions interested in adopting the new codes. DOE may also evaluate the cost-effectiveness of new editions of the International Energy Conservation Code (IECC). DOE's measure of cost-effectiveness balances longer-term energy savings against increases to initial costs through a life-cycle cost (LCC) perspective.

1.1 Need for Cost-effectiveness Analysis

Section 307 of the Energy Conservation and Production Act, as amended, directs DOE to support voluntary building energy codes by providing "assistance in determining the cost-effectiveness and the technical feasibility of the energy efficiency measures included in such standards and codes" (42 U.S.C. 6836(a)(3)) and by periodically reviewing the technical and economic basis of the voluntary building energy codes and seeking adoption of all technologically feasible and economically justified energy efficiency measures and otherwise participating in any industry process for review and modification of such codes (42 U.S.C. 6836(b)(2) and (3)).

The methodology described here supports DOE in fulfilling its charge to evaluate energy codes and energy code proposals. Where evaluation of the cost-effectiveness of codes is required, DOE intends to follow the procedures and use the parameters presented here. In some cases, DOE may rely on extant cost-effectiveness studies directly addressing the building elements involved in a proposed change, if such can be identified. When evaluating code changes proposed by entities other than DOE,⁴ DOE may rely on energy savings estimates, cost estimates, or cost-effectiveness analyses provided by the proponent(s) or others if DOE deems the estimates and calculations credible.

¹ Throughout this document, DOE is identified as the primary actor in developing and applying the discussed cost-effectiveness methodology. In this activity, DOE has and will use outside resources, including the work of other parties, such as the National Laboratories, to achieve its goal of evaluating cost-effectiveness of code proposals. DOE engages in this activity through the Buildings Technology Office, and uses resources from other divisions in DOE, including the Federal Energy Management Program (FEMP) and the Energy Information Administration (EIA).

² ANSI – American National Standards Institute; ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers; IES – Illuminating Engineering Society; IESNA – Illuminating Engineering Society of North America (IESNA rather than IES was identified with Standard 90.1 prior to 90.1-2010)

³ Throughout this document, when referring to energy codes, energy standards are included, as they become adopted into code, and are evaluated for their impact as an adopted code.

⁴ All code change proposals for ASHRAE Standard 90.1 are publicly available and are published by ASHRAE as addenda for public review so that public comments can be considered by the committee in a consensus process that follows ANSI procedures. The consensus process determines whether the code changes are approved for addition to the next published edition of Standard 90.1.

Incremental first cost or cost-effectiveness information is requested by code development bodies for proposals to energy codes. For example, the International Code Council (ICC) Code Development Procedures (ICC 2014) require the following:

3.3.5.6 Cost Impact: The proponent shall indicate one of the following regarding the cost impact of the code change proposal: 1) the code change proposal will increase the cost of construction; or 2) the code change proposal will not increase the cost of construction. The proponent shall submit information which substantiates either assertion. This information will be considered by the code development committee and will be included in the bibliography of the published code change proposal. Any proposal submitted which does not include the requisite cost information shall be considered incomplete and shall not be processed.

The ASHRAE 90.1 Standing Standard Project Committee (SSPC) discusses cost-effectiveness analysis related to the ANSI consensus process on pages 1 and 4 of its recent work plan:⁵

The main goal and primary responsibility is to publish a consensus standard in mandatory language: That sets practical, technically feasible, and **cost effective** minimum energy efficiency requirements for commercial buildings, except for low-rise residential buildings, on a consistent time schedule. *[Emphasis added]*

...Thus, neither ASHRAE nor ANSI has an overt requirement for economic analysis, nor for any other analysis for that matter, except that the SSPC must reach “consensus” before a new standard will be approved by ANSI.

That said, the Committee has often used economic analysis in its decision-making process and it continues to believe that economics play an important role in establishing the requirements for a minimum national building energy efficiency standard. Sometimes the Committee may desire a rigorous and detailed level of economic analysis, while at other times intuitive professional judgment as to the economic impact of a proposed new measure—*without rigorous analysis*—may be sufficient.

Thus, ICC requires cost, but not cost-effectiveness information, although such analysis often helps to advance a proposal that increases the cost of construction. ASHRAE SSPC 90.1 sees benefit in cost-effectiveness analysis, although it is not always seen as necessary in the consensus process. In both cases, cost-effectiveness, where used during the code development process, is applied to individual code change proposals and not codes as a whole. Many states⁶ require or encourage cost-effectiveness analysis of the energy code in adoption proceedings to demonstrate that overall the code has financial benefit to the group of building users as a whole.

⁵ Work plan presented and approved at ASHRAE SSPC 90.1 meeting in June 2014, Seattle, New York State Energy Conservation Construction Code Act WA.

⁶ As an example, section 11-101 of the *New York State Energy Conservation Construction Code Act* requires “such code mandate that economically reasonable energy conservation techniques be used” and cost-effectiveness analysis of energy codes is used in their adoption process. Available at: [http://public.leginfo.state.ny.us/LAWSSEAF.cgi?QUERYTYPE=LAWS+&QUERYDATA=\\$\\$ENG11-101\\$\\$@TXENG011-101+&LIST=LAW+&BROWSER=BROWSER+&TOKEN=01053978+&TARGET=VIEW](http://public.leginfo.state.ny.us/LAWSSEAF.cgi?QUERYTYPE=LAWS+&QUERYDATA=$$ENG11-101$$@TXENG011-101+&LIST=LAW+&BROWSER=BROWSER+&TOKEN=01053978+&TARGET=VIEW).

1.2 Evaluating Cost-effectiveness

Evaluating cost-effectiveness requires three primary steps: 1) evaluating the energy and energy cost savings of code changes, 2) evaluating the incremental and replacement costs related to the changes, and 3) determining the cost-effectiveness of energy code changes based on those costs and savings over time. The DOE methodology estimates the energy impact by simulating the effects of the code change(s) on typical new commercial buildings, assuming both old and new code provisions are implemented fully and correctly. The methodology does not estimate rates of code adoption or compliance. Cost-effectiveness is defined primarily in terms of LCC evaluation, although the DOE methodology includes several metrics intended to assist states considering adoption of new codes.

DOE intends to use the methodology described in this document to address DOE's legislative direction related to building energy codes. DOE also intends to use this methodology to inform its participation in the update processes of ASHRAE Standard 90.1 and the IECC, both in developing code-change proposals and in assessing the proposals of others when necessary. DOE further intends to use this methodology in comparing the cost-effectiveness of new code editions to prior editions or existing state energy efficiency codes.

The focus of this document is commercial buildings, which DOE defines in a manner consistent with both Standard 90.1 and the IECC—buildings except one- and two-family dwellings, townhouses, and low-rise (three stories or less above grade) multifamily residential buildings.

This document is arranged into four primary parts covering the following:

1. Estimating the Energy and Energy Cost Savings of Code Changes—by simulating changes to representative building types. DOE defines commercial prototype buildings, establishes typical construction and operating assumptions, and identifies climate locations to be used in estimating impacts in all climate zones and all states. The building prototypes cover a range of the most typical commercial buildings and include a variety of building system types (e.g., heating and cooling equipment) to facilitate appropriate accounting for the energy use of different commercial occupancies.
2. Estimating the Incremental Cost of Code Changes—by comparing the first cost of baseline buildings to the first cost of buildings with the code implemented. Incremental replacement and maintenance costs are also accounted for. A combination of methods is used to arrive at a national incremental cost, and then adjustment factors are applied to arrive at incremental costs appropriate for states.
3. Estimating the Cost-effectiveness of Code Changes—by comparing energy cost savings to increases in the first cost of the buildings. The methodology defines four metrics—net present value (NPV) of savings, savings-to-investment ratio (SIR), scalar ratio, and simple payback period—that may be calculated. It also establishes sources for the economic parameters to be used in estimating those metrics and identifies sources of energy-efficiency measure costs.
4. Aggregating Energy and Economic Results—across building types and climate locations. The methodology establishes sources for weighting factors to be used in aggregating location- and building-type-specific results to state, national, climate zone, or other domain results.

2.0 Estimating the Energy and Energy Cost Savings of Code Changes

The first step in assessing the impact of a code change or a new code is estimating the energy and energy cost savings of the associated changes. DOE will usually employ computer simulation analysis to estimate the energy impact of a code change. (Situations in which other analytical approaches might be preferred are discussed later.) Where credible energy savings estimates are not available, DOE intends to conduct analysis using an appropriate building energy estimation tool. In most cases, DOE intends to use the EnergyPlus™ (EnergyPlus 2011) software as the primary tool for its analyses. If necessary to more accurately capture the relevant impacts of a particular code change, DOE may supplement EnergyPlus with other software tools, research studies, or performance databases. Such code changes will be addressed case by case.

Code changes affecting a particular climate zone will be simulated in a weather location representative of that zone. Where a code change affects multiple climate zones, DOE intends to produce an aggregate (national or state) energy impact estimate based on simulation results from weather locations representative of each zone, weighted to account for estimated new commercial construction by zone and the fraction of specific building types that will be affected by the code change. Code changes affecting a particular climate zone will be simulated in representative weather locations. DOE's methodology includes weighting factors based on recent new building construction data to allow the individual location results to be aggregated to climate-zone and national averages as needed. These methodologies, weighting factors, and aggregation approaches are described in Section 5.0.

2.1 Building Energy Use Simulation

The energy performance of most energy-efficiency measures in the scope of building energy codes can be estimated by computer simulation. In estimating the energy performance of pre- and post-revision codes, two building cases will be analyzed: 1) a building that complies with the pre-revision code and 2) an otherwise identical building that complies with the revised code under analysis. These two building cases will be simulated in a variety of locations to estimate the overall (national average) energy impact of the new code or code proposal. The inputs used in those simulations are discussed in the following sections.

2.1.1 Energy Simulation Tool

DOE intends to use a whole building simulation tool to calculate annual energy consumption for relevant end uses. For most situations, the EnergyPlus software, developed by DOE, will be the tool of choice. EnergyPlus provides for detailed time-step (hourly or shorter time steps are typical) simulation of a building's energy consumption throughout a full year, based on typical weather data for a given location. It covers most aspects of building systems impacting energy use in commercial buildings: envelopes; heating, ventilating, and air-conditioning (HVAC) equipment and systems; water heating equipment and systems; lighting systems; and plug and process loads. Depending on how building energy codes evolve, it may be necessary to identify additional tools to estimate the impacts of some changes. For example, inputs to EnergyPlus are often established with survey data, separate engineering calculations, or ancillary analysis programs, as some systems are not directly covered within EnergyPlus

(e.g., elevator operation, swimming pools, and two-dimensional heat transfer through assemblies of building materials).

DOE recognizes there are other tools that can produce credible energy estimates. DOE intends to use EnergyPlus as its primary tool because it includes advanced simulation capabilities, is under active development, is recognized as one of the leading simulation tools, and has the potential to include capabilities either unavailable or less sophisticated in other accepted simulation tools. EnergyPlus has capabilities for detailed simulation of complex HVAC systems, advanced capabilities for simulating interaction between primary and secondary HVAC systems, and the potential for analyzing detailed control strategies.

2.1.2 Building Prototypes

Separate simulations are typically conducted for multiple commercial building prototypes. The prototypes used in the simulations are intended to represent a cross section of common commercial building types covering 80% of new commercial construction. DOE developed 16 prototype building models, which were reviewed extensively by building industry experts on ASHRAE SSSC 90.1 during development and assessment of multiple editions of ASHRAE Standard 90.1. These prototype models, their detailed characteristics, and their development are published on DOE's Building Energy Codes Program (BCEP) web site.¹ A detailed description of the prototypes can also be found in a technical report published by Pacific Northwest National Laboratory (PNNL), *Energy and Cost Savings Analysis of ASHRAE Standard 90.1-2010* (Thornton et al. 2011). The prototype models are further described in detail in the quantitative determination of the energy savings of Standard 20.1-2013 (Halverson et al. 2014). Table 2.1 shows the general characteristics DOE intends to use in analyzing the prototypes. Note that any of the prototype characteristics may be modified if a code change impacts it or such modification adds accuracy to the energy savings estimate for particular code changes.

DOE may select a subset of these prototype buildings and simulate them in representative climate locations for the cost-effectiveness analysis to represent most of the energy and cost impacts of the code changes in a particular code or proposal analysis. This approach is based on the fact that not all code requirements will apply to a set of standardized prototypes. The overall savings of a code edition will be well characterized if the preponderance of code measures and climate zones are directly modeled. The selection approach is discussed further in Section 5.1.

¹ See www.energycodes.gov/development/commercial/90.1_models.

Table 2.1. Commercial Prototype Building Basic Characteristics

Building Prototype	Floor Area (ft ²)	Number of Floors	Aspect Ratio	Window-to-Wall Ratio (WWR)	Floor-to-Floor Height (ft)
Small Office	5,500	1	1.5	15%	10
Medium Office	53,630	3	1.5	33%	13
Large Office	498,640	12*	1.5	40%	13
Standalone Retail	24,690	1	1.28	7%	20
Strip Mall	22,500	1	4	11%	17
Primary School	73,970	1	N/A	35%	13
Secondary School	210,910	2	N/A	33%	13
Outpatient Healthcare	40,950	3	N/A	20%	10
Hospital	241,410	5*	1.33	16%	14
Small Hotel	43,210	4	3	11%	9, 11 [‡]
Large Hotel	122,120	6*	5.1, 3.8**	27%	10, 13 [‡]
Warehouse	52,050	1	2.2	0.71% [†]	28
Quick-Service Restaurant	2,500	1	1	14%	10
Full-Service Restaurant	5,500	1	1	18%	10
Mid-Rise Apartment	33,740	4	2.75	15%	10
High-Rise Apartment	84,360	10	2.75	15%	10

* These buildings also include a basement, which is not included in the number of floors.

** The large hotel basement aspect ratio is 3.8:1; all other floors have an aspect ratio of 5.1:1.

† For the warehouse, 0.71% is the overall WWR. The warehouse area has no windows; the WWR for the small office in the warehouse is 12%.

‡ The second number is the height of the first floor only.

2.1.3 Default Inputs

Input values for building components that do not differ between the two subject codes will be set to either 1) match a shared code requirement if one exists, 2) match standard reference design specifications from the code's performance path if the component has such specifications, or 3) match best estimates of typical practice otherwise. Examples of these items are 1) wall insulation R-values that are the same in both code editions, 2) the heating system type required for performance analysis, and 3) typical internal equipment (plug) loads based on surveys or load calculation handbooks, respectively. Because such component inputs are used in both pre- and post-revision simulations, their specific values are considered neutral and are of secondary importance, so it is important only that they be reasonably typical of the construction types being evaluated.

2.1.4 Provisions Requiring Special Consideration

Some building components or energy conservation measures do not lend themselves to straightforward pre- and post-change simulation of energy consumption. For example, the use of hourly simulation is of dubious value in assessing the energy impact of service water heat piping insulation. Rather than including an exact piping heat loss model in the building simulation, typical expected losses may be separately calculated and entered as loads into the simulation model.

Another situation requiring special consideration involves analysis of new or innovative equipment that cannot be implemented directly in the energy simulation software. One example is a heat recovery device for service water heating that uses heat rejected from the chiller. Analysis of such a proposal can be effectively performed by analyzing the load outputs from EnergyPlus in a separate tabular analysis using standard engineering formulas for the impact of heat recovery on the energy use of the building. Another example of post processing is analysis of water-side economizers for Addendum *du* to ASHRAE Standard 90.1-2013 using hourly data extracted from EnergyPlus models (Hart et al. 2014a).

2.2 Weather Locations

Simulations (and other analyses as appropriate) will usually be conducted in one representative weather location per selected climate zone in the code, including a separate location for each moisture regime.² Table 2.2 shows the climate locations typically used for a national savings analysis, each of which is represented by a Typical Meteorological Year (TMY3)³ weather data file. The locations shown in Table 2.2 for analysis through Standard 90.1-2013 were selected to be reasonably representative of their respective climate zones by Briggs et al. (2003). ASHRAE SSPC 90.1 has recently updated the representative cities to adopt changes made in ASHRAE Standard 169-2013, *Climatic Data for Building Design Standards*, and to provide a better match for actual average climate in each climate zone. DOE may use these updated representative locations (also shown in Table 2.2) for analysis starting with Standard 90.1-2016 and the 2018 IECC. There are several approaches for climate zone selection:

- For a national level energy saving analysis, up to 16 climate locations are used, selected from those shown in Table 2.2.
- For a national level cost-effectiveness analysis, DOE may select a subset of the climate zones to represent most of the energy and cost impacts of the code changes in a particular code or proposal analysis. The selection approach is discussed further in Section 5.1.
- For a state level code cost-effectiveness analysis, alternate cities located in each climate zone for the state are selected. A TMY3 weather station with robust data is selected within the state where possible, or adjacent to the state being analyzed if better data is in the adjacent city.
- For measures or code changes that impact primarily building envelope or are not impacted by humidity conditions, the cities representing the thermal climate zones may be used, with the results applying to the climate zones that share the same thermal climate zone numbers, regardless of moisture regime.

² Moisture regimes reflect the average humidity in a climate zone. As seen in Table 2.2, moisture regime A represents higher humidity (moist) than B (dry), while marine (C) zones have some moisture, but also have more moderate temperature ranges.

³ See http://rredc.nrel.gov/solar/old_data/nsrdb/1991-2005/tmy3/.

- Some analyses are conducted only for the adjoining climate zones where requirements are proposed to change. For example, increased exterior duct insulation in climate zone 5 and colder only requires an analysis in thermal climate zones 4 and 5 where the analysis shows the extra insulation is not cost-effective in climate zone 4, but is cost-effective in climate zone 5. Because a logical argument can be made that colder climate zones will result in more heat loss, the extra insulation can be presumed to be cost-effective in climate zones 6 through 8.

Table 2.2. Climate Locations Used in Energy Simulations

Climate Zone*	Moisture Regime	Representative Locations for 90.1 National Analyses			
		Analysis Before and Including 90.1-2013 and 2015 IECC		Analysis Starting with 90.1-2016 and 2018 IECC	
		City, State	Thermal Climate Zone	City, State	Thermal Climate Zone
1A	Moist	Miami, FL	1	Honolulu, HI	1
2A	Moist	Houston, TX	2	Tampa, FL	2
2B	Dry	Phoenix, AZ	N/A	Tucson, AZ	N/A
3A	Moist	Memphis, TN	N/A	Atlanta, GA	3
3B	Dry	El Paso, TX	3	El Paso, TX	N/A
3C	Marine	San Francisco, CA	N/A	San Diego, CA	N/A
4A	Moist	Baltimore, MD	N/A	New York, NY	4
4B	Dry	Albuquerque, NM	4	Albuquerque, NM	N/A
4C	Marine	Salem, OR	N/A	Seattle, WA	N/A
5A	Moist	Chicago, IL	5	Buffalo, NY	5
5B	Dry	Boise, ID	N/A	Denver, CO	N/A
5C	Marine	n/a	N/A	Port Angeles, WA	N/A
6A	Moist	Burlington, VT	6	Rochester, MN	6
6B	Dry	Helena, MT	N/A	Great Falls, MT	N/A
7	N/A	Duluth, MN	7	International Falls, MN	7
8	N/A	Fairbanks, AK	8	Fairbanks, AK	8

* Climate zones outside the United States are not shown.

2.3 Energy Cost Savings

Annual energy costs are a necessary part of the cost-effectiveness analysis. They are based on the energy consumption multiplied by average energy prices. For the national Standard 90.1 analysis, DOE will use the same energy prices as approved by ASHRAE SSPC 90.1 for standard development—energy prices that were based on DOE Energy Information Administration (EIA) data. Using the same prices that were used for development of a particular edition of Standard 90.1 provides a consistent approach and applies a similar cost-effectiveness threshold to the entire standard that was used for individual proposals as the standard was developed. The ASHRAE 90.1 Scalar Method identifies a fossil fuel rate⁴ that is primarily applied to heating energy use, with some application to service water heating. DOE may apply this mixed fuel approach to state cost-effectiveness analysis.

⁴ The ASHRAE 90.1 Scalar Method fossil fuel rate is a blended heating rate and includes proportional costs for natural gas, propane, heating oil, and electric heat relative to national heating fuel use share. Heating energy use in the prototypes for fossil fuel equipment is calculated in therms based on natural gas equipment, but in practice, similar equipment may be operated on propane, or boilers that are modeled as natural gas may use oil in some regions.

In any event, prices used for cost-effectiveness energy analyses are derived from the DOE EIA data (EIA 2012, 2014). DOE intends to use the most recently available national or state annual average commercial energy prices from the EIA. Annual average prices are used to avoid selecting a short-term price that is subject to seasonal fluctuations. If energy prices from the most recent year(s) are unusually high or low, DOE may use a longer-term average of energy prices, such as the average from the past 3 years and projections for the next 2 years.⁵ For individual state analysis, DOE intends to use state annual average commercial energy prices from EIA. The energy prices used in a specific analysis along with their source will be declared and documented in that analysis.

⁵ EIA energy projections are available from either the *Short-Term Energy Outlook* or *Annual Energy Outlook*

3.0 Estimating the Incremental Costs of Code Changes

The second step in assessing the cost-effectiveness of a proposed code change or a newly revised code is estimating the first cost of the changed provision(s). The *first cost* of a code change refers to the marginal cost of implementing one or more changed code provisions. For DOE's analyses, first cost refers to the retail cost (the total cost to a building developer) prior to amortizing the cost over multiple years through financing, and includes the full price paid by the building developer, including materials, sales taxes, labor, overhead, and profit. First cost excludes maintenance and other ongoing costs associated with the new code provision(s). Where regular maintenance costs are expected to be significantly different as a result of code requirements, they are estimated and converted to an annual maintenance cost, then accounted for separately on an annualized basis in the LCC calculation. There are also replacement costs estimated when individual component life is shorter than the economic study period.

DOE recognizes that estimating the first cost of a code change can be challenging, and will attempt to identify credible cost estimates from multiple sources when possible. Judgment is often required to determine an appropriate cost for energy code analysis when multiple credible sources of construction cost data yield a range of first costs. Cost data will be obtained from existing sources, including cost estimating publications such as RS Means cost estimating handbooks¹; industry sources (often through web sites); and other resources including journal articles, research, and case studies. DOE may also subcontract with engineering or architectural professionals to provide specialized expertise and complete cost estimates for energy efficiency measures or representative building systems. DOE will use all of these resources to determine the most appropriate construction cost parameters based on factors including the applicability and thoroughness of the data source.

3.1 Cost Estimating Approach

The first step in developing the incremental cost estimates is to define the items to be estimated, such as specific pieces of equipment and their installation. The second step begins by defining the types of costs to be collected. Cost estimates cover incremental costs for material, labor, construction equipment, commissioning, maintenance, and overhead and profit. These costs are estimated both for initial construction and for replacing equipment or components at the end of their useful life during the study period. The third step is to compile the unit and assembly costs needed for the cost estimates. These costs are derived from multiple sources:

- Cost estimating consulting firms; mechanical, electrical, and plumbing (MEP) consulting engineering firms; or specialized consultants (such as daylighting) may be retained to develop general cost estimates applicable to code changes in the prototypes.
- Cost estimates for new work and later replacements are developed to approximate what a general contractor typically submits to the developer or owner and include subcontractor and contractor costs and markups.

¹ RS Means cost estimating handbooks are available at www.rsmeans.com/.

- Maintenance costs are intended to reflect what a maintenance firm would charge. Once initial costs are developed, a technical review is often conducted by members of the ASHRAE SSPC 90.1 and PNNL internal sources.

3.2 Sources of Cost Estimates

Table 3.1 describes typical sources of cost estimates by category. This table is an example based on the national cost-effectiveness analysis of Standard 90.1-2013 (Hart et al. 2014b), and is typical of sources of costs that will be used in completing cost-effectiveness analyses of codes and efficiency standards for commercial buildings. In this example, RS Means refers to any of the appropriate RS Means cost estimating handbooks.

Table 3.1. Example Sources of Cost Estimates by Cost Category

Cost Category	Typical Sources
HVAC Motors included in this category	Cost estimator and PNNL staff used quotes from suppliers and manufacturers, online sources, and their own experience.*
HVAC Ductwork, piping, selected controls items	MEP consulting engineers provided ductwork and plumbing costs based on one-line diagrams they created as well as the model outputs, including system airflows, capacity, and other factors, and provided detailed costs by duct and piping components using RS Means 2012. The MEP consulting engineers also provided costs for several control items.*
HVAC Selected items	PNNL used internal expertise and experience supplemented with online sources.*
Lighting Interior lighting power allowance and occupancy sensors	PNNL staff with input from ASHRAE 90.1 Lighting Subcommittee. Product catalogs were used for consistency with some other online sources where needed.
Lighting Daylighting	PNNL staff and daylighting consulting firm.
Envelope Opaque insulation and fenestration	Costs dataset developed by professional cost estimator.*
Commissioning	Cost estimator, RS Means 2014, MEP consulting engineers, and PNNL staff expertise.
Labor	RS Means 2014 and the MEP consulting engineers for commissioning rate.
Replacement life	Lighting equipment including lamps and ballasts from product catalogs. Mechanical from ASHRAE 90.1 Mechanical Subcommittee protocol for cost analysis.
Maintenance	Originator of the other costs for the affected items, or PNNL staff expertise.

* Where detailed costs were developed in 2012, they were updated to 2014 using inflation factors developed from RS Means handbooks, as discussed in Section 3.4.

3.2.1 Approach to Cost Data Collection

For code changes that impact many system or construction assembly elements of a building, DOE consults multiple national construction cost estimation publications published by RS Means, which provide a wide variety of construction cost data. This is appropriate for many code changes that impact

the construction of commercial buildings (e.g., increasing insulation thickness on piping) where the efficiency change can be tied to incremental changes in material thickness or items clearly identified in the estimating guides. RS Means cost handbooks do not always identify the efficiency levels of products and may not have both standard and high-efficiency options. They do not, for example, have detailed costs on improved duct sealing or building envelope sealing, and the costs for fenestration products (windows, doors, and skylights) are focused on aesthetic features rather than energy efficiency characteristics such as solar heat gain coefficient or low-e coatings.

When a code change impacts only the materials used in a building, without impacting labor, cost data can often be obtained from national suppliers. These sources can have the advantage of providing recent costs, and the costs can be localized if a state or local analysis is needed. However, these sources often do not provide all the specific energy efficiency measure improvements that are typically needed for code improvement analyses.

As needed, DOE conducts literature searches of specialized building science research publications that assess the costs of new or esoteric efficiency measures that are not covered in other data sources. Examples include energy efficiency case studies, surveys of demonstration projects, utility or regional energy economic potential savings studies, and journal articles.

3.2.2 Economies of Scale and Market Transformation Effects

Construction costs often show substantial differences between regions, sometimes based primarily on local preferences and the associated economies of scale. Because new code changes may require building construction with new and potentially unfamiliar techniques in some locations, initial local cost estimates may overstate the long-term costs of implementing the change. For example, economizer fault diagnostics or LED parking lot lighting may be reasonably priced in California, where the technology has been required by code for a period of time. In southeastern states, the price for the same technology may be high, due to contractor unfamiliarity. Similar issues may arise where manufacturers produce large quantities of a product that just meet a current energy code requirement, giving that product a relatively low price in the market. Should the code requirement increase, it is likely that manufacturers will increase production of a new conforming product, lowering its price relative to the current premium for what is now a high efficiency product.

DOE intends to evaluate new code changes case by case to determine whether it is appropriate to adjust current costs for anticipated market transformation after a new code takes effect. DOE intends to evaluate specific new or proposed code provisions to determine whether and how prices might be expected to follow an experience curve with the passage of time. It is noted that site-built construction may involve several types of efficiency improvements. The real cost of code changes requiring new technologies may drop in the future as manufacturers learn to produce them more efficiently. The long-term cost of code changes that involve new techniques may likewise drop as contractors learn to implement them in the field more efficiently and with less labor. Finally, code changes that simply require more of a currently used technology or technique may have relatively stable real costs, with prices generally following inflation over time.

3.2.3 Addressing Code Changes with Multiple Approaches to Compliance

One challenge of estimating the costs of energy code changes is selecting an appropriate characterization of new code requirements. A requirement for lower fan horsepower, for example, might be met with a more efficient fan, high surface area filters, better belts, a premium efficiency motor, more but smaller fan units, larger ductwork, or some combination of these options. Each approach will have different costs and may be subject to differing constraints depending on the situation. Some approaches, for example, may be inappropriate in some building types, but not others. Some approaches may open the possibility for new and less expensive construction approaches. Overall, DOE intends to apply two principles in reviewing options in the code:

- A single option will be selected for analysis that is expected to be the least-cost method of compliance that is considered to represent typical construction.
- If a requirement includes multiple options, and one analyzed option that is widely applicable is found to be cost-effective, the requirement will be deemed cost-effective. It is not necessary to demonstrate the cost-effectiveness of all options. This is because there is a cost-effective path through the code, and if a higher cost option is chosen, that is the developer or designer's choice.

It is difficult for DOE to anticipate either the types of code changes that will emerge in future building energy codes or the manner in which developers will choose to meet the new requirements; however, DOE intends to evaluate changes case by case and seek the least-cost way to achieve compliance unless that approach is deemed inappropriate in a large percentage of situations. For code changes that touch on techniques with which there is recent research experience (e.g., through DOE's Federal Energy Management Program (FEMP)² and Building Technologies Office³), DOE will consult the relevant publications or researchers for advice on appropriate construction assumptions.

DOE anticipates that some new code provisions may have significantly different first costs depending on unrelated aesthetic choices or exceptions and flexibility options in the code. For example, a requirement for window shading could be met with interior blinds, electrochromatic windows, static exterior shading devices, or an active tracking exterior shading system. In addition, optional trade-offs may be included in the code that guarantee minimum energy performance but are not necessarily evaluated for cost-effectiveness. For example, a maximum window-to-wall ratio may be established as a baseline, but a predetermined trade-off may allow the building design to exceed that ratio if an energy recovery device or other energy saving options are included. Because the additional windows and energy saving options are optional, it is not necessary to establish the cost-effectiveness of the alternative design combination.

Finally, some new code provisions may come with no specific construction changes at all, but rather be expressed purely as a performance requirement. It is also conceivable that a code could be expressed simply as energy use intensity, where the requirement is a limit on energy use per square foot of conditioned floor area. DOE intends to evaluate any such code changes case by case and will conduct literature research or new analyses to determine the reasonable set of construction changes that could be expected to emerge in response to such new requirements. Again, DOE intends to focus on the least-cost approach deemed to be reasonable, cost-effective, and meet the code requirement.

² See <http://energy.gov/eere/femp/articles/technologies>.

³ See <http://energy.gov/eere/buildings/improving-energy-efficiency-commercial-buildings>.

3.3 Cost Parameters

Several general parameters are typically applied to all of the cost estimates. These items include new construction material and labor cost adjustments, a replacement labor hour adjustment, replacement material and labor cost adjustments, and a project cost adjustment. The cost adjustments were developed by PNNL during the cost-effectiveness analysis of Standard 90.1-2010 and were based on cost-estimating guides and practices of cost-estimating consultants for that study (Thornton et al. 2013). DOE intends to use these parameters for future estimates—unless there are changes noted in the industry—and they are described in Table 3.2.

Table 3.2. Cost Estimate Adjustment Parameters

Cost Items	Value*	Description**
New construction labor cost adjustment	52.6%	Labor costs used are base wages with fringe benefits. Added to this is 19%: 16% for payroll, taxes, and insurance including worker's compensation, Federal Insurance Contributions Act, unemployment compensation, and contractor's liability, and 3% for small tools. The labor cost plus 19% is multiplied by 25%: 15% for home office overhead, and 10% for profit. A contingency of 2.56% is added as an allowance to cover wage increases resulting from new labor agreements.
New construction material cost adjustment	15.0% to 26.5%	Material costs are adjusted for a waste allowance set at 10% in most cases for building envelope materials. For other materials such as HVAC equipment, 0% waste is the basis. The material costs plus any waste allowance are multiplied by the sum of 10% profit on materials, and sales taxes. An average value for sales taxes of 5% is applied.
Replacement – additional labor allowance	65.0%	Added labor hours for replacement to cover demolition, protection, logistics, cleanup, and lost productivity relative to new construction. Added prior to calculating replacement labor cost adjustment.
Replacement labor cost adjustment	62.3%	The replacement labor cost adjustment is used instead of the new construction labor cost adjustment for replacement costs. The adjustment is the same except for subcontractor (home office) overhead, which is 23% instead of 15% to support small repair and replacement jobs.
Replacement material cost adjustment	26.5% to 38.0%	The replacement material cost adjustment is used instead of the new construction material cost adjustment for replacement costs. The adjustment is for purchase of smaller lots and replacement parts. 10% is added and then is adjusted for profit and sales taxes.
Project cost adjustment	28.8%	The combined labor, material, and any incremental commissioning or construction costs are added together and adjusted for subcontractor general conditions and for general contractor overhead and profit. Subcontractor general conditions add 12% and include project management, job-site expenses, equipment rental, and other items. A general contractor markup of 10% and a 5% contingency are added to the subcontractor subtotal as an alternative to calculating detailed general contractor costs (RS Means 2014).

* Values shown and used are rounded to first decimal place.

** Values provided by the cost estimator except where noted.

For national cost-effectiveness studies, costs are not adjusted for climate locations. The climate location results are intended to represent an entire climate subzone even though climate data for a particular city is used for simulation purposes. Costs will vary significantly between a range of urban, suburban, and rural areas within the selected climate locations, which typically cross multiple states. For state-level cost-effectiveness analysis, costs are adjusted for specific cities based on city cost index adjustments from RS Means or other sources.

3.4 Cost Updating for Inflation

Cost estimates are typically developed for current national average prices. Labor costs are based on estimated hours and current crew labor rates from RS Means. In some cases, cost estimates completed for a prior code cycle are still applicable, and are adjusted for inflation rather than creating a new cost estimate or obtaining current unit prices throughout the cost estimate. Where cost estimates are updated, inflation factors specific to the equipment are used. These inflation factors are developed for each specific equipment or insulation type by comparing RS Means from the time of the estimate with the current RS Means.

3.5 Cost Estimate Spreadsheet Workbook

To provide a transparent view of the costs used in the analysis, a cost estimate spreadsheet will typically be prepared in conjunction with the cost-effectiveness report. The intent of such a cost estimate is to show the basis for costs used in the analysis, although in some cases detailed information obtained from individual manufacturers will be averaged and only the average value will be included in the documentation. For some individual proposals, a spreadsheet may not be necessary, as the costs may be cited from other documents or sources. As one example, the cost estimate spreadsheet for the analysis of Standard 90.1-2013 (Hart et al. 2014b) was organized in the following sections:

1. Introduction
2. HVAC cost estimates
3. Lighting cost estimates
 - a. Interior lighting power density
 - b. Interior lighting occupancy related controls
 - c. Daylighting controls
4. Envelope, power, and other cost estimates
5. Cost estimate summaries and cost-effectiveness analysis results

DOE may also provide a calculating tool that allows cost adjustments to be entered, especially for state analysis. This allows local evaluation of particular cost or other economic impacts to be adjusted in evaluating codes for use by states in the adoption process. For DOE's assessment of cost-effectiveness, the researched input values for economic and cost parameters will continue to be used.

4.0 Estimating the Cost-effectiveness of Code Changes

The last step in assessing the cost-effectiveness of a proposed code change or a newly revised code is calculating the corresponding economic impacts of the changed provision(s). These impacts are measured under different economic scenarios with several economic metrics.

4.1 Cost-effectiveness Analysis

The intent of the DOE cost-effectiveness methodology is to determine whether code changes are economically justified from the perspective of a public policy that balances increased building costs against energy savings over time. The DOE methodology accounts for the benefits of energy-efficient building construction to building owners and tenants that accrue over 30 years. To accommodate multiple economic views, the LCC analysis is applied to multiple scenario methods: Publicly-Owned Method, Privately-Owned Method, and ASHRAE 90.1 Scalar Method. The scenarios, methodologies, and input parameters are described in this section.

Cost-effectiveness is analyzed using the incremental cost information presented in Section 3.0 and the energy cost information presented in Section 2.0. Multiple economic metrics are available, as discussed further in Section 4.2. Several of these may be presented in a particular analysis, and they are selected from the following:

- Life-cycle cost net savings (a.k.a., NPV of savings)
- Savings-to-investment ratio
- The ASHRAE 90.1 scalar ratio
- Simple payback period

4.1.1 Economic Scenarios

Commercial building developers and owners have different perspectives, depending primarily on whether the ownership is public or private. The building owner has a different view of the economic impact of energy purchases as a landlord than as an owner who occupies the building. In tenant situations, the energy operating costs may be paid by the tenant directly to utilities or indirectly via the building owner through a net lease. In the latter situation, the costs for energy efficiency may be paid by a building owner who does not receive energy benefits through reduced bills; however, these incremental costs can be considered to be passed through to the tenant in the lease rates. In every case, someone will pay the energy bill for the building—having savings if it is a more efficient building—and someone will pay the added cost of a more efficient building. While local rental market conditions may result in higher or lower lease rates relative to the incremental cost of efficiency improvements, a complete economic model of such variability would be quite difficult to implement. To provide a straightforward and economic equivalent analysis, the cost-effectiveness analysis will be from the point of view of a building owner who receives the benefits of energy savings. This approach puts the analysis of the costs and savings of all energy saving measures on a common footing for analysis.

DOE evaluates energy codes and code proposals based on LCC analysis over a multi-year study period, accounting for energy savings, incremental investment for energy efficiency measures, and other economic impacts. The value of future savings and costs are discounted to a present value, with improvements deemed cost-effective when the NPV of savings (present value of savings minus present value of costs) is positive. Because the economic criteria of different commercial building owners vary, up to three scenarios may be used for cost-effective analysis:

- **Scenario 1** (also referred to as the *Publicly-Owned Method*): LCC analysis method representing government or public ownership (without borrowing or taxes). This scenario uses a real dollar methodology and economic inputs that have been established for federal projects under FEMP as amended by the Energy Independence and Security Act of 2007 (EISA).
- **Scenario 2** (also referred to as the *Privately-Owned Method*): LCC analysis method representing private or business ownership (includes loan and tax impacts). This scenario uses typical commercial economic inputs, with initial costs being financed, and considers tax impacts for savings, interest, and depreciation. The general methodology is identical to that used under Scenario 1, except that it is a nominal dollar analysis with the addition of consideration for income and property taxes, financing, and a private sector discount rate.
- **Scenario 3** (also referred to as the ASHRAE 90.1 *Scalar Method* (McBride 1995)): Represents a pre-tax private investment point of view, and uses economic inputs established by the ASHRAE SSPC 90.1. The ASHRAE 90.1 Scalar Method uses standard life-cycle costing techniques in a similar manner to Scenarios 1 and 2, although the parameters and methodology used in the analysis are established by ASHRAE SSPC 90.1.

It is important to understand that, except for the minor adjustments noted here, DOE uses methods and parameters established by others for Scenarios 1 and 3. Scenario 1 parameters are established by federal statute (42 U.S.C. 8254). Scenario 3 parameters are established by ASHRAE SSPC 90.1 for each edition of Standard 90.1. The method and parameters used for Scenario 2 are established by DOE, although the method and parameters are developed and selected to be consistent with Scenario 1 except where typical private investment criteria support different parameters.

When selecting scenarios for a particular cost-effectiveness analysis, DOE notes that Scenarios 2 and 3 both reflect a private-ownership view. As a result, each analysis typically includes Scenario 1 to reflect a public-ownership view and the private-ownership view is reflected by either Scenario 2 or 3. For a national analysis, the ASHRAE Scalar Method (McBride 1995) is used for the private-ownership view, as this was the method applied to individual proposals in development of the standard. The ASHRAE energy prices are typically used for the national analysis, again for consistency with the individual proposal analyses. For individual state analysis, DOE typically uses local state energy prices, and cost-effectiveness is determined based on LCC using Scenario 1 and Scenario 2 economic parameters. Scenario 2 is used as the Private-Ownership Method for state analysis, since the method and parameter selection can be maintained on a consistent basis by DOE. Scenario 2 also more closely matches Scenario 1 and the cost-effectiveness method used for residential codes than does Scenario 3.

4.1.2 Cost-effectiveness Methodology

The primary basis of cost-effectiveness assessment is an LCC analysis. The LCC analysis perspective compares the present value of incremental costs, replacement costs, and maintenance and

energy cost savings for each prototype building and climate location. The degree of borrowing and the impact of taxes vary considerably for different building projects, creating many possible cost scenarios. These varying costs are not included in the Scenario 1 Publicly-Owned Method LCC analysis, but are included with the Privately-Owned Method Scenario 2 analysis and the Scenario 3 SSPC 90.1 Scalar Method.

The LCC analysis approach is based on the LCC analysis method used by FEMP,¹ a method required for federal projects and used by other organizations in both the public and private sectors (NIST 1995). The LCC analysis method consists of identifying costs (and revenues, if any) and the year in which they occur, and determining their value in present dollars (known as the net present value). This method uses fundamental engineering economics relationships about the time value of money. For example, money in hand today is normally worth more than money received tomorrow, which is why people pay interest on a loan and earn interest on savings. Future costs are discounted to the present based on a discount rate. The discount rate may reflect what interest rate can be earned on other conventional investments with similar risk, or in some cases, the interest rate at which money can be borrowed for projects with the same level of risk.

4.1.2.1 Discounted Value

The following calculation method can be used to account for the present value of costs or revenues:

$$\text{Present Value} = \text{Future Value} / (1 + i)^n$$

i is the discount rate (or interest rate in some analyses)

n is the number of years in the future the cost occurs

The present value of any cost that occurs at the beginning of year 1 of an analysis period is equal to that initial cost. For this analysis, initial construction costs occur at the beginning of year 1, and all subsequent costs occur at the end of the future year identified.

4.1.2.2 Study Period

The LCC analysis depends on the number of years into the future that costs and revenues are considered, known as the *study period*. While the FEMP method allows a 40-year² study period (42 U.S.C. 8254(a)(1)), the DOE code analysis method uses 30 years for Scenarios 1 and 2 and 40 years for Scenario 3. Thirty years is the same study period used for the cost-effectiveness analysis of the residential energy code, conducted by DOE and PNNL (DOE 2012), and is the same period used in previous cost-effectiveness evaluations of Standard 90.1 (Thornton et al. 2013; Hart et al. 2014a). National Institute of Standards and Technology (NIST)-provided energy escalation and discount rates are also limited to 30 years. The 30-year study period is also widely used for LCC analysis in government and industry, and the Office of Management and Budget long-term study period is set at 30 years. The study period is also a balance between capturing the impact of future replacement costs, inflation, and energy escalation; the higher the uncertainty of these costs, the further into the future they are considered.

¹ See 10 CFR part 436, subpart A, "Methodology and Procedures for Life Cycle Cost Analyses," Jan. 1, 2004.

² Section 441 of EISA amended the FEMP cost-effective methodology to increase the maximum study period from 25 to 40 years (42 U.S.C. 8254(a)(1)).

4.1.2.3 Residual Value

When the length of the study period does not exactly match the measure life, the residual value of equipment beyond the period of analysis is accounted for. The FEMP LCC analysis method includes a simplified approach for determining the residual value. The residual value is the proportion of the initial cost equal to the remaining years of service divided by the initial cost. For example, the residual value of a wall assembly in year 30 is $(40-30)/40$ or 25% of the initial cost. The residual values applied in year 30 are discounted from year 30 to a present value and included as a reduction in the total present value of cost. Three cases need to be considered for residual value:

- Where the measure life matches the study period, or an even multiple of the life matches the study period, there is no residual value. For example, electronic controls with a 15-year life in a 30-year study period include a replacement cost at year 15, and that replacement has no further value at year 30, so the residual value is zero.
- Where the useful life of equipment or materials extends beyond the study period, there is a residual value. For code measures analyzed, the longest useful life defined is 40 years for all envelope cost items, such as wall assemblies, as recommended by the SSPC 90.1 Envelope Subcommittee. Forty years is longer than the 30-year study period used in Scenario 1 and 2 LCC analyses. A residual value of the unused life of a cost item is calculated at the last year of the study period for components with longer lives than the study period. So, for example, a measure with a 40-year life in a 30-year study period would have a residual value of 25% of its first cost.
- Where the replacement life does not fit neatly into the study period (e.g., a chiller with a 23-year useful life), the residual value is not a salvage value, but rather a measure of the available additional years of service not yet used for the replacement. To use the chiller example with a 30-year study period, at 30 years there is a 16-year $(23+23-30)$ residual life remaining. So the residual value would be $(46-30)/23$, or 69.5% of the replacement cost, discounted from year 30 to present value.

4.2 Economic Metrics

In evaluating code change proposals and assessing new editions of commercial building energy codes, DOE intends to calculate multiple metrics selected from the following:

- Life-cycle cost net savings (a.k.a., NPV of savings)
- Savings-to-investment ratio
- The SSPC 90.1 scalar ratio
- Simple payback period

Life-cycle cost net savings is the primary metric DOE intends to use to evaluate whether a particular code change is cost-effective. Any code change that results in an LCC net savings greater than or equal to zero (i.e., monetary benefits exceed costs) will be considered cost-effective. The payback period and SIR analyses provide additional information DOE believes is helpful to other participants in code change processes and to states and jurisdictions considering adoption of new codes. These metrics are discussed further below.

4.2.1 Life-Cycle Cost Net Savings

Life-cycle cost net savings is a robust cost-benefit metric that sums the costs and benefits of a code change over a specified period. Sometimes referred to as *net present value* analysis or *engineering economics*, LCC analysis is a well-known approach to assessing cost-effectiveness. Because the key feature of LCC analysis is the summing of costs and benefits over multiple years, it requires that cash flows in different years be adjusted to a common year for comparison. This is done with a *discount rate* that accounts for the time value of money. Like most LCC implementations, DOE's method sums cash flows in year-zero dollars, which allows the use of standard discounting formulas. Cash flows adjusted to year zero are termed *present values*. The procedure used for discounting is taken directly from the FEMP cost-effective methodology for federal buildings³ as described in *NIST Handbook 135* (Fuller and Petersen 1995). In actual practice, these procedures have been implemented in a spreadsheet format to produce identical results, rather than using the manual worksheets included in *NIST Handbook 135* or the FEMP Building Life Cycle Cost computer program.⁴ Formulas shown in Table 4.4 are taken from or adapted directly from formulas in *NIST Handbook 135*. Where situations are not covered by the FEMP cost-effective methodology, DOE will apply concepts from two ASTM International standard practices, E917 (ASTM 2010a) and E1074 (ASTM 2010b), or as outlined in the *ASHRAE HVAC Applications Handbook* (ASHRAE 2011). The resultant procedure is both straightforward and comprehensive and is in accord with the methodology recommended and used by NIST.⁵

Present values can be calculated in either nominal or real terms. In a nominal analysis, all compounding rates (discount rate, mortgage rate, energy escalation rate, etc.) include the effect of inflation, while in a real analysis inflation is removed from those rates. The two approaches are algebraically and economically equivalent, and for commercial analysis DOE intends to use a real analysis for Scenario 1. In Scenario 2, nominal discounting is applied for constant future cash flows such as loan payments and related tax deductions, while a private sector real discount rate is applied to account for inflation on items such as maintenance and replacement costs, property taxes, and energy savings.⁶ This approach is equivalent to a nominal analysis. Scenario 3 is a nominal analysis from a private-ownership viewpoint.

LCC is defined formally as the present value of all costs and benefits summed over the period of analysis. For Scenarios 1 and 2, DOE will typically use NPV of savings as the commercial test metric, which is one of three equivalent ways to quantify LCC:

- Calculate the LCC of both options, including all costs (first, maintenance, replacement, and energy), independently and compare them. In this case, the lower LCC would be the preferable alternative, and the case representing the new code would need a lower LCC than the old code case to be considered cost-effective.
- Calculate the present value of the incremental costs and subtract the present value of the incremental benefits. The result is the LCC of the change, expressed as a cost. In this case, the net cost should be negative to justify the change.

³ See 10 CFR part 436, subpart A, "Methodology and Procedures for Life Cycle Cost Analyses," Jan. 1, 2004.

⁴ See http://www1.eere.energy.gov/femp/information/download_blcc.html.

⁵ For a detailed discussion of LCC and related economic evaluation procedures specifically aimed at private sector analyses, see Ruegg and Petersen 1987.

⁶ Using a real discount rate to discount uninflated future values is equivalent to using a nominal discount rate to discount inflated future values.

- Calculate the present value of the incremental benefits and subtract the present value of the incremental costs. The result is the LCC net savings or the NPV of savings, also referred to as the NPV of savings. In this case, the NPV of savings should be positive or zero to justify the change. Since a positive result represents a cost-effective outcome, this metric is preferred, and its calculation is shown in Eq. (1).

$$NPV \text{ of savings} = PV(\text{Incremental Benefits}) - PV(\text{Incremental Costs}) \quad (1)$$

In LCC analysis, a future cash flow (positive or negative) is brought into the present by assuming a discount rate (D). The discount rate is an annually compounding rate⁷ by which future cash flows are discounted in value. It represents the minimum rate of return demanded of the investment in energy-saving measures. It is sometimes referred to as an alternative investment rate.

4.2.2 Savings-to-Investment Ratio

An additional metric that may be used in Scenarios 1 and 2 is SIR, a ratio of benefits to costs, as shown in Eq. (2). The SIR of a code change must be greater than 1.0 for the change to be considered cost-effective, unless costs are negative and the code change is obviously cost effective.,

$$SIR = \frac{PV(\text{Benefits})}{PV(\text{Costs})} \quad (2)$$

The calculation of SIR is further defined in the regulations for the FEMP cost-effective methodology for federal buildings.¹ The SIR has the advantage of allowing comparison between two alternative items reviewed for cost-effectiveness. When a threshold of “SIR greater than 1.0” is used, the assessment of cost-effectiveness is the same as it is for the NPV of savings metric.

4.2.3 Scalar Ratio

The scalar ratio is used specifically for Scenario 3, the ASHRAE SSPC 90.1 Scalar Method. Using this approach, the payback is calculated as the sum of the first costs and present value of the replacement costs, divided by the difference of the energy cost savings and incremental maintenance cost. The result is compared to the scalar ratio limit that is dependent on the life of a measure. A code change is considered cost-effective if the payback is less than the limit. For the analysis of 90.1-2016 with a 40-year study period, the scalar ratio limit is 21.4 for heating or fossil fuel savings, 18.2 for cooling or electric savings, or a weighted limit for mixed savings. Unlike the simple payback period, this is a true cost-effectiveness method, because the scalar ratio threshold has been developed similar to a discounted payback using cost-effectiveness methods.

4.2.4 Simple Payback Period

The simple payback period is a straightforward metric that includes only the costs and benefits directly related to the implementation of the energy-saving measures associated with a code change. It

⁷ The analysis can be done for other periods of time (e.g., monthly), but for simplicity DOE uses annual periods for the subject analyses.

represents the number of years required for the energy savings to pay for the cost of the measures, without regard for changes in energy prices, tax effects, measure replacements, resale values, etc. The payback period P , which has units of *years*, is defined as the marginal cost of compliance with a new code (C , the “first costs” above and beyond the baseline code), divided by the annual marginal benefit from compliance (ES_0 , the energy cost savings in year 0, less M_a , annual maintenance cost increases), as shown in Eq. (3).

$$P = \frac{C}{ES_0 - M_a} \quad (3)$$

The simple payback period is a metric useful for its simplicity and ubiquity. Because it focuses on the two primary characterizations of a code change—cost and energy performance—it allows an assessment of cost-effectiveness that is easy to compare with other investment options and requires a minimum of input data. The simple payback period is used in many contexts, and may be desired by state agencies considering the adoption of new energy codes; hence, DOE will calculate the payback period when it assesses the cost-effectiveness of code changes. However, because payback period ignores many of the longer-term factors in the economic performance of an energy efficiency investment, DOE does not intend to use the payback period as a primary indicator of cost-effectiveness for its own decision-making purposes.

This method does not take into account any costs or savings after the year in which payback is reached, does not consider the time value of money, and does not take into account any replacement costs, even those that occur prior to the year in which simple payback is reached. The method also does not have a defined threshold for determining whether an alternative’s payback is cost-effective. Decision makers generally set their own threshold for a maximum allowed payback. The simple payback perspective is reported for information purposes only, not as a basis for concluding that a particular code, standard, or proposal is cost-effective.

4.2.5 Economic Metric Summary

To provide a better understanding of the relationship of the various economic metrics, the metrics are summarized in Table 4.1. Each metric is named, with its abbreviation, and the applicable scenarios and cost-effective thresholds are provided.

Table 4.1. Economic Metrics

Metric	Abbreviation*	Used in Scenarios	Cost-effectiveness Threshold
Life-Cycle Cost Net Savings (a.k.a. Net Present Value of Savings)	NPV	1,2	≥ 0
Savings-to-Investment Ratio	SIR	1,2	≥ 1.0
Simple Payback	SPP	1,2,3	Does not measure cost-effectiveness
Scalar Ratio**	N/A	3	≤ 21.4 for 40-year life heating ≤ 18.2 for 40-year life cooling

* NPV = net present value of savings; SPP is simple payback period.

**The scalar ratio is tested against a limit set by the measure life, fuel type, and economic parameters used for each edition of Standard 90.1. The values shown are for 90.1-2016. Heating is a blended fossil fuel rate, and cooling is for electric measures.

4.3 Economic Parameters and Other Inputs

Calculating the metrics described above requires defining various economic parameters. Table 4.2 shows the primary parameters of interest and how they apply to the four metrics. There is also some variation of requirement depending on the economic scenario.

Table 4.2. Economic Parameters Required for Cost-effectiveness Metrics

Parameter	Parameter Needed for Metric			
	Scenario 1 LCC & SIR	Scenario 2 LCC & SIR	Scenario 3 Scalar Ratio	Simple Payback Period
First costs, including sales tax on materials	Yes	Yes	Yes	Yes
Energy savings	Yes	Yes	Yes	Yes
Energy prices	Yes	Yes	Yes	Yes
Energy price escalation rates	Yes	Yes	Yes	No
Period of analysis	Yes	Yes	Yes	No
Replacement costs and residual value	Yes	Yes	Yes	No
Discount rate (real and nominal)	Real	Nominal	Nominal	No
Loan parameters (rate and term)	No	Yes	Yes	No
Inflation rate	No	Yes	Yes	No
Tax rates, federal and state income tax	No	Yes	Yes*	No
Tax rate, property tax	No	Yes	No	No

* Income tax rates are not required for Scalar Ratio analysis of Standard 90.1-2016 proposals, as the discount rate is pre-tax.

These parameters are chosen to represent the economic impact of a typical commercial building ownership or tenant situation. DOE intends to consult appropriate sources of information to establish assumptions for each financial, economic, and energy price assumption. Whenever possible, economic assumptions will be taken from the published sources discussed below. DOE notes that most values vary across time, location, markets, institutions, circumstances, and individuals. Where multiple sources for any parameter are identified, DOE will prefer recent values from sources DOE deems best documented and most reliable.

DOE intends to update parameters for future analyses to account for changing economic conditions. The current parameters for use in analyzing proposals for Standard 90.1-2016 and the 2018 IECC are included in Appendix A. In some cases, state-level analysis of the completed edition of a code may use different economic parameters than were used for individual proposals, as individual proposals are typically analyzed at a national level, and several years earlier than the final evaluation of a code edition. The parameters used and their sources will be documented in each particular analysis. Parameters for this methodology have been published at the BECP web site⁸ starting with analysis for 2015 IECC in mid-2012.

⁸ See <http://www.energycodes.gov/development/commercial/methodology>.

Table 4.3. Economic Parameters and Their Symbols

Parameter	Symbol
Period of Analysis	L
Energy Prices	N/A
Energy Escalation Rates	N/A
Loan Term	M_L
Loan Interest Rate	I
Nominal Discount Rate	D_n
Real Discount Rate	D_r
Inflation Rate	R_{INF}
Property Tax Rate	R_P
Income Tax Rate, federal	R_{TF}
Income Tax Rate, state	R_{TS}

4.3.1 Scenario 1: Publicly-Owned Method Parameters

The LCC analysis requires assumptions about what the value of money today is relative to money in the future, and about how values of the cost items will change over time, such as the cost of energy and HVAC equipment. These values are determined by the analyst depending on the purpose of the analysis. In the case of the FEMP LCC analysis method, NIST periodically publishes an update of economic factors (Rushing et al. 2013).

The DOE nominal discount rate is based on long-term Treasury bond rates averaged over the 12 months prior to publication of the NIST report. The nominal rate is converted to a real rate to correspond with the constant-dollar analysis approach for this analysis. The method for calculating the real discount rate from the nominal discount rate uses the projected rate of general inflation published in the most recent *Report of the President's Economic Advisors, Analytical Perspectives* (referenced in the NIST 2013 and 2011 annual supplements without citation). The mandated procedure would result in a discount rate for 2011 and 2013 lower than the 3.0% floor prescribed in 10 CFR 436. Thus, the 3.0% floor is used as the real discount rate for FEMP analyses in 2011 and 2013. The implied long-term average rate of inflation was calculated as -0.5 %⁹ (Rushing et al. 2013).

4.3.2 Scenario 2: Privately-Owned Method Parameters

For Scenario 2, there are seven primary cash flows that are relevant to LCC analysis of energy code changes, summarized in Table 4.4. The total cost of the code changes (C) is not directly included in the analysis; rather, the incremental cost (C) is accounted for as loan payments assumed to occur over the 30-year (or other) study period. Replacement costs (C_r) for items that have shorter lives than the study period are often calculated at a higher cost than the initial installation to account for more difficulty in installation during replacement rather than new construction. The replacement costs are also incremental costs, reflecting cost increases or reductions required due to the new code. The replacement is made and the same efficiency and savings are estimated to continue. Where a measure or replacement does not have a life equal to or evenly divisible by the study period, there is a residual value, incurred at the end of the analysis period. The residual value is the cost of the code changes, multiplied by the fraction of the lifetime (i.e., value) of the code changes or replacements remaining at the end of the study period. This is

⁹ The negative implied long-term inflation rate is not a prediction of deflation, but a result of the 3.0% floor on the discount rate, when the actual discount rate was lower. The negative inflation rate is not required in real analysis.

a simplified treatment of residual value, similar to straight-line depreciation, but is meant to encapsulate an average of the remaining lifetime of all components. The replacement and residual costs are discounted using a real discount rate to account for inflation, which is equivalent to inflating the costs, then discounting them with a nominal rate. Annual maintenance costs (M_a) are also accounted for. Property tax occurs every year, starting on year 1, is the property tax rate (R_p) multiplied by C , and is discounted with a real rate, which again is equivalent to property values increasing at the rate of inflation and then being discounted at a nominal rate. This assumes that the tax assessment of the building increases by exactly the same amount as the code-related cost increase, and that the tax assessment increases in step with inflation. The cost of property tax is the net of a federal tax (R_{TT}) deduction benefit.

Energy savings occur every year, starting at year 1, and are equal to the calculated energy cost savings at year 0 (ES_0), adjusted by the real escalation rates required to be used in the FEMP cost-effective methodology. These escalation rates exclude inflation, so the escalated energy savings are discounted to present value using a real discount rate (D_r), which again is equivalent to applying a combination of inflation and escalation to energy costs, to estimate their nominal future value, and then discounting with a nominal discount rate (D_n). Discount and escalation rates for the FEMP cost-effective methodology are established annually by NIST and published in the *NIST Handbook 135 Supplement* (Rushing et al. 2013). Loan payments occur every year of the study period, are constant payments, and are calculated as an annual payment, as calculated using the standard equation shown in Table 4.4.

Table 4.4. Present Value Cost and Benefit Components for Scenario 2

Cost Item	Equation for Present Value	Discount Rate	Cost or Benefit
First Cost*	C	N/A	N/A
Loan Payments	$C \left(\frac{i(1+i)^{M_L}}{(1+i)^{M_L} - 1} \right) \left(\frac{(1+D_n)^{M_L} - 1}{D_n(1+D_n)^{M_L}} \right)$	Nominal	Cost
Replacement Costs and Residual Value	$\sum_{Y=1}^L \frac{C_r}{(1+D_r)^Y}$	Real	Cost
Maintenance Costs	$M_a \left(\frac{(1+D_r)^L - 1}{D_r(1+D_r)^L} \right)$	Real	Cost
Property Tax Net of Fed Income Tax Benefit	$C(R_P) \left(\frac{(1+D_r)^L - 1}{D_r(1+D_r)^L} \right) (1 - R_{TF})$	Real	Cost
Energy Savings Net of Income Tax Penalty	(1 - R_{TC}) (Annual Energy Savings Escalated with NIST rates that change over time, and then discounted with real discount rate D_r to be equivalent to applying inflation and then using a nominal discount rate D_n)	Real, escalated	Benefit
Interest Tax Deduction**	$(1 - R_{TC}) \sum_{Y=1}^{M_L} \frac{LI_Y}{(1+D_r)^Y}$	Nominal	Benefit
Depreciation Tax Deduction	$\frac{C}{39} \left(\frac{(1+D_n)^{39} - 1}{D_n(1+D_n)^{39}} \right) R_{TC}$	Nominal	Benefit

Note: Symbols for variables are listed in Table 4.3 and discussed in Section 4.3.4.

* First cost (C) is not directly used in the Scenario 2 LCC or SIR. As previously discussed, Scenario 2 uses a financed approach, and the present value of the loan payments is treated as a cost in the LCC or SIR.

** Loan interest paid in a given year (LI_Y) is simply the mortgage interest rate multiplied by the loan balance. The loan balance is calculated as the present value in year Y of the remaining stream of loan payments, discounted at the mortgage interest rate.

For Scenario 2, tax deductions for loan interest payments begin in year 1 and continue through the end of the 30-year analysis period. A depreciation tax benefit is calculated based on a 39-year straight-line depreciation applicable to commercial buildings (IRS 2012a). This depreciation benefit is calculated for the full 39 years that it is available for current and future property owners. While the depreciation extends beyond the study period, calculating this value for the full 39-year straight-line depreciation term is considered the most straightforward approach to capturing the residual value of this benefit, as these deductions will continue beyond the study period with a high level of certainty. The income tax deductions are calculated at the combined effective state and federal income tax rate (R_{TC}) multiplied by the sum of loan interest payments and depreciation taken each year. The combined (R_{TC}) effective state (R_{TS}) and federal (R_{TF}) income tax rate is based on state taxes being deductible from federal taxes, as shown in Eq. (4).

$$R_{TC} = R_{TF} + R_{TS} (1 - R_{TF}) \quad (4)$$

4.3.3 Scenario 3: ASHRAE 90.1 Scalar Method Parameters

The SSPC 90.1 does not consider cost-effectiveness of the entire set of changes for an update to the whole Standard 90.1. However, cost-effectiveness is often considered when evaluating a specific addendum to Standard 90.1. The Scalar Method was developed by SSPC 90.1 to evaluate the cost-effectiveness of proposed changes (McBride 1995). The Scalar Method is an alternative LCC approach for individual energy efficiency changes with a defined useful life, taking into account first costs, annual energy cost savings, annual maintenance, taxes, inflation, energy escalation, and financing impacts. The Scalar Method allows a discounted payback threshold (scalar ratio limit) to be calculated based on the measure life. Because this method is designed to be used with a single measure with one value for useful life, it does not account for replacement costs. A measure is considered cost-effective if the simple payback (scalar ratio) is less than the scalar limit.

As an example, Table 4.5 shows the economic parameters used in the 90.1 Scalar Method for the Standard 90.1-2016 analysis. These parameters were adopted by the SSPC 90.1.

Table 4.5. Scalar Method Economic Parameters and Scalar Ratio Limit

Input Economic Variables	Heating	Cooling
Economic Life – Years	40	
Down Payment – \$	\$0.00	
Energy Escalation Rate – %*	NIST year-by-year rates + 2.38% inflation	
Nominal Discount Rate – %	9.34%	
Loan Interest Rate – %	7.0%	
Federal Tax Rate – %**	0%	
State Tax Rate – %**	0%	
Heating – Fossil Fuel [†] Price, \$/therm	\$1.000	
Cooling – Electricity Price, \$/kWh		\$0.1013
Scalar Ratio Limit	21.4	18.2

* The NIST escalation rates are from the NIST 2013 supplement (Rushing et al. 2013). The real escalation rates are combined with an inflation rate for this nominal analysis.

** Tax rates are zero for 90.1-2016 because a nominal discount rate based on before-tax investments was selected.

† The ASHRAE Scalar Method identifies a fossil fuel rate that is primarily applied to heating energy use. For this reason, the fossil fuel rate is a blended heating rate and includes proportional (relative to national heating fuel use) costs for natural gas, propane, heating oil, and electric heat.

Heating energy use in the prototypes for fossil fuel equipment is calculated in therms based on natural gas equipment, but in practice, natural gas equipment may be operated on propane, or boilers that are modeled as natural gas may use oil in some regions.

DOE extends the Scalar Method to allow for the evaluation of multiple measures with different useful lives. This extended method takes into account the replacement of different components in the total package of Standard 90.1 changes, allowing the NPV of the replacement costs to be calculated over 40 years. The SSPC 90.1 Envelope Subcommittee uses a 40-year replacement life for envelope components, and the useful lives of all other cost components in the cost estimate are less than that. For example, an item with a 20-year life would be replaced once during the study period. The residual value of any items with useful lives that do not fit evenly within the 40-year period is calculated using the method described in Section 4.1.2.3. Using this approach, the simple payback is calculated as the sum of the first costs and

present value of the replacement costs, divided by the difference of the energy cost savings and incremental maintenance cost.

To determine cost-effectiveness, the result is compared to the scalar ratio limit for the 40-year period, 21.4 for heating or fossil fuels or 18.2 for electric or cooling, as shown in Table 4.5. For measures or evaluations that have a mixture of electric and fossil fuel savings, the separate scalar ratio limits are weighted by the proportion of each type of cost savings. The scalar ratio limit represents the simple payback for a 40-year life measure that would have a positive LCC using the other economic parameters shown. The packages of changes for each combination of prototype and climate location are considered cost-effective if the corresponding scalar ratio is less than the scalar ratio limit. The parameters shown in Table 4.5 are based on consensus of the SSPC 90.1.

4.3.4 Detailed Discussion of Economic Parameters

The meaning and source of each economic input parameter is discussed below. Where there are variations in the meaning or source for the different scenarios, these are discussed as well.

4.3.4.1 Economic Study Period (*L*)

DOE's economic analysis is intended to examine the costs and benefits impacting all the owners or tenants who use a commercial building and pay for energy use either directly or through a net lease. Because energy efficiency features may last longer than the average length of ownership or tenancy, a longer analysis period than the initial ownership period or tenancy is used. Assuming a single owner keeps the property throughout the analysis period accounts for long-term energy benefits without requiring complex accounting for resale values at property turnover. Commercial buildings will typically last 50 years or more. However, some energy efficiency measures may not last as long as the building does. Although 30 years is less than the life of the building, some efficiency measures, equipment in particular, may require replacement during that timeframe. As discussed earlier, when energy-saving equipment costs are analyzed, replacement costs will be included at the life of the equipment. The replacement costs are then discounted to present value as part of the cost. The impact of the selection of a study period is significantly moderated by the effect of the discount rate in reducing the value of costs and benefits far into the future.

DOE's methodology for Scenarios 1 and 2 is intended to assess cost-effectiveness based on a 30-year period of analysis or study period. The FEMP cost-effective methodology for federal buildings was amended by EISA to allow a study period of up to 40 years (42 U.S.C. 8254(a)(1)), while the DOE cost-effectiveness method for commercial building codes uses 30 years. The 30-year study period is used in the methodology for consistency with DOE's residential code cost-effectiveness analysis, and is also widely used for LCC analysis in government and industry. The study period is also a balance between capturing the impact of future replacement costs, inflation, and energy escalation and limiting uncertainty; the further into the future these costs are projected, the greater their uncertainty. The perspective of a single 30-year owner allows consideration of economic impacts on building owners or tenants, either single or multiple in succession, as well as consideration of long-term energy savings. While the full study period of 30 years is appropriate when analyzing the impact of an entire code, when individual measures are analyzed, a shorter study period equal to the measure life may be used. In this situation, the measure life will be determined based on measure life references. The primary reference is the *ASHRAE*

HVAC Applications Handbook (ASHRAE 2011, p. 37.3), and secondary resources include the Database for Energy Efficient Resources (DEER),¹⁰ utility program guidelines (GDS 2007; KEMA 2009; Skumatz 2012), or Appendix J to the *Oregon State Energy Efficient Design Guidelines* (ODOE 2011).

Note that the parameters and methodology for Scenario 3, the ASHRAE 90.1 Scalar Method, are developed by the ASHRAE SSPC 90.1. A 40-year maximum study period is established by the SSPC for that method. For Scenario 3, a 40-year study period will be used, with the cost of interim replacements of shorter-lived equipment or measures added during the study period. This is a departure from the way the ASHRAE 90.1 Scalar Method is applied in the SSPC 90.1, and is necessary because typically DOE analyzes the entire code that contains multiple measures with different lives, while in the typical analysis for the ASHRAE SSPC 90.1, a single measure with a fixed life is analyzed. The 40-year life is the maximum used in SSPC analysis, typically for envelope measures.

4.3.4.2 First Cost (C)

As discussed earlier, the first cost represents the incremental cost of code-related energy features to a building owner. It represents the full (retail) cost of such features, including materials, sales tax¹¹ on materials, labor, and contractor overhead and profit, but excludes any future costs such as for maintenance.

4.3.4.3 Loan Interest Rate (i)

Commercial real estate is highly leveraged, with less than 20% of funding from private investors (National Association of Realtors 2013). Accordingly, for the analysis of the economic benefits to the commercial building owners and tenants for improved energy efficiency, DOE intends to assume that buildings are purchased or refinanced using a loan. For simplification, no down payment is assumed in Scenarios 2 and 3. Scenario 1 does not evaluate loan impact.

For Scenario 2, DOE intends to use recent commercial loan rates in cost/benefit analyses, and will consult multiple online sources¹² to determine a representative rate for each analysis. Recently, DOE used a commercial loan rate of 6% for cost/benefit analyses of ASHRAE Standard 90.1 (Hart et al. 2013).

An alternative approach is to evaluate historical commercial loan rates and identify a real rate that approximates a long-term average, then use that rate in a real analysis or combine it with a recent (and anticipated future) inflation rate in a nominal analysis. DOE intends to use the former approach on the theory that recent rates are a better indicator of near-term future rates that will be in effect when a new code goes into effect. For Scenario 3, the loan rate is established by the ASHRAE 90.1 committee.

¹⁰ The DEER is a California Energy Commission and California Public Utilities Commission sponsored database designed to provide well-documented estimates of energy and peak demand savings values, measure costs, and effective useful life all with one data source. See www.energy.ca.gov/deer/.

¹¹ Sales tax from online sources: <http://taxfoundation.org/article/state-and-local-sales-tax-rates-2011-2013>

¹² See www.realtyrates.com/commercial-mortgage-rates.html; www.commercialloandirect.com/commercial-rates.php.

4.3.4.4 Loan Term (M_L)

For the analysis of cost-effectiveness, the loan term will be set equal to the study period. While a typical commercial loan may be shorter, it is quite common for commercial buildings to be resold to a buyer who will take out a new loan or to be refinanced during their ownership period. While these are separate serial loans, the economic effect is similar to a single, longer-term loan.

4.3.4.5 Discount Rate (D)

The purpose of the discount rate is to reflect the time value of money. Because DOE's economic perspective is that of a building owner, that time value is determined primarily by the investor's best alternative investment at similar risk to the energy features being considered.

The discount rate is chosen to represent the desired perspective of the economic analysis, for Scenario 1, a public building owner, for Scenario 2, a private building owner or developer in a post-tax context, and for Scenario 3, a private building owner or developer in a pre-tax context.

For Scenario 1, DOE intends to use the real discount rate (D_r) established annually in the *NIST Handbook 135 Supplement* for the FEMP analysis. For Scenario 2, DOE intends to set the nominal discount rate (D_n) to be equivalent to the commercial loan interest rate (i). Because commercial lending is a viable source of funds for real estate investors, the associated loan rate is a reasonable estimate of an investor's alternative post-tax investment rate of return or discount rate. That real estate investors borrow money at that rate demonstrates that their implicit discount rate must be at least that high. As previously discussed, a real discount rate (D_r) is also used in Scenario 2 for discounting items that experience inflation. The selection of that rate is discussed below under Inflation Rate and the type of discount rate used for different cash flows is shown in Table 4.4.

For Scenario 3, the nominal discount rate (D_n) is established by the ASHRAE SSPC 90.1. As a point of comparison for the current parameters in Appendix A, the 9.34% nominal discount rate in Scenario 3 is based on industry surveys of commercial real estate investors expected rate of return **before taxes**. While the 6.0% nominal discount rate for Scenario 2 appears lower, this is an **after-tax** discount rate, and if adjusted for a combined national and average state corporate income tax rate of 38.1%, the effective **pre-tax** discount rate for Scenario 2 would be 9.7%.

4.3.4.6 Property Tax Rate (R_p)

Property taxes vary widely within and among states. To determine a tax rate for analysis, DOE intends to use the average U.S. property tax rates (Lincoln Institute of Land Policy 2013) and weight them by rural and urban population¹³ and distribution of building size (EIA 2003) to arrive at a national weighted average. For current national level commercial code analysis, the resulting property tax rate is 2.04%. For state level analyses, state-specific rates will be used.

¹³ See <https://ask.census.gov/faq.php?id=5000&faqId=5971>.

4.3.4.7 Income Tax Rate (R_{TC})

The marginal income tax rate paid by the building owner determines the value of the interest, property tax, and depreciation tax deductions. The combined effective (R_{TC}), state (R_{TS}), and federal (R_{TF}) income tax rates are based on state taxes being deductible from federal taxes, as shown in Eq. (4). DOE intends to account for corporate income tax deductions in the cost/benefit analyses. The federal corporate tax rate currently varies from 15%, transitioning to a 34% flat rate for incomes between \$335,000 and \$10,000,000 and then increasing to 35% (IRS 2012b, p. 17). DOE's intends to use the flat rate for the next-to-highest tier of corporate income for their corporate income tax rate (R_{TF}) estimate, currently 34%. Should that tax structure change, the approach will be reevaluated. Where state corporate income taxes apply, rates will be taken from state sources or collections of state data such as those provided by the Federation of Tax Administrators.¹⁴

4.3.4.8 Inflation Rate (R_{INF})

An inflation rate is not needed in the real or constant dollar analysis in Scenario 1, and the inflation rate for Scenario 3 is determined by the ASHRAE SSPC 90.1. The inflation rate R_{INF} is used to determine a real discount rate (D_r) for Scenario 2. This real discount rate is applied to items that are subject to inflation as shown in Table 4.4. A long-term inflation rate appropriate for the study life is necessary. To capture a relatively constant long-term inflation rate over time that is appropriate for the study period, the inflation rate for the past 30 years will be applied to the next 30 years. Estimates of an annual inflation rate will be based on current (CI_C) and past (CI_P) indices from Producer Price Index (PPI) data published by the Bureau of Labor Statistics.¹⁵ The past (CI_P) index is selected 30 years prior to the current (CI_C) index. For the period since June 2004,¹⁶ "final demand construction" PPI data is used, normalized to "finished goods less food and energy" PPI data that is used for earlier periods. The equivalent compound inflation rate (R_{INF}) is calculated from the current (CI_C) and past (CI_P) construction indices as shown in Eq. (5).

$$R_{INF} = \left(\frac{CI_C}{CI_P} \right)^{1/30} - 1 \quad (5)$$

The real discount rate (D_r) for Scenario 2 is found based on the nominal discount rate (D_n) as shown in Eq. (6).

$$D_r = \left(\frac{1 + D_n}{1 + R_{INF}} \right) - 1 \quad (6)$$

4.3.4.9 Energy Prices

Energy prices over the length of the period of analysis are needed to determine the energy cost savings from improved energy efficiency. Both current energy prices and energy price escalation rates are needed to establish estimated energy prices in future years.

¹⁴ Federation of Tax Administrators: www.taxadmin.org.

¹⁵ Bureau of Labor Statistics. See www.bls.gov/.

¹⁶ "Final demand construction" PPI data was initiated in June 2004 and is not available for earlier periods.

DOE will use the most recently available national annual average commercial energy prices from the EIA. Annual average prices are used to avoid selecting a short-term price that is subject to seasonal fluctuations. If energy prices from the most recent year(s) are unusually high or low, DOE may consider using a longer-term average of energy prices, such as the average from the past 3 years and projections for the next 2 years. For individual state analysis, DOE will use state annual average commercial energy prices from EIA.

4.3.4.10 Energy Price Escalation

Energy price escalation accounts for the fact that energy prices generally have increased faster than general inflation. Energy price escalation rates for Scenarios 1 and 2 will be obtained from the most recent projections in the *NIST Handbook 135 Supplement* to account for projected changes in energy prices. Currently, ASHRAE SSPC 90.1 uses the same escalation rates, and they will also be used for Scenario 3. Note that these escalation rates do not include inflation. Inflation is not necessary in Scenario 1, as it is a current dollar or real discount analysis. In Scenario 2, the real discount rate is used rather than the nominal discount rate for energy savings, as the escalation does not include inflation. In the ASHRAE 90.1 Scalar Method, inflation is added to the future energy savings along with the escalation rate above inflation, and then a nominal discount rate is used to arrive at a present value. While each of these procedures appears different, they each arrive at the correct present value of energy savings based on the particular parameters and methods used in the scenario.

5.0 Aggregating Energy and Economic Results

5.1 Weighting Factors: Building Types and Climate Zones

Simulation results for the building types and climate zones will be weighted based on weighting factors shown in Table 5.1 and Table 5.2, respectively. Weighting factors are based on disaggregated construction volume data from McGraw-Hill Construction (MHC) Project Starts Database. The MHC database contains the floor area of new construction in the United States for the years 2003 to 2007.¹ PNNL analyzed this MHC database to develop detailed construction weights by building type, climate zones, and states (Jarnagin and Bandyopadhyay 2010). These weights are used in developing weighted national energy savings estimates. For each analysis, the weights are normalized for the prototypes used in the analysis so weightings total 100%. These weighting factors are based on climate zones used through Standard 90.1-2013 and the 2015 IECC. Revisions that change the climate zones or switch to a new climate basis will require an update of the weighting factors or the development of a custom procedure to capture the impacts on national or state commercial energy efficiency.

¹ The 2003 to 2007 period represents a good time for commercial construction. Later data encountered a recession when commercial construction was curtailed. The database is used simply to represent characteristic weightings as a percentage of building types and locations, and is expected to be a valid predictor of commercial construction for the foreseeable future.

Table 5.1. National Weighting factors by Prototype

Prototype	Total Floor Area ×1,000 ft ²	Construction Weights
Small Office	371,009	4.50%
Medium Office	400,091	4.80%
Large Office	220,134	2.70%
Standalone Retail	1,009,246	12.20%
Strip Mall	375,093	4.50%
Primary School	330,418	4.00%
Secondary School	685,508	8.30%
Outpatient Healthcare	289,171	3.50%
Hospital	228,131	2.80%
Small Hotel	113,837	1.40%
Large Hotel	327,562	4.00%
Warehouse	1,105,951	13.40%
Quick Service Restaurant	38,809	0.50%
Full Service Restaurant	43,650	0.50%
Mid-rise Apartment	484,343	5.90%
High-rise Apartment	593,241	7.20%
Covered by Prototypes	6,616,193	80%
No prototype	1,649,785	20%
Total	8,265,977	100%

Table 5.2. Commercial Weighting Factors by Climate Zone

Climate Zone	Thermal Climate Zone	Moisture Regime	Overall Location Weight
1A	1	Moist	3.2%
2A	2	Moist	15.2%
2B		Dry	3.0%
3A	3	Moist	15.0%
3B		Dry	10.1%
3C		Marine	1.6%
4A	4	Moist	19.3%
4B		Dry	0.5%
4C		Marine	3.0%
5A	5	Moist	19.4%
5B		Dry	4.3%
6A	6	Moist	4.2%
6B		Dry	0.6%
7	7	N/A	0.5%
8	8	N/A	0.1%

5.2 Building Prototype Selection

DOE may select a subset of the prototype buildings and simulate them in selected representative climate locations for the cost-effectiveness analysis to represent most of the energy and cost impacts of the code changes in a particular code or proposal analysis.

For example, for the Standard 90.1-2010 and 90.1-2013 national analyses, six of the prototype buildings were selected for cost estimate development in five climate locations, as shown in bold font in Table 5.3. The 6 prototypes selected provide a good representation of the overall code cost effectiveness, without requiring simulation of all 16 prototypes.² DOE intends to continue to use these six prototypes unless a code change is identified that is not represented and has a large impact in one of the other prototypes. The resulting cost-effectiveness analysis from the six prototype analysis represents most of the energy and cost impacts of the changes in Standard 90.1. These six prototypes were chosen to represent the energy impact of five of the eight commercial principal building activities. The five represented principal building activities account for 74% of the new construction by floor area covered by the full suite of 16 prototypes.

Table 5.3. Prototype Buildings

Principal Building Activity	Building Prototype	Included in Subset for Cost-Effectiveness Analysis
Office	<i>Small Office</i>	Yes
	Medium Office	No
	<i>Large Office</i>	Yes
Mercantile	<i>Standalone Retail</i>	Yes
	Strip Mall	No
Education	<i>Primary School</i>	Yes
	Secondary School	No
Healthcare	Outpatient Healthcare	No
	Hospital	No
Lodging	<i>Small Hotel</i>	Yes
	Large Hotel	No
Warehouse	Warehouse (non-refrigerated)	No
Food Service	Quick-service Restaurant	No
	Full-service Restaurant	No
Apartment	<i>Mid-rise Apartment</i>	Yes
	High-rise Apartment	No

5.3 Represented HVAC Equipment Types

To estimate the mix of energy types impacted by codes and the effect of different types of equipment, various water heating, space heating, and cooling equipment is selected for each prototype based on a typical application, with the goal of representing a broad cross section of the many commercial HVAC

² An analysis of the 6 prototype presented at the interim SSPC 90.1 meeting on October 19, 2011 showed savings for 90.1-2010 v. 2004 to be within 2.5% of the full set of 16 prototype analysis.

and other systems used in the commercial building sector. The selections were vetted by building experts, including representatives of ASHRAE SSPC 90.1. The heating and cooling source and predominant and additional HVAC system types are shown in Table 5.4.

Table 5.4. HVAC Primary and Secondary Equipment

Building Prototype	Heating	Cooling*	Predominant System*	Additional System*
Small Office	Heat Pump	Unitary DX	Packaged CAV	No
Medium Office	Gas Furnace	Unitary DX	Packaged VAV w/Reheat	No
Large Office	Boiler	Chiller, Cooling Tower	VAV w/Reheat	No
Standalone Retail	Gas Furnace	Unitary DX	Packaged CAV**	No
Strip Mall	Gas Furnace	Unitary DX	Packaged CAV**	No
Primary School	Gas Furnace	Unitary DX	Packaged CAV**	No
Secondary School	Boiler	Air-cooled Chiller	VAV w/Reheat	Packaged CAV
Outpatient Healthcare	Boiler	Unitary DX	Packaged VAV w/Reheat	No
Hospital	Boiler	Chiller, Cooling Tower	VAV w/Reheat	Central CAV
Small Hotel	Electricity	DX	PTAC	No
Large Hotel	Boiler	Air-cooled chiller	Fan-coil Units	VAV w/Reheat
Warehouse	Gas Furnace	Unitary DX	Unit Heater	Packaged CAV
Quick-service Restaurant	Gas Furnace	Unitary DX	Packaged CAV	No
Full-service Restaurant	Gas Furnace	Unitary DX	Packaged CAV**	No
Mid-rise Apartment	Gas	DX	Split DX system	No
High-rise Apartment	Boiler	Fluid Cooler	WSHP	No

* System abbreviations: DX = direct expansion; CAV = constant air volume; VAV = variable air volume; PTAC = packaged terminal air conditioners; WSHP = water source heat pump

** These systems are constant volume in 90.1-2007, and in some cases are VAV in 90.1-2010 and later

5.4 Aggregation across Building Type and Climate Zone

DOE may use one of two approaches to demonstrate overall cost-effectiveness for a code or standard edition as a whole.

- If all the individual building types and climate zones included in the analysis are found to be cost-effective independently, using the metrics and scenarios applied, the overall cost-effectiveness is demonstrated.
- For situations where some building type and climate zone combinations do not meet cost-effective criteria, if the preponderance of individual building type and climate zones included in the analysis are found to be cost-effective independently, using the metrics and scenarios applied, the overall cost-effectiveness is demonstrated even though a minority of the building type and climate zone combinations may not meet some economic criteria. To verify the impact in this case, DOE will aggregate the costs and savings on a national or state level.

5.4.1 National and State-Level Aggregations

When energy code proposals are developed, they are typically shown to be cost-effective for situations and building types where they are likely to be applied. The proposal cost-effectiveness analysis does not usually cover all building types or climate zones. In combination with a sample-based cost-effectiveness analysis, professional judgment of the consensus body is used to determine if a particular proposal is appropriate for addition to the standard or code. Proposals are also evaluated using national average energy prices, and the prices in some states can be lower. This means that for some building types in some climate zones, individual proposals may not be cost-effective. For individual code cycles, it is possible that some building type and climate zone combinations may not meet cost-effectiveness metric criteria, especially when analyzed at the state level with lower energy prices.

Individual results for building types in a climate zone can be aggregated to a national or state domain using weighting factors based on construction floor area for that domain. When a subset of climate zones or building types is selected for analysis, the weighting factors on each axis will be normalized so that the weightings for selected climate zones and building types each total 100%. Individual results are then multiplied by the weighting factors to arrive at an aggregate result.

5.4.2 Demonstration of Aggregate Cost-effectiveness

For situations where some building type and climate zone combinations do not meet cost-effective criteria, the results for all the analyzed combinations will be weighted based on construction data. If the resulting cross-weighted cost-effectiveness metric for the commercial building set as a whole in the state or national domain analyzed meets the cost-effectiveness criteria, DOE will deem that cost-effectiveness has been demonstrated.

5.5 Supplemental Range of Results or Sensitivity Analysis

In some cases it may be desirable to understand the range of results that might occur given variation in some of the parameters. This type of analysis shows the sensitivity of the cost-effectiveness to each parameter and shows the range of possible results. This analysis can be conducted using either a Monte Carlo or discrete probability method.³ An example of such an analysis is shown in Appendix B. This type of analysis may help demonstrate the cost-effectiveness of a code or standard as a whole in a particular domain when some individual building type and climate zone combinations do not meet cost-effectiveness criteria.

³ A Monte Carlo analysis uses multiple random values of sensitive variables in an iterative analysis to find the range and distribution of possible outcomes, while a discrete probability method uses selected values that are assigned expected probabilities to determine an expected range of outcomes.

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Appendix A

Current Cost-effectiveness Parameters

Appendix A

Current Cost-effectiveness Parameters

A.1 Commercial Cost-effectiveness Parameters

Following the methodology outlined in this document and previously posted on the Building Energy Codes Program web site,¹ the U.S. Department of Energy (DOE) has established the following parameters for analysis of current code proposals as of January 2015. Current economic parameters are posted at the same web site. These parameters are subject to reevaluation for each analysis and may change if deemed appropriate. The parameters used and their source will be documented in each analysis.

Table A.1. Summary of Current Economic Parameter Estimates

Parameter	Symbol	Scenario 1 (Publicly-Owned Method)	Scenario 2 (Privately- Owned Method)	Scenario 3 (ASHRAE 90.1-2016 Scalar Method)
Period of Analysis	L	30 years*	30 years*	40 years*
Energy Prices		Latest national annual average prices based on current DOE Energy Information Administration (EIA) data**		\$0.1013/kWh \$1.00/therm blend [†]
Energy Escalation Rates		Price escalation rates taken from 2013 <i>NIST Handbook 135 Supplement</i> ^{‡‡}	National Institute of Standards and Technology (NIST) year-by-year rates (same as scenario 1)	NIST year-by-year rates (same as scenario 1) plus 2.38% inflation
Loan Term	M_L	N/A	$M_L = L$ (same as period of analysis)	$M_L = L$ (same as period of analysis)
Loan Interest Rate	I	N/A	6.00%	7.00%
Nominal Discount Rate	D_n	N/A	6.00% (same as loan rate)	9.34%
Real Discount Rate	D_r	3.0%	4.06%	5.0%
Inflation Rate	R_{INF}	N/A	1.87% annual	2.38% annual
Property Tax Rate	R_P	N/A	2.04%	N/A
Income Tax Rate, federal	R_{TF}	N/A	34.0%	0% [‡]
Income Tax Rate, state	R_{TS}	N/A	State values vary; highest marginal corporate rate used	0% [‡]

* Study period shown is for full code or standard analysis, for individual measures, measure life may be used as the study period.

** Average EIA prices from EIA. State prices from EIA are used for individual state analysis. National analysis of Standard 90.1 may use the Scenario 3 prices established by ASHRAE.

† The ASHRAE Scalar Method identifies a fossil fuel rate that is primarily applied to heating energy use. For this reason, the fossil fuel rate is a blended heating rate and includes proportional (relative to national heating fuel use) costs for natural gas, propane, heating oil, and electric heat. Heating energy use in the prototypes for fossil fuel equipment is calculated in therms based on natural gas equipment, but in practice, natural gas equipment may be operated on propane, or boilers that are modeled as natural gas may use oil in some regions.

‡ Income tax rates are 0% for Scenario 3 because the current discount rate is based on pre-tax rate of return.

‡‡ Price escalation from Rushing et al. 2013.

¹ See <http://www.energycodes.gov/development/commercial/methodology>.

Appendix B

Supplemental Range of Results Method

Appendix B

Supplemental Range of Results Method

In some cases, it may be desirable to understand the range of results that might occur in a cost-effectiveness analysis, given potential variation in some of the parameters. This type of analysis shows the sensitivity of the cost-effectiveness to each parameter and shows the range of results that can occur. This analysis can be conducted using either a Monte Carlo or discrete probability method. This example uses a discrete probability or decision analysis method. This type of analysis may be helpful in demonstrating cost-effectiveness of a code or standard as a whole in a particular domain when some individual building type and climate zone combinations do not individually meet cost-effectiveness criteria.

B.1 Evaluating Multiple Mixed Cost-effectiveness Results

To demonstrate the Range of Results Method, two discrete probability analyses are conducted. The first shows the impact of variation in energy cost savings and construction costs and the second adds variation in economic parameters. For these examples, preliminary results of the analysis of ASHRAE Standard 90.1-2013 compared to 90.1-2010 are used. Note that this is intended to provide an example of the method, not a finished result. In a finished analysis, more research into each variable and the associated probabilities would be undertaken, and more documentation of that research, the data and expert sources used, and the range of each input parameter would be provided.

When conducting a national analysis, many parameters will vary from region to region and state to state. Variable parameters in the cost-effectiveness analysis include the following:

- **Construction costs.** Separate location cost factors for building envelope (walls and windows), lighting, and HVAC can be applied. In addition, sales tax varies from location to location and bid climate affects costs beyond average location multipliers. Replacement costs include a fairly large cost increase multiplier, and variation can be included for that cost as well. A variable reflecting bid climate is also included, as the number of active construction projects can have a large impact on local construction costs.
- **Energy cost savings.** A range of energy prices can be applied, along with multipliers on the escalation factors. In addition, a savings range can be applied, as there will be variation in savings in actual buildings compared with the prototype buildings.
- **Economic parameters.** While economic parameters have been established by federal statute or committee consensus process, there is variability in discount rates for various sectors and in the escalation rates for energy prices that can actually occur.

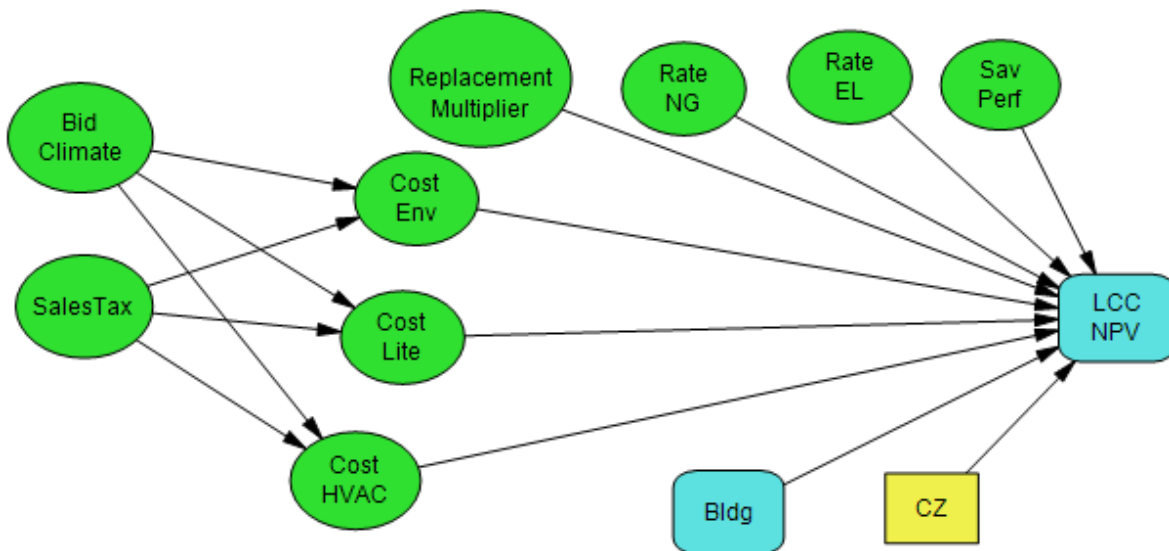
In a discrete probability analysis, a high, nominal, and low value for each factor is used (sometimes additional discrete states are added). Where a good set of data is available, these values and the probability of their occurrence can be determined fairly precisely, as is the case with occurrence of different state energy prices or sales taxes. In other cases, expert judgment can be applied to arrive at a reasonable range of values that are generally acceptable, and a reasonable set of probabilities can be

applied. Even without a complete set of data-based inputs, a valid range of results can be shown, as individual high and low values tend to average out, and probabilities often match a standard distribution. The value of the analysis is not predicting a precise expected value, but is seeing the range of results that occurs with the given inputs and a good estimate for the expected value of the overall group result based on the given range of inputs. The expected value is similar to a weighted average, based on probability.

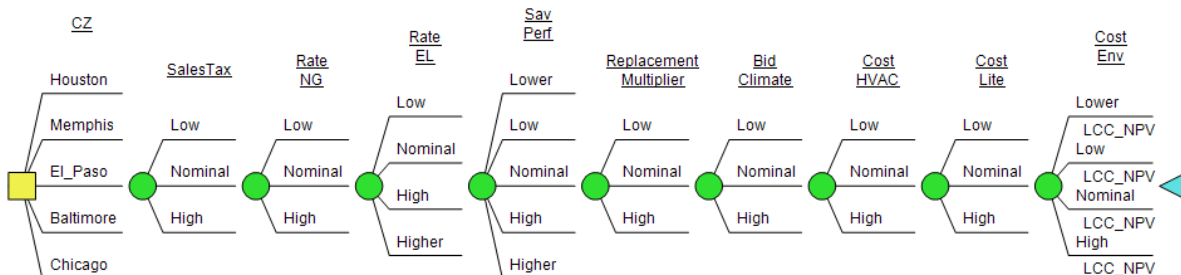
B.2 Example of Variable Costs and Energy Parameters

For this analysis, a weighted average net present value (NPV) savings of the six building types is used in Scenario 1. Variation in energy cost savings and construction cost values are analyzed.

An influence diagram shows the relationship of the parameters in this analysis:

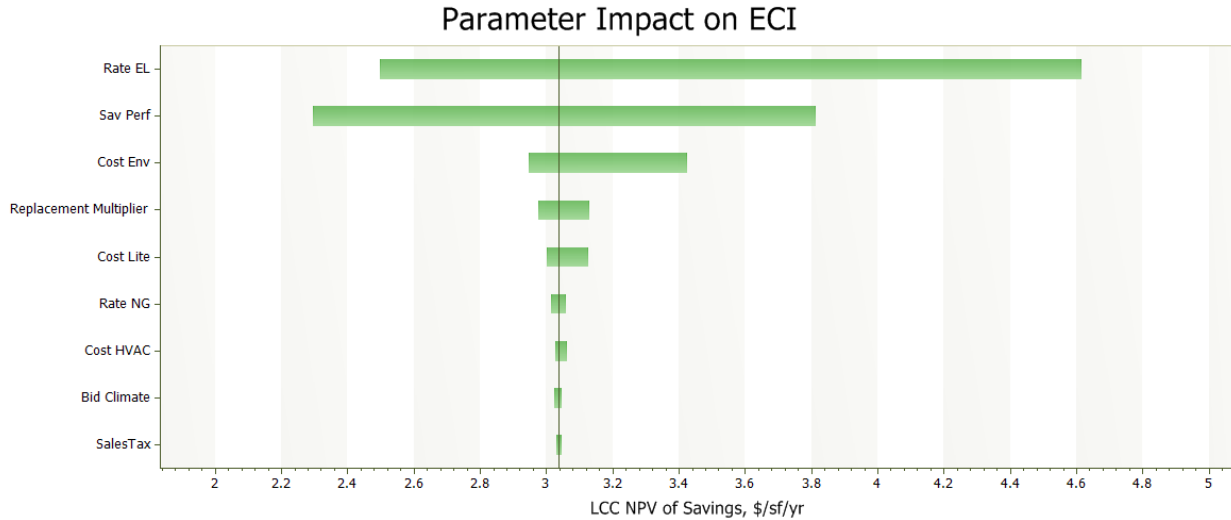


That relationship can also be seen as a decision tree, where the discrete states for each parameter are shown:

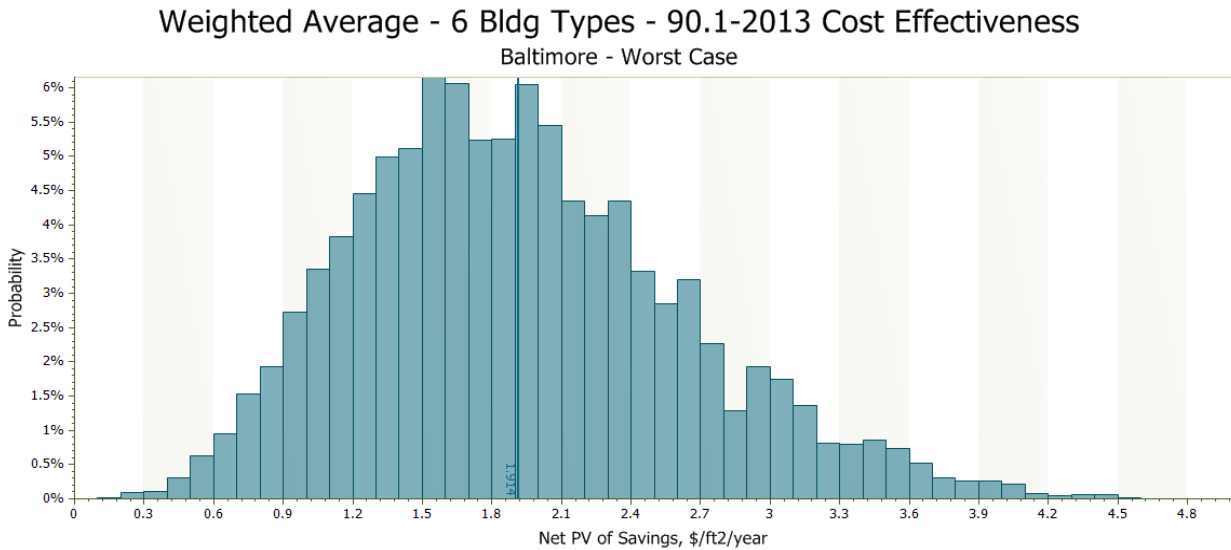


When the impact of the influencing parameters on the final NPV of savings is evaluated, we can see the range of impact each parameter has when the other parameters are held at their nominal state. The range of impact is displayed in a tornado diagram. The vertical line represents the NPV of savings for the

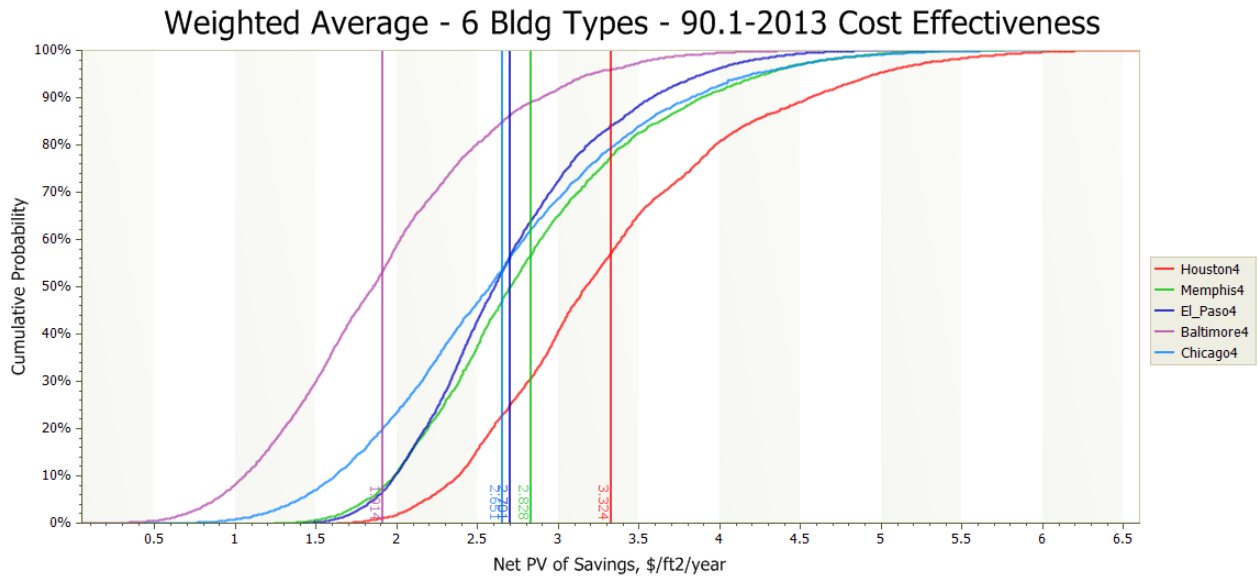
Houston climate zone with all parameters equal to the nominal position. The width of each bar shows the high and low result that each parameter's range of values will produce when other influencing parameters are held at their nominal value. Reviewing the tornado diagram indicates that the electric rate and savings performance variation have the largest impact on the NPV of savings.



The range of NPV savings result can be viewed for individual climate zones, and a histogram for the weighted average of six building types in Baltimore, the location with the lowest NPV of savings result, is shown below.



The histograms for each analyzed climate zone can be converted into a plot of cumulative probability, so they can be easily overlaid on one graph. The “S” shaped line shows the range of results and the vertical line shows the expected value, given the range and probabilities for all the input parameters.

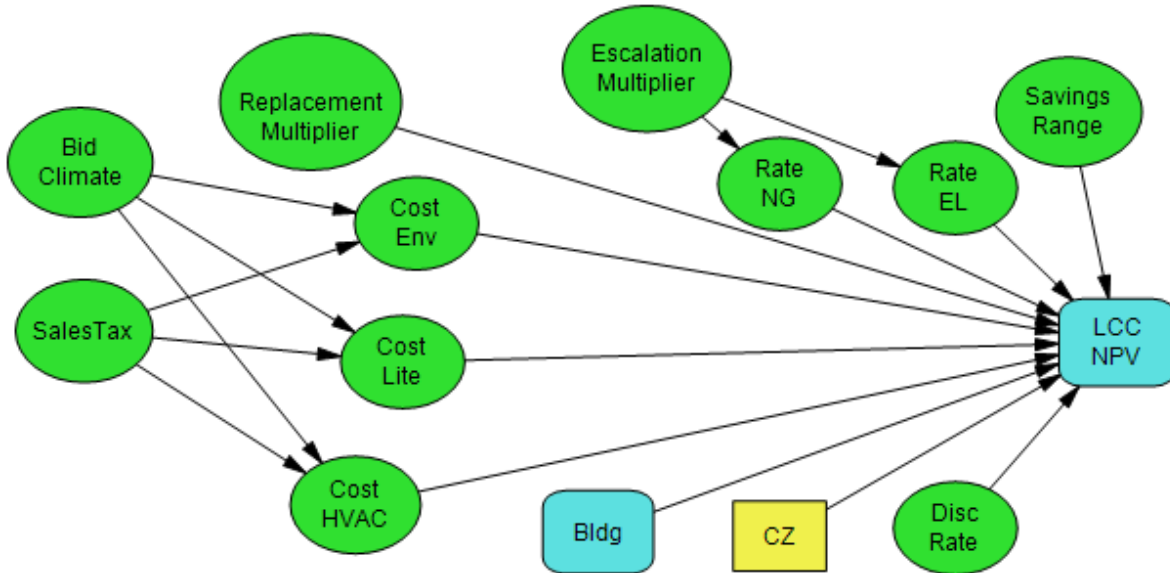


While in this example, the results across the entire range and combinations of parameter input in each climate zone analyzed were all cost-effective; in a case where some combinations fell below zero NPV savings, a code upgrade would be declared cost-effective as a whole if the expected value of NPV savings was greater than zero.

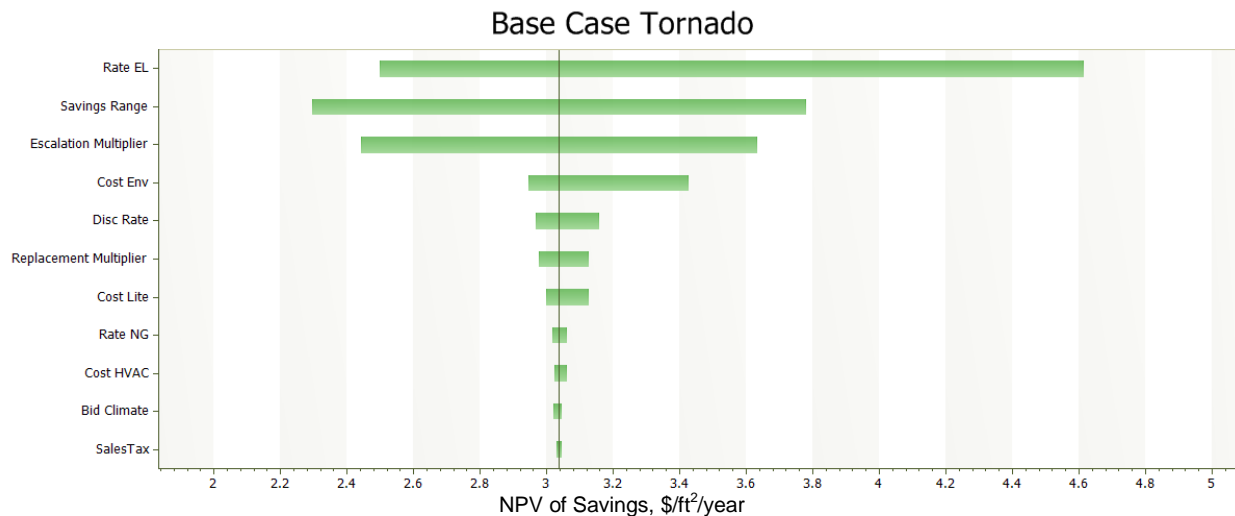
B.3 Example including Variable Economic Parameters

The previous example—based on preliminary results of the Scenario 1 analysis of Standard 90.1-2013 compared to 90.1-2010—can be expanded to include variation in the energy price escalation rates and discount rate used. Again, this analysis is intended to provide an example of the method, not a finished result. In a finished analysis, more research into each variable and the associated probabilities would be undertaken, and more documentation of that research and the selected range of parameter inputs would be provided.

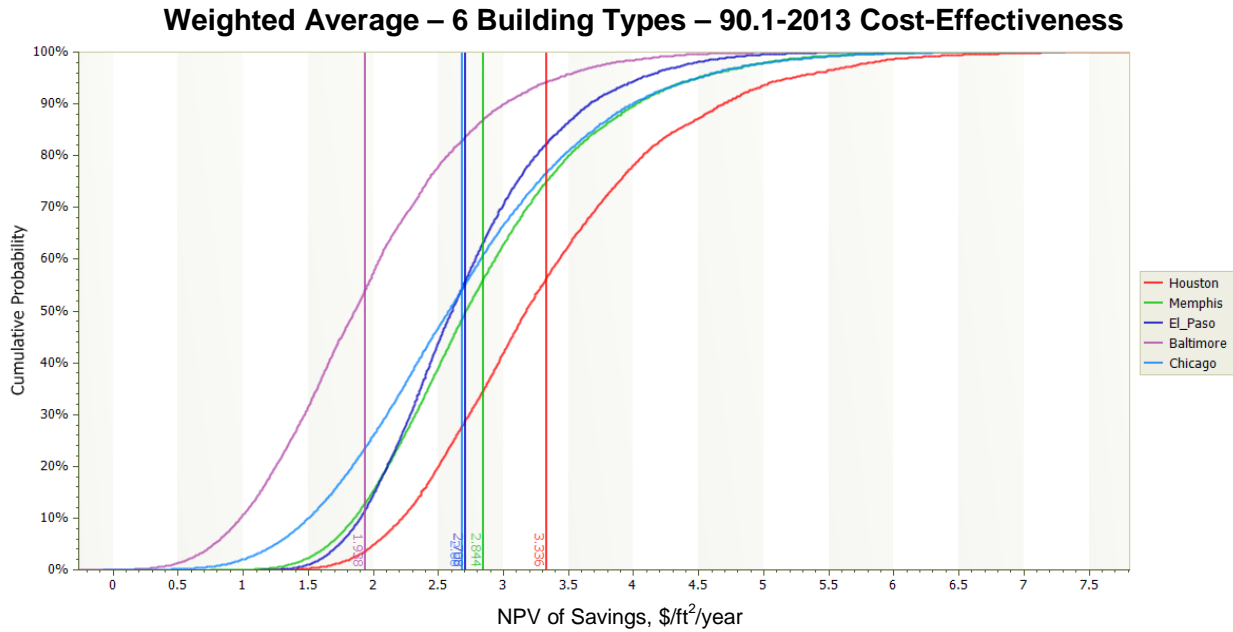
There are often uncertainties regarding the predicted energy escalation rates and the discount rates used in the analysis. While these are established by federal regulation for federal projects, a view of the impact of varying those rates may be helpful from the private investment view. For illustration, the previous analysis was revised to include influence of varying the energy price escalation rates from 80% to 120% of their value as established by the Energy Information Administration and look at real discount rates from 0.5% to 7.0% rather than just 3.0%. The revised influence diagram is shown below:



When a sensitivity analysis is run for the Houston climate zone, the energy price escalation multiplier does have a large impact, and the discount rate variation has a lesser impact.



Looking at the cumulative probability diagram for the weighted results of all six building types, we can see that the purple line for the Baltimore climate zone extends below zero NPV, because there are some combinations of the tested parameters that result in a NPV of savings less than zero; however, the preponderance of cases still have a positive net savings, and the expected values of NPV savings shown by the vertical lines for all climate zones are greater than zero. In fact the probability is so low that NPV is less than zero it is difficult to see the tail of the line for Baltimore on the chart. So a conclusion can be made that the code as a whole is cost-effective, even with savings, cost, and economic parameter input variation.



The U.S. Department of Energy's Building Energy Codes Program is an information resource on national model energy codes. We work with other government agencies, state and local jurisdictions, national code organizations, and industry to promote stronger building energy codes and help states adopt, implement, and enforce those codes.

BECP Website
www.energycodes.gov

BECP Technical Support
techsupport@becp.gov
www.energycodes.gov/support/helpdesk.php

EERE Information Center
1-877-EERE-INF (1-877-337-3463)
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U.S. DEPARTMENT OF
ENERGY | **Energy Efficiency &
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**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

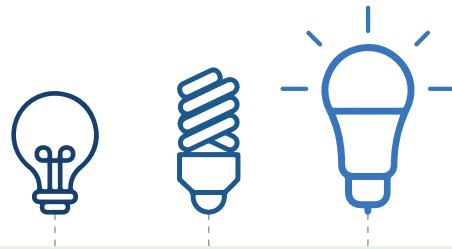
SCG-31

SOCALGAS EXHIBIT

California Energy Commission Public Notice – Achieving Energy Efficiency

CALIFORNIA ENERGY COMMISSION

Achieving Energy Efficiency



Energy efficiency means doing more with less.

By leveraging technology to meet consumer needs while using less energy, California is reducing the need for new electricity generation, which reduces air pollution and saves consumers money. Many energy efficiency strategies also create more comfortable homes and workspaces.

For more than 40 years, the California Energy Commission has been pivotal in advancing energy efficiency strategies. By implementing cost-effective appliance and building energy efficiency standards, the Energy Commission has saved consumers more than \$100 billion in utility bills.

Constantly evolving technologies produce new opportunities for improved efficiency, especially in California where innovation is in our DNA. And more needs to be done to achieve the state's ambitious greenhouse gas reduction goals. The Energy Commission established targets to achieve a statewide, cumulative doubling of energy efficiency savings by 2030. To ensure that all Californians are included, the Energy Commission is working to address barriers low-income and disadvantaged communities encounter in benefiting from energy efficiency measures.

By implementing cost-effective appliance and building energy efficiency standards, the Energy Commission has saved consumers more than \$100 billion in utility bills.



Setting Standards

California developed the nation's first energy conservation standards for buildings and appliances in the 1970s. Since then, the state has continued to establish cost-effective standards and incentives that benefit consumers. California's standards are adopted by other governments around the world.

Appliances

The Energy Commission's appliance regulations, combined with federal standards, set minimum efficiency levels for energy and water consumption in products such as consumer electronics, household appliances, and plumbing equipment. The standards shift the marketplace toward more efficient products, producing significant energy savings for California consumers without affecting the usefulness of the products. The standards are developed with industry, energy efficiency advocates, and others through an open, transparent process. To ensure manufacturers comply, the Energy Commission can fine manufacturers and retailers that sell appliances that do not meet the state standards.

New Buildings

Every three years, the Energy Commission updates energy efficiency standards for newly constructed buildings and alterations to existing buildings. In addition to saving energy and money, the standards help integrate renewable energy onto the electrical grid. The standards require solar generation in new, single-family homes starting in 2020. The standards reduce greenhouse gas emissions by maximizing efficiency during times of the day when the grid is most carbon intensive. To implement the standards, the Energy Commission works with stakeholders, including local building departments, design professionals, contractors, and many others.

Upgrading California's Existing Buildings

Achieving California's ambitious climate and energy goals will require decarbonizing existing buildings. While voluntary actions have achieved some efficiencies, significant potential remains. The Energy Commission's Existing Buildings Energy Efficiency Action Plan provides a 10-year roadmap to activate market forces and transform California's existing residential, commercial, and public buildings into high-performing and energy-efficient ones.

Transforming California's buildings requires accurate information for decision makers and consumers. The Energy Commission developed the nation's first statewide building energy use benchmarking and public disclosure program for existing commercial and multifamily buildings. Giving consumers energy usage information will help encourage building owners to implement energy efficiency upgrades.

Incentives also play an important role in improving the performance of existing buildings. The Energy Commission administers several incentive programs, including the Energy Conservation Assistance Act Program and the Proposition 39 K-12 school program. The financing program is a revolving loan fund that provides zero- and low-interest-rate loans to local governments, schools, and other public institutions. The Proposition 39, or the Clean Energy Jobs Act program, provided \$1.5 billion in grant money to local education agencies for energy efficiency upgrades and clean energy projects.



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January 2019

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-32

SOCALGAS EXHIBIT

**PG&E Comments on Notice of Proposed Rulemaking on Energy Conservation
Standards for Residential Furnaces**



July 10, 2015

Ms. Brenda Edwards, EE-5B
Office of Energy Efficiency and Renewable Energy
Energy Conservation Program for Consumer Products
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, DC 20585-0121

Re: Pacific Gas and Electric Company comments on the Notice of Proposed Rulemaking on Energy Conservation Standards for Residential Furnaces

Docket Number: EERE-2014-BT-STD-0031
RIN: 1904-AD20

Dear Ms. Edwards:

This letter comprises the comments of the Pacific Gas and Electric Company (PG&E) in response to the Department of Energy (DOE) Standards Notice of Proposed Rule (NOPR) for Residential Gas Furnaces.

Pacific Gas and Electric Company, incorporated in California in 1905, is one of the largest combination natural gas and electric utilities in the United States. Based in San Francisco, the company is a subsidiary of PG&E Corporation. There are approximately 20,000 employees who carry out Pacific Gas and Electric Company's primary business—the transmission and delivery of energy. The company provides natural gas and electric service to approximately 15 million people throughout a 70,000-square-mile service area in northern and central California. We understand the potential of appliance efficiency standards to cut costs and reduce consumption while maintaining or increasing consumer utility of the products. We have a responsibility to our customers to advocate for standards that accurately reflect the climate and conditions of our service territory, so as to maximize these positive effects.

We appreciate this opportunity to provide the following comments on this NOPR. We support DOE updating the current standard adopted over 30 years ago. We commend the DOE for the thorough analysis performed in support of a proposed standard level of 92% Annual Fuel Utilization Efficiency (AFUE). We offer these comments in support of the proposed standard and to encourage the DOE to go even further and adopt higher efficiency standard levels that the DOE has already found to be cost-effective and technically feasible. The resulting savings of 2.78 Quads from the proposed 92% AFUE standard makes this one an important DOE appliance standard. If the standard is moved up to 95% AFUE the savings increase to 4.11 Quads.

PG&E supports the standard level proposed by DOE in the NOPR.

PG&E performed an analysis using the DOE life cycle cost (LCC) model and finds that DOE proposed standard level of 92% AFUE is cost effective, as is the 95% AFUE level. There is apparently a widespread misunderstanding of the LCC model but we support its use as the best way to assess impacts across a broad array of alternative scenarios each of which has a probability distribution.

Improved furnace standards are a key component in meeting state, national, and international climate goals.

PG&E is directed by the California Public Utilities Commission (CPUC) to implement the Long Term Strategic Plan,¹ and the PG&E's Codes & Standards (C&S) program implements the C&S Action Plan.² Implementation of the Plans is done, in part, by the Codes & Standards program supporting the efforts of the California Energy Commission (CEC). Since California's furnace standards are preempted by DOE we are working closely with CEC in developing recommendations to DOE to raise the efficiency of gas furnaces in a cost-effective and technical feasible way.

Induced draft furnaces replaced natural, atmospheric draft units over three decades ago because they provided a boost in efficiency. During the same time period, forced-draft condensing furnaces were developed and perfected. They have reached the point of technological maturity required to become the new standard. A similar evolution of technology occurred in automobiles resulting in there being no new vehicles without fuel injection technology. It took regulatory action to cause this change but the benefits to society are numerous. This will be the case for furnaces. It has been almost 3 decades since the last furnace standards were promulgated during which public policy and our understanding of CO₂ and NO_x pollution have come to support the retirement of a legacy technology.

A nationwide 92% AFUE standard is cost-effective and technically feasible and improvements to DOE analysis make a 95% AFUE standard also cost effective by realizing additional energy savings.

The DOE LCC analysis for residential furnaces, documented in the Notice of Proposed Rulemaking Technical Support Document (NOPR TSD)³, is based on a Monte Carlo analysis that adequately considers the variability and uncertainty of all input parameters. This approach ensures that all possibilities associated with geographic, application, technical, and economic factors are included in the analysis, along with their implications in the market. Therefore, DOE's LCC analysis results are well-suited to reflect the energy savings and cost effectiveness of different efficiency levels under consideration.

¹ Available at: <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/>

² Available at: http://www.cpuc.ca.gov/NR/rdonlyres/33894C3D-BAE7-4051-92A9-E066356FE820/0/CS_ActionPlan_20140219.pdf

³ U.S. Department of Energy, Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Residential Furnaces. 2015. Available at: <http://www.regulations.gov/#!documentDetail;D=EERE-2014-BT-STD-0031-0027>

However, DOE’s analysis includes conservative assumptions for several input parameters, as explained in the following sections. We believe that these conservative assumptions are unnecessary and should be removed to more accurately model the costs and benefits of high efficiency furnaces. We provide LCC results using suggested revisions to the assumptions using the DOE LCC Crystal Ball analysis tool.

Results for Trial Standard Level 4 (TSL 4 or Efficiency Level 3 –95% AFUE) are even further cost effective with our modified analysis, on both a national and a regional basis. Adopting a standard to dramatically reduce natural gas use is also critical for California to meet its NOx reduction target and US Environmental Protection Agency’s (EPA) smog control mandates.

Fuel switching effects have little impact on furnace and heat pump manufacturers

Fuel switching is controversial in some regions of the country. Recently observed billboards along freeways in Atlanta advertised incentives of \$550 from the local electric utility for switching to a heat pump. This may be a transient situation but does demonstrate that fuel switching analysis must be addressed from a probabilistic perspective as is done in the DOE LCC. In California fuel switching is unlikely given the requirements of the Title 24 Part 6 Building Energy Efficiency Standards, but in places where it may occur it is important to consider that the impacts of fuel switching to manufacturers. As shown below the manufacturers (and/or parent companies) that comprise 99% of the U.S. residential non weatherized gas furnace (NWGF) market also comprise 97% of the air conditioner and heat pump market.⁴ Furthermore, the relative proportion of the total market share for each manufacturer is similar in both markets. Thus if and when a furnace is replaced with a heat pump the equipment manufacturer does not lose the sale.

Manufacturer	Parent Company	NWGF Market %	AC and HP Market %
Allied Air Enterprises, LLC	Lennox International	See Lennox	See Lennox
Carrier Corporation	United Technologies	32%	27%
GD Midea Heating & Ventilating Equipment Co., Ltd	Midea Group	< 1%	-
Goodman Manufacturing	Daikin	15%	14%
International Comfort Products	United Technologies	See Carrier	See Carrier
Lennox Industries	Lennox International	13%	12%
Nordyne, LLC	Nortek	5%	9%
Rheem	Paloma Group	12%	12%
Texas Furnace	AllStyle Coil	< 1%	-
Trane	Ingersoll Rand	13%	14%
Wolf Steele	Napolean Systems	< 1%	-
York International	Johnson Controls	9%	9%
Total		99%	97%

Following are our recommendations for improvements to the DOE analysis.

⁴ U.S. Department of Energy, Technical Support Document: Energy Efficiency Standards for Consumer Products: Central Air Conditioners, Heat Pumps, and Furnaces. 2011. Available at: <http://www.regulations.gov/#!documentDetail;D=EERE-2011-BT-STD-0011-0012>

1. Make more reasonable product markup assumptions

Section 2.7 of the TSD indicates that incremental markups are necessary for “the change in the manufacturer production cost of higher efficiency models to the change in the retailer or distributor sales price.” Section 6.1 states that “Because companies mark up the price at each point in the distribution channel, both baseline and incremental markups are dependent on the distribution channel”.

Once the furnace efficiency standard takes effect, manufacturer, wholesaler, and contractor costs for furnaces meeting the new requirements are likely to drop due to economies of scale for manufacturers (and thereby wholesalers), product familiarity for contractors, and change of high efficiency furnaces from premium to commodity priced products. However, tables in Section 6.6.1 of the TSD show very high incremental markups, as high as 69% in Alaska. These incremental markups are not reasonable in a market where manufacturers and contractors are competing to provide the best price for a furnace that will be required to meet the new federal standard. Incremental markups should be excluded altogether by treating the new standard as the baseline.

2. Improve accuracy of market for vent system upgrade for orphaned water heater vents

We believe that DOE’s assumptions on vent system upgrade for orphaned water heaters should be improved for replacement, new owner, and new construction installation categories.

- a. Reduce frequency assumptions for common-vented furnaces and water heaters:** In particular, DOE analysis should include the effect of market penetration of high-efficiency water heaters by 2021, which would cause many homes to upgrade their water heater vents. For example, in 2009 DOE⁵ estimated that the market share for gas instantaneous water heaters could reach 28% based on a median projection. The new DOE water heater efficiency standards, which took effect in April 2015 effectively requires gas water heaters with more than 50 gallon storage capacity to be condensing water heaters. California’s 2016 Building Efficiency Standards includes a prescriptive requirement of tankless (instantaneous) water heater for all newly constructed homes. To accommodate high-efficiency water heaters, newly constructed homes and many existing homes (including those with common vents for the furnace and water heater) will need to upgrade water heater vents. DOE’s analysis of vent system upgrade cost for orphaned water heaters was based on market data collected before 2010. By 2021, the number of homes with a common venting system shared by a non-weatherized gas furnace (NWGF) and a natural vent water heater will be greatly reduced, making DOE’s assumptions obsolete.

⁵ U.S. Department of Energy, Technical Support Document: Energy Efficiency Program for Consumer Products: Residential Water Heaters, Direct Heating Equipment, and Pool Heaters. 2009. Available at: <http://www.regulations.gov/#!documentDetail;D=EERE-2006-STD-0129-0170>

b. Use consultant reported frequencies: For existing NWGF replacement, DOE analysis relied on a 2010 consultant report⁶ to estimate the costs of upgrading the vent system for orphaned water heaters. This consultant report was used to support the prior DOE residential gas furnace standard development. However, as shown in the following table, DOE increased the frequencies for applying vent resizing costs in the current NOPR TSD (from 40% to 75% and 20% to 40%) without detailed explanation or supporting data. These frequencies represent the percentages of existing homes where the common vent for the non-condensing furnace and water heater would be too large for the orphaned water heater. As explained above, we expect that increased market adoption of high-efficiency water heaters would reduce these frequencies from the estimates provided in the consultant report. We recommend that DOE not increase the frequencies provided in the 2010 consultant report for either resizing orphaned water heater chimneys or upgrading metal vents, and include further reduction of these frequencies due to increased market adoption of high-efficiency water heaters.

Existing Non-Condensing Furnace	Replacement Furnace	Installation Requirement	Frequency of applying requirements	
			2010 Consultant Report Table 8-B.6.5	Current NOPR Analysis Table 8D.2.19
Natural Draft	Condensing Furnace	Convert Water Heater from single wall to Type B vent Connector	100%	100%
Natural Draft	Condensing Furnace	Resizing Orphaned Water Heater Chimney or upgrading Metal Vent	40%	75%
Natural Draft or Fan Assisted	Condensing Furnace	Reline all unlined chimneys for Orphaned Water Heater	100%	100%
Fan Assisted	Condensing Furnace	Resizing Orphaned Water Heater Chimney or upgrading Metal Vent	20%	40%

c. Eliminate added costs for new owner installations that are assumed to be commonly vented with non-condensing water heaters: DOE included a common venting adder of \$956 for all new-owner NWGF installations planned to be commonly vented with a non-condensing design option (Table 8D.2.27), assumed to represent 45% of the new owners. These installations are in homes that did not previously have a central forced air gas furnace. This adder is unnecessary. Homes in this category did not previously have a furnace, and therefore did not have an existing common vent for the furnace and water heater. Adding a dedicated vent for the new condensing NWGF does not affect the existing vent for the water heater and, therefore, does not trigger any vent upgrade

⁶ EER Consulting, L., Appendix 8-B (Section 8-B.5) part of Final Rule Technical Support Document: Energy Efficiency Standards for Consumer Products: Central Air Conditioners, Heat Pumps, and Furnaces. 2010. Dallas, TX. Available at: <http://www.regulations.gov/#1documentDetail;D=EERE-2011-BT-STD-0011-0012>

requirement for the existing water heater. This common venting adder should be removed from the LCC analysis.

- d. Reduce the frequency of common-vented new construction homes:** DOE assumed that 44% of the new construction homes planned to have a common venting system for a non-condensing NWGF and water heater as the baseline design option (Table 8D.2.28). As we indicated previously, this assumption does not properly reflect the market trend of increased adoption of high-efficiency water heaters, especially for new construction home. In California, due to the 2016 Title 24 building standards, all newly constructed homes likely would have a tankless water heater (0.82 EF) or a storage water heater with similar efficiency (condensing water heater) by 2021. Therefore, this cost adder should not be applicable to California new construction homes. Accordingly, the applicable percentage nationwide would reduce from 44% to 40%, as California represents about 10% of the national NWGF shipment. Assuming other states will reduce the market share of non-condensing storage water heaters by 30%, the applicable nationwide market share for the common venting adder would be 28% ($40\% * (100-30\%)$).

3. Include learning curve effects on product price trends the effect of which will reduce overall costs in DOE's analysis

When using the DOE LCC tool it appears that the learning rate impacting product price was instead set to "No Learning (Constant)." Section 8.2.1 states that a decreasing learning factor of 0.937 was applied to total consumer price, but the spreadsheet settings indicate otherwise. Please provide clarification for the learning factor used.

Concerns have been raised about installation costs in row houses and potentially in other existing conditions. These should be addressed by using the "learning" concept. In the case of row houses there are often existing masonry chimneys that go straight up, making the installation of the condensing gas furnace and a new water heater venting feasible. New venting technologies have and will be introduced to meet the market demand for low cost venting alternatives.

Revised LCC analysis summary

We ran multiple scenarios using the DOE's LCC tool with modified assumptions as described above, namely:

1. Incremental markups set to equal 1
2. Setting product price trends to include learning
3. With 1 and 2 combined

LCC analysis was performed for the entire U.S., Northern U.S., Southern U.S., and California.

Original Results

NWGF Efficiency Level	U.S.		Northern U.S.		Rest of U.S.		California Only	
	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings
0 - NWGF 80%	\$12,611	NA	\$15,412	NA	\$9,453	NA	\$8,465	NA
1 - NWGF 90%	\$12,129	\$232	\$14,835	\$205	\$9,078	\$263	\$8,301	\$157
2 - NWGF 92%	\$11,984	\$301	\$14,647	\$273	\$8,983	\$333	\$8,230	\$218
3 - NWGF 95%	\$11,867	\$379	\$14,486	\$363	\$8,914	\$398	\$8,193	\$254
4 - NWGF 98%	\$11,823	\$422	\$14,406	\$442	\$8,912	\$400	\$8,289	\$158

Without Incremental Markup

NWGF Efficiency Level	U.S.		Northern U.S.		Rest of U.S.		California Only	
	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings
0 - NWGF 80%	\$12,611	NA	\$15,412	NA	\$9,453	NA	\$8,465	NA
1 - NWGF 90%	\$12,084	\$253	\$14,784	\$221	\$9,041	\$288	\$8,256	\$192
2 - NWGF 92%	\$11,938	\$322	\$14,590	\$293	\$8,947	\$355	\$8,178	\$259
3 - NWGF 95%	\$11,786	\$425	\$14,387	\$410	\$8,855	\$442	\$8,111	\$325
4 - NWGF 98%	\$11,696	\$514	\$14,240	\$554	\$8,828	\$469	\$8,123	\$312

With Learning Curve Effects

NWGF Efficiency Level	U.S.		Northern U.S.		Rest of U.S.		California Only	
	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings
0 - NWGF 80%	\$12,533	NA	\$15,333	NA	\$9,376	NA	\$8,379	NA
1 - NWGF 90%	\$12,042	\$236	\$14,746	\$208	\$8,994	\$267	\$8,215	\$156
2 - NWGF 92%	\$11,897	\$305	\$14,556	\$277	\$8,901	\$336	\$8,140	\$220
3 - NWGF 95%	\$11,773	\$388	\$14,385	\$374	\$8,828	\$404	\$8,099	\$261
4 - NWGF 98%	\$11,718	\$441	\$14,290	\$467	\$8,820	\$412	\$8,174	\$185

Without Incremental Markup and With Learning Curve Effects

NWGF Efficiency Level	U.S.		Northern U.S.		Rest of U.S.		California Only	
	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings	LCC	LCC Savings
0 - NWGF 80%	\$12,533	NA	\$15,333	NA	\$9,376	NA	\$8,379	NA
1 - NWGF 90%	\$12,003	\$252	\$14,697	\$224	\$8,967	\$283	\$8,171	\$191
2 - NWGF 92%	\$11,854	\$324	\$14,500	\$298	\$8,872	\$352	\$8,092	\$258
3 - NWGF 95%	\$11,700	\$428	\$14,295	\$414	\$8,775	\$443	\$8,024	\$324
4 - NWGF 98%	\$11,600	\$526	\$14,136	\$571	\$8,742	\$476	\$8,018	\$330

As seen above, when including the revised assumptions recommended by PG&E, the LCC Savings for 95% AFUE furnaces increases over the original results by \$49 for the U.S. and \$72 for California. These results will be further improved when revising inputs so that the new-owner common-vent installation is 0% and common-vented new construction homes to 28%.

4. Clarify treatment of constant torque fan motor costs.

The DOE's treatment of the incremental costs of constant-torque BPM motors is unclear. As stated in the NOPR TSD Section 5.8.1, "following the 2014 furnace fan rulemaking, in 2019 fan efficiency requirements will be set at a level that will likely essentially require constant-torque BPM blower motors to be used for non-weatherized gas-fired furnaces".

However, later in the section the Residential Furnaces NOPR TSD states “Therefore, DOE determined the additional cost of changing from a PSC to a constant-torque BPM blower motor [...] in the engineering analysis.” Please confirm that this statement refers to the engineering analysis of the previous furnace fan rulemaking and that no costs were assumed from a PSC motor to constant-torque BPM motor in the NOPR analysis.

Furthermore, Table 5.8.1 suggests that incremental costs to change to constant-torque BPM motors are included in overall costs. Please confirm that the only incremental costs included in the analysis are from constant-torque to constant-airflow (e.g., for a 60 kBtuh/h NWGF, the incremental cost is $\$89.60 - \$37.29 = \$52.31$).

5. Consider impending air quality regulations that will also increase demand for high-efficiency gas furnaces

California Air Quality Management Districts have set forth air quality action plans that mandate specific measures to reduce pollutant emissions and bring concentration levels down to comply with EPA standards. Due to the climate and geography of California, air quality is a significant issue and many districts have experienced difficulty reaching EPA standards for pollutant concentration, especially in the southern part of the state, which represents 60% of California’s population (7% of the U.S. population). Of the pollutants causing air quality concerns, NO_x is of significant importance because of its role in forming particulate matter, smog, and ozone, all of which can have harmful effects on people and the environment. The atmospheric warming potential from NO_x is 300 times that of the same amount of CO₂.⁷ Greater adoption and installation of high efficiency furnaces in California will aid in attainment of the EPA’s 24-hour PM_{2.5} and the 8-hour Ozone targets in Air Pollution Control Districts and Air Quality Management Districts throughout California.

Residential and small commercial furnaces are considered stationary area sources of pollutants, which were responsible for 7% of NO_x emissions and 39% of directly emitted particulate matter less than 2.5 micrometers (PM_{2.5}) in a 2008 emissions inventory from South Coast Air Quality Management District (SCAQMD).⁸ A 2016 SCAQMD White Paper on Residential and Commercial Energy identifies gas-fired water and space heating as the second highest stationary emitters of NO_x.⁹ Current air quality management plans throughout California require specific NO_x emission targets for residential and small commercial furnaces that are less than 175,000 Btu/hr, as shown in the table below. Many districts have recently reduced the target levels from 40 ng/J of heat output, which is the national standard, to 14 ng/J of heat output for furnaces of this capacity.

⁷ EPA. (2015). “Overview of Greenhouse Gases: Nitrous Oxide Emissions”. Available at: <http://epa.gov/climatechange/ghgemissions/gases/n2o.html>

⁸ SCAQMD. (2013). Final 2012 Air Quality Management Plan.

⁹ Katzenstein, A. (2015). South Coast AQMD Residential and Commercial Energy White Paper – Draft.

Table of California Air Quality Management District NOx Rules

Jurisdiction	Description	Rule	Date	Standard
Bay Area AQMD	Nitrogen Oxides from Fan Type Residential Central Furnaces	Rule 9-4	1983	40 ng/J
Ventura County Air Pollution Control District	Natural Gas-Fired, Fan-Type Central Furnaces	Rule 74.22	1993	40 ng/J
Yolo-Solano AQMD	Central Furnaces	Rule 2.44	2009	40 ng/J
Sacramento Metropolitan AQMD	Water Heaters, Boilers and Process Heaters Rated Less than 1,000,000 Btu per Hour	Rule 414	2010	14 ng/J
South Coast AQMD	Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces	Rule 1111	2014	14 ng/J
San Joaquin Valley Air Pollution Control District	Natural Gas-Fired, Fan-Type Central Furnaces	Rule 4905	2015	14 ng/J

The districts have written the emission targets using a metric that does not specifically promote high efficiency furnace technology; however, due to the fact that high efficiency furnaces require the combustion of less fuel for the same heat output as a standard efficiency furnace, high efficiency furnaces can be designed to meet the lower NOx emissions level more easily than a standard efficiency furnace. A furnace with a 92% AFUE is 15% more efficient at producing heat output from the same amount of fuel input as a furnace with an 80% AFUE. Therefore, high efficiency, condensing furnaces can result in a 15% reduction in NOx emissions due to less fuel input required for the same heat output.

According to an Air Quality Specialist¹⁰ at SCAQMD who led a technical study on the feasibility of reaching the 14 ng/J NOx emissions for all furnace types, although there are other factors to consider, condensing furnaces generally will be able to achieve lower NOx emissions than a standard efficiency furnace when combined with low NOx burner technology.

According to an Air Quality Specialist¹¹ at SCAQMD, manufacturers requested that the reduced NOx emission targets go into effect for condensing furnaces prior to other furnace types because it is easier to meet the NOx emission limits with these furnace types, whereas further technology developments are required to get standard efficiency furnaces in compliance. Another Air Quality Specialist¹² from the San Joaquin Valley Pollution Control District stated that although the NOx reduction rule does not specify any particular type of furnace technology, high efficiency furnaces would certainly help to meet NOx emission reduction goals.

Moving forward, Air Quality Management Districts will likely need to implement further measures to reach pollutant emission goals by their target dates. Districts have already implemented the majority of low hanging fruit measures, and, according to air quality management plans, will begin to look at energy conservation measures as opportunities to further reduce emissions from combustion equipment. The 2016 white paper from SCAQMD specifically notes that, in regards to residential and commercial gas-fired water and space heaters, the district should look at energy efficiency as an effective means to further reduce NOx emissions. The white paper suggests offering financial incentives to encourage installation of equipment beyond regulatory minimum efficiencies to supplement utility incentives.

¹⁰ Personal Communication. Brian Choe, SCAQMD, June 30, 2015

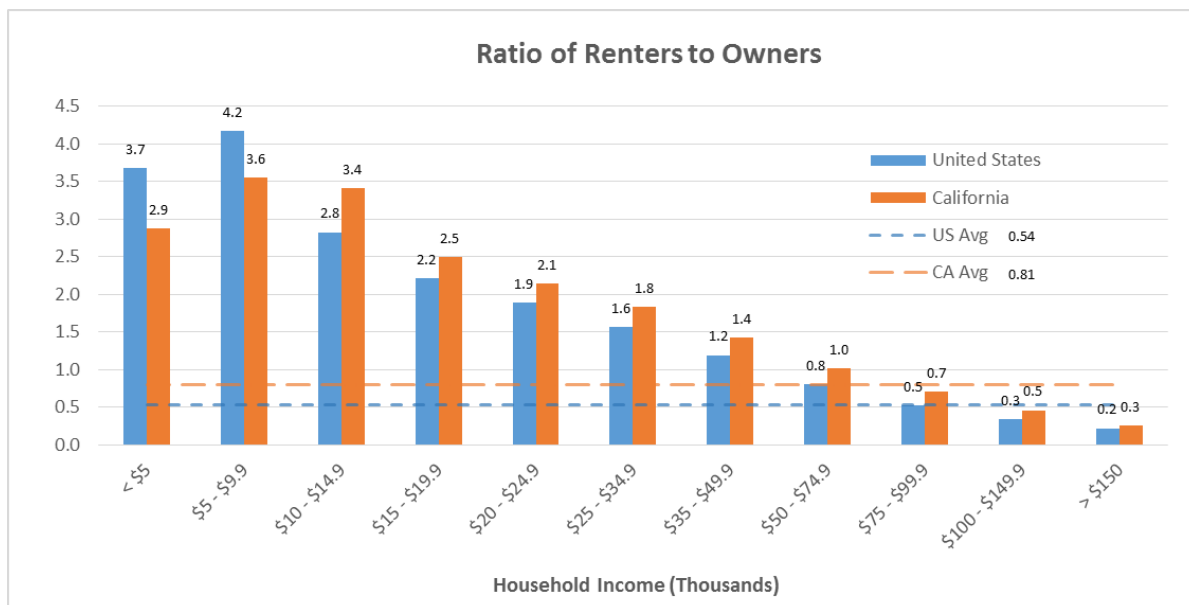
¹¹ Personal Communication. Wayne Barcikowski, June 26, 2015.

¹² Personal Communication. Jesse Madsen, SJVAPCD, June 29, 2015

It is not clear at this time what measures the Air Quality Management Districts will push forward in their air quality action plans; however, it is clear that condensing furnaces are a readily available technology that can reduce NOx emissions and meet federal standards. DOE should account for this co-benefit of meeting EPA Standards through a reduction in compliance costs under the NOPR analysis.

6. Highly efficient furnaces benefit renters and low-income consumers.

The DOE analysis does not appear to address use cases of renters and low-income occupants. Census data for the US and CA shows that renters outnumber owners for household incomes at or below \$50k. In the chart below the data for the US and California are plotted side by side.¹³ The California average renter to owner ratio is 0.81, which is 150% of the national average. In California, the median income for owners (\$82,000) is twice the median income of renters (\$41,000).



Nationally the trend is for more rentals as noted in an article by Diana Orlick of CBNC.¹⁴

Even though apartment construction has increased dramatically in the past few years, rents continue to surge, as demand grows, and both are unlikely to abate anytime soon. The drop in the homeownership rate among middle-aged cohorts is a huge driver, as they often prefer larger single-family rentals over less family friendly apartments.

¹³ U.S. Census 5-year American Community Survey. Available at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_B25118&prodType=table

¹⁴ Available at: <http://www.cnbc.com/id/102811764>, accessed July 7, 2015.

Millennials are also key drivers. In 13 million of the 22 million new households that will form between 2010 and 2030 the occupants will seek to rent, rather than buy, their homes, according to the Urban Institute. Families will likely continue to make up a larger-than-normal share of renters, as they try to repair their credit. Investors are well aware of that.

Rents are set by location and building characteristics such as age and interior amenities. In some areas there is rent control. Replacement of equipment, such as a furnace, is part of normal repair and maintenance of a property and is built into the landlord's cost structure. Rents do not increase because a furnace is replaced. In California location is the key variable as noted in a recent California report¹⁵:

Rents vary throughout the state as well. The average monthly rent for a two-bedroom apartment in San Francisco (\$2,000) was two and a half times greater than the average in Fresno or Bakersfield (both about \$800).

When a furnace needs replacing there is little if any financial reason for the landlord to install a more efficient and expensive furnace since the tenant pays the utility bill. This is a classic "split incentive" situation that can only be effectively addressed through minimum appliance efficiency standards.

Utility subsidies are given to low-income customers, who are predominately renters, to cover gas and electricity consumption. A condensing furnace will save gas allowing the subsidy to cover a large portion of the heating season gas costs. This is a benefit to all rate payers who are the source of the incentive.

We request that DOE clarify how renters are benefited by the proposed 92% AFUE standard. If this analysis has not been done we recommend that DOE perform the analysis. It is likely that a segment of "losers" at 92% AFUE will diminish since renters do not experience the cost increase of condensing furnace installations.

7. Use region-specific source energy multipliers and accurately represent renewable generation

The NOPR TSD references the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) 2014¹⁶ for the assumption of primary/site conversion factors for electricity, calculated as the heat input (Btu/hr) for each electricity unit produced (kWh) (also known as a "heat rate"). These assumptions impact the benefits summaries in Tables 1.2.1 and 1.2.2 of the NOPR TSD.

Table A17 in AEO 2014 states that "Consumption at hydroelectric, geothermal, solar, and wind facilities is determined by using the fossil fuel equivalent of 9,716 Btu per kilowatthour." A fossil fuel equivalent is an inaccurate representation of the heat rate for renewable energy sources, considering that renewable energy input rate can be treated as 'zero' for all practical purposes.

¹⁵ California Legislative Analyst's Office. California's High Housing Costs: Causes and Consequences. Page 7. Available at: <http://www.lao.ca.gov/Publications/Detail/3214> accessed July 7, 2015

¹⁶ U.S. Department of Energy: Energy Information Administration, Annual Energy Outlook 2014 with Projections to 2040. 2014. Washington, DC. Available at: www.eia.gov/forecasts/aeo/

We recommend using region-specific factors that accurately reflect renewable energy sources. California's heat rate as determined from the California Energy Commission's Energy Almanac,¹⁷ which includes natural gas, solar, geothermal nuclear, coal, biomass, hydroelectric, and wind plants, is approximately 6,700 Btu/kWh. This is 30% less than the value used in the NOPR TSD. The largest utilities in California are currently serving 23% renewable power, which will increase to 33% in 2020 as required by California's Renewables Portfolio Standard (RPS).¹⁸ Many other states have similar RPS requirements. Increases in renewable energy will drive the heat rate further down. Using region specific heat rates that accurately capture the benefits of renewable sources and coming increases in future renewable generation will drastically improve the energy savings and other benefits associated with higher efficiency residential furnaces.

Conclusion

PG&E strongly supports DOE adopting a national 92% AFUE at a minimum and consider the option of moving to 95% AFUE based on a revised analysis incorporating the comments outlined in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Eilert". The signature is fluid and cursive, with the first name "Patrick" and last name "Eilert" clearly distinguishable.

Patrick Eilert
Manager, Codes and Standards
Pacific Gas and Electric Company

¹⁷ Available at: http://energyalmanac.ca.gov/electricity/web_qfer/Heat_Rates.php

¹⁸ Available at: <http://www.cpuc.ca.gov/PUC/energy/Renewables/>

**Order to Show Cause Directing SoCalGas to Address Shareholder Incentives and Costs for
2014-2017 Codes and Standards Advocacy, issued December 17, 2019
R.13-11-005**

SCG-33

SOCALGAS EXHIBIT

**2013-2014 Energy Efficiency Programs Statewide Codes and Standards Program
Implementation Plan (May 29, 2013)**

**2013-2014 Energy Efficiency Programs
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- 1. Program Name:** Statewide Codes and Standards Program
Program ID: SCG3724 – C&S-Building Codes & Standards Advocacy
 SCG3725 – C&S-Appliance Standards Advocacy
 SCG3726 – C&S-Compliance Enhancement
 SCG3727 – C&S-Reach Codes
 SCG3728 – C&S-Planning Coordination

Program Type: Statewide Core Program

2. Projected Program Budget Tables

Table 1: Total Projected Program Budget by Category

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: Total Projected Program Savings by Subprogram

2013-2014 MTherms	Building Codes Advocacy	Appliance Standards Advocacy	Compliance Improvement	Reach Codes	Total
Gross	8.09	3.81	0.50	0.24	12.64
Net	4.01	1.52	0.24	0.17	5.94

The table reflects data from the Navigant Potential Study which provides an update to the forecasted savings for Title 24 building codes attributable to the Investor Owned Utility (IOU) Codes and Standards (C&S) advocacy programs, based on more recent construction data provided by the California Building Industry Association (CBIA).

The projected therm savings for SCG do not include the negative therm interactive effects from C&S electric measure savings claimed by SCE, SDG&E, and PG&E in their territories that overlap SCG's service territory.

- 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.)

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- 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 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.

Compliance improvement savings are based on allocations from building codes and appliances standards advocacy savings attributable to IOUs: 5% of savings from previously adopted building codes, and 2% of savings from previously adopted state and federal appliance standards.

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.

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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.

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)

The IOUs have evaluated 2010-2012 PPMs in Resolution E-4385 for applicability to the 2013-2014 program cycle and propose to work collaboratively with Energy

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Division to develop revised program targets and PPMs as appropriate for the 2013-2014 program cycle. The IOUs' will propose revisions in an advice letter, per additional guidance from Energy Division.

Table 3.1: Short-Term 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 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

Table 3.2 Long Term PPMs

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SoCalGas includes long term PPMs¹ per Energy Division guidance received in December 2012. As stated in the Joint Utilities' comments to the Commission in R. 09-11-014 dated November 21, 2011, and discussed between IOUs and ED on January 9, 2013, IOUs plan to finalize long term PPMs in further discussions with involved stakeholders and propose updates to Energy Division at a later date.

MTI Index#	RE-CATEGORIZED Metric (LTPPM - or SPI) [E-4385 Appendix B original text except for noted edits]	Unresolved Issues
CS-2	<p><u>MT Indicator 2:</u> Number of utility incentivized EE measures that become part of the following code cycle (e.g. measures incentivized in 2006-2008 would be part of 2011 or 2014 code) targeting the following:</p> <ul style="list-style-type: none"> a. Advanced climate-appropriate HVAC technologies (equipment controls, including system diagnostics) b. Whole Building approaches in Commercial buildings c. Whole House approaches in Residential homes d. Advanced Lighting e. High efficient peak reduction technologies including plug loads f. Other categories 	May want to consider simplifying to track specifications of OIU rebated measures that become part of code not specific measures. (i.e. "Number of new measure codes that have the same specifications as incentivized EE Measures")
CS-5	<p><u>MT Indicator 5:</u> Percent of building departments (jurisdictions) that adopt and use tools identified as industry best practices to improve permit application, tracking, and inspection processes and increase regional consistency.</p>	
CS-8	<p><u>MT Indicator 1:</u> Number and percent of eligible jurisdictions participating in the compliance enhancement program</p>	

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 November 7, 2011, to allow for public comments and discussion before being finalized. Per guidance from Energy Division received in December 2012, the approved Market Transformation Indicators for 2013-2014 are filed as a Joint IOU matrix, included as Appendix F.

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

¹ From the Energy Division's file "Revised MTIs_10 27 11-formal-release-ED-May-2012.xlsx"

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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.

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

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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.

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

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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 compliance rates as part of advocacy subprograms, 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 best practices study recommendations in 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 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,

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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:

- CHPS (Collaborative for High Performance Schools) as adopted by school districts

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- 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 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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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:
 - o Complete revisions to compliance manuals and forms.

2016 Title 24 Building Codes

- Prepare CASE studies in coordination with CEC:
 - o Conduct research for 2016 building code advocacy to advance State policy goals.
 - o Support activities to address Department of Finance review requirements.

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- o Research residential ventilation / IAQ requirements to reduce and control infiltration while maintaining and improving indoor air quality.
- o Research and advocate methods to remove code barriers to the increased use of renewable energy in support of ZNE goals.
- o 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:
 - o Advocate and provide public testimony in State public proceedings
 - o Conduct research and testing and submit supporting market and technical data to the CEC
 - o Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which CEC eventually adopts)
 - o 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:
 - o Advocate and provide public testimony in Federal public proceedings.
 - o Submit supporting market and technical data to the Department of Energy (DOE).
 - o Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which DOE eventually adopts).
 - o 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.
 - 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.
- 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:

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- o 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
 - o 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:
 - o Conduct surveys and provide technical support to CEC and industry to facilitate compliance.
- Education and Outreach:
 - o Collaborate with CEC on implementing an education and outreach campaign targeted to distributors, retailers, contractors, and possibly consumers.

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 subprogram activities for 2013-2014 include the following:

Reach Code Technical Assistance

- Cost Effectiveness Studies:
 - o 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:
 - o Provide a "Road Map" of Policy Guidelines for adopting Reach Code including an overview of some of the implications and important choices in

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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. 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

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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:
 - 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:

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- o 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.
- o 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
 - o Conduct monthly calls with CPUC personnel to share progress and discuss issues.
- CEC Communication:
 - o Maintain statewide weekly calls with CEC staff regarding building codes and appliance standards.
- National Stakeholders Communication:
 - o Conduct regular conference calls with national stakeholders regarding appliance standards.
- Compliance Advisory Group Communication:
 - o Host quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities.
- Local Government Partnership Communication:
 - o 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.

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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.

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 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

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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 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.² 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.³ Since homes are sold on average every seven years in California⁴, 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

² Construction Industry Research Board, California Construction Review, Private Building Construction, January 22, 2009.

³ <http://www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/Estimates/E8/E-8.php>

⁴ 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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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 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

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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.

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 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:

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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.

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

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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 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.

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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.

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

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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.

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.

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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.

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 goals⁵, 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

⁵ 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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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 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 interviewed 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

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which performance improvement solutions the C&S program may employ to improve code compliance. Additionally, the team interviewed 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 conducted a best practices study 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 are informing the total package of performance improvement solutions the program will implement to help improve code compliance rates. In addition, the program will work with building departments and other compliance stakeholder to implement recommendations proposed by the Compliance Improvement Advisory Group.

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 building department best practices study, 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.

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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. 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 continue conducting 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 contractors, while the second is via retailers directly to consumers. Similar to the Title 24

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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 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.

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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.
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,

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	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
Preliminary Residential Measures	
Low-rise multi-family prescriptive package	
QII - Quality Insulation Installation	

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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)
<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.

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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 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	Propose maximum total energy consumption (TEC) levels for imaging

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Equipment	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 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.

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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
Exit Signs	Test Procedure Final Rule	Jun-13
	Standard Final Rule	Jul-13
Furnace Fans	Test Procedure Final Rule	Apr-13
	Standard Notice of Proposed Rulemaking	Dec-13
	Standard Final Rule	Dec-13
General Service Lamps	Standard Framework	Jan-14
GSFLs	Standard Notice of Proposed Rulemaking	Aug-13
	Standard Final Rule	Apr-14
HIDs	Standard Final Rule	Jan-13

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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 coordination subprogram include strategic planning, internal coordination and communication, and statewide collaboration.

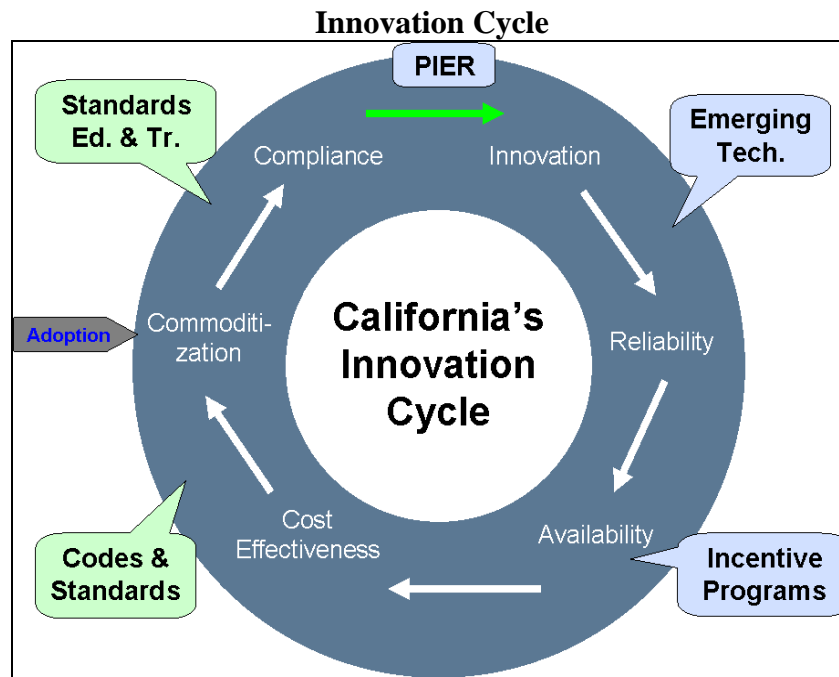
a) C&S Statewide Coordination

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 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.

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- Commercialization creates code readiness leading to adoption.



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 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

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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 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

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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 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. ➤ 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.

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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"> ➤ 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. ➤ 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

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms
		<p>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.</p> <ul style="list-style-type: none"> ➤ 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 Education and Training		<ul style="list-style-type: none"> ➤ 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 of energy-efficient building design, simulation and construction. ➤ 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

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms
		to meeting the AB1109 Huffman Bill and zero net energy goals.
Targeted Markets/Mass Market/Emerging Technologies	<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 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. 	<ul style="list-style-type: none"> ➤ 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.

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Program With Which C&S Will Coordinate	Coordination with Advocacy Subprograms	Coordination with CI or RC Subprograms

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 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.

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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 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

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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.

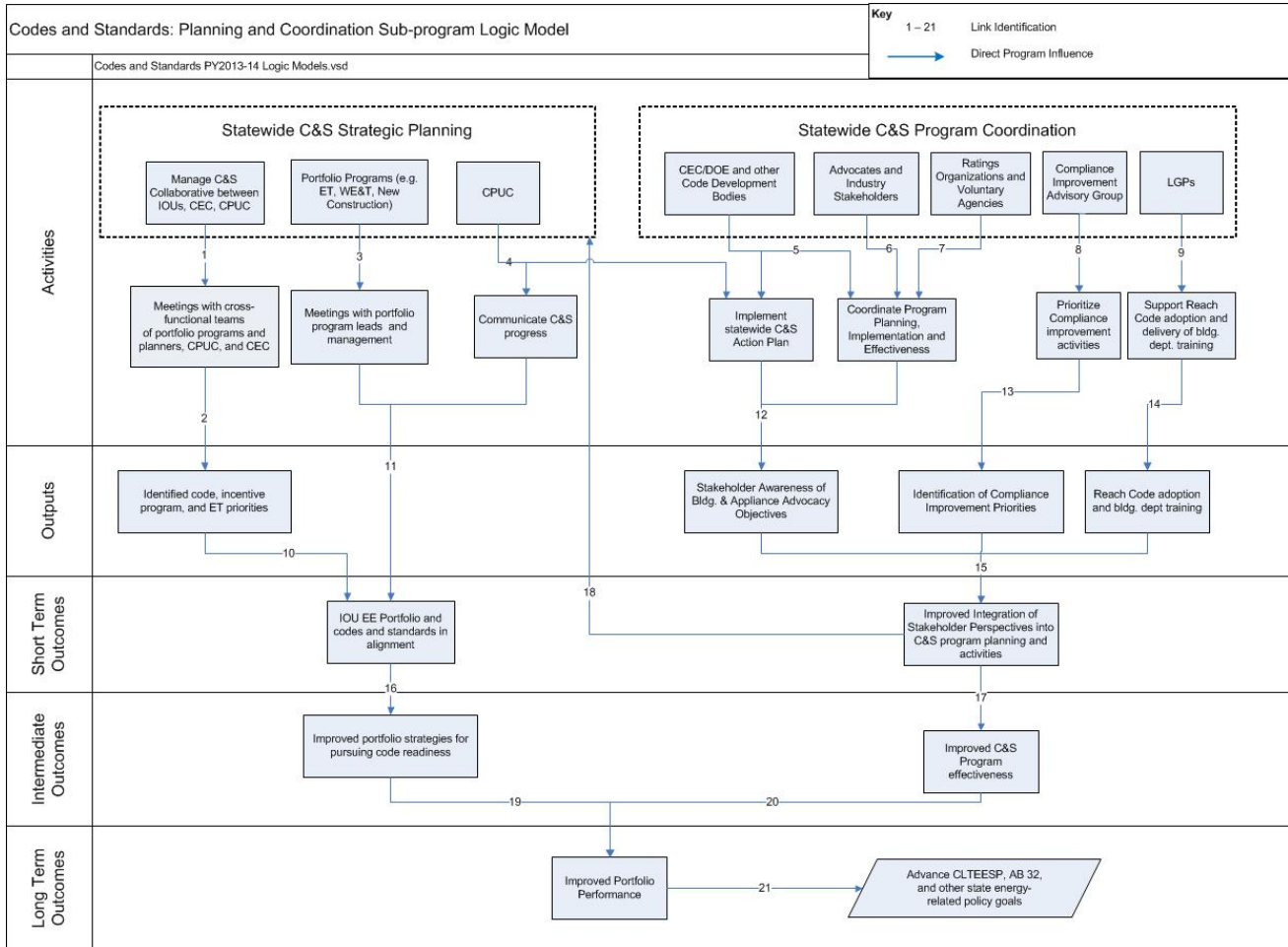
A program theory is the basis of a logic model. Effective program management applies program theory, and related performance indicators are used to determine whether program theory is correct. Indicators enable informed management responses that improve programs.

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 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.

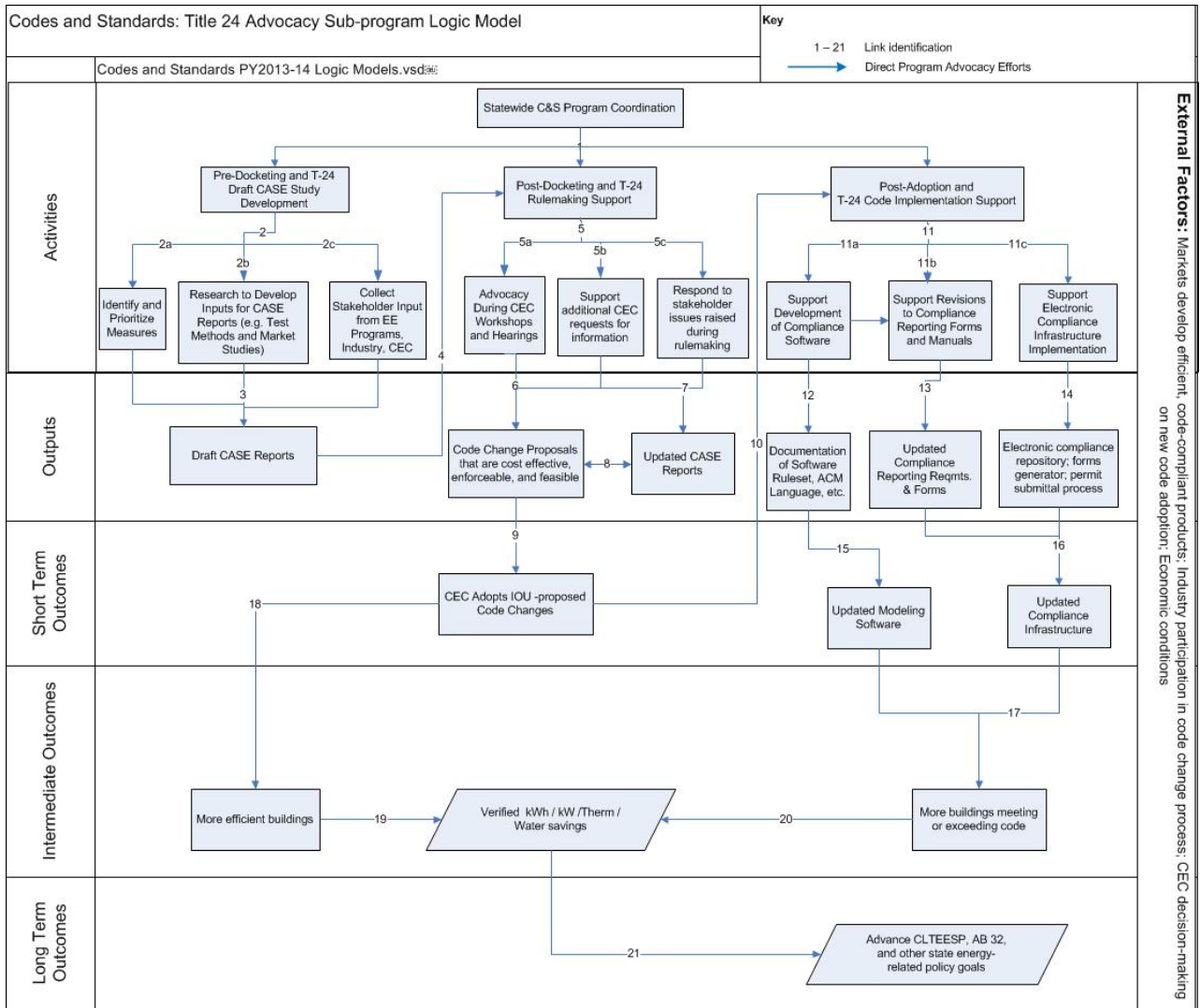
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	with IOUs' portfolio program goals	<ul style="list-style-type: none"> • Increased feasibility and code readiness of efficient products and practices • IOU program portfolio goals alignment with statewide codes and standards (CEC) plans and activity, 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
		<ul style="list-style-type: none"> • 2b. C&S Program documentation of market feasibility and cost-effectiveness • Documentation of test methods and required test results
		<ul style="list-style-type: none"> • 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
		<ul style="list-style-type: none"> • 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

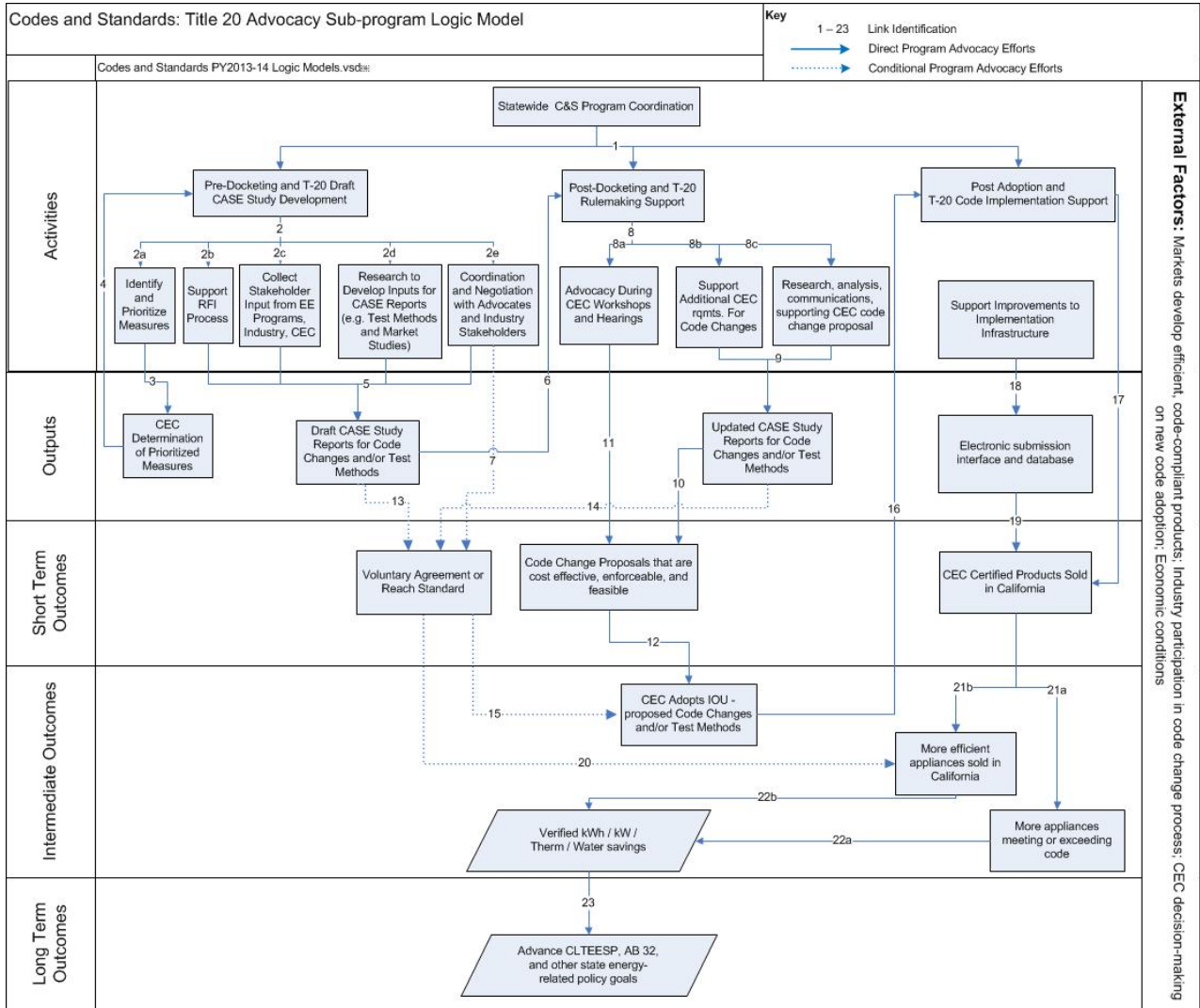
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		<p>manuals</p> <ul style="list-style-type: none"> • 11c. C&S Program supported compliance electronic infrastructure development, including electronic repository, pre-processing of electronic documents, and electronic input to the permit process
12	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 united, statewide C&S Program and conduct activities from pre-docketing through post-adoption of T-20 appliance standards.	<ul style="list-style-type: none"> • 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 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

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		<p>development and test data</p> <ul style="list-style-type: none"> • Communication with CEC, standard organizations committee members and other stakeholders
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	<ul style="list-style-type: none"> • Final published CASE reports

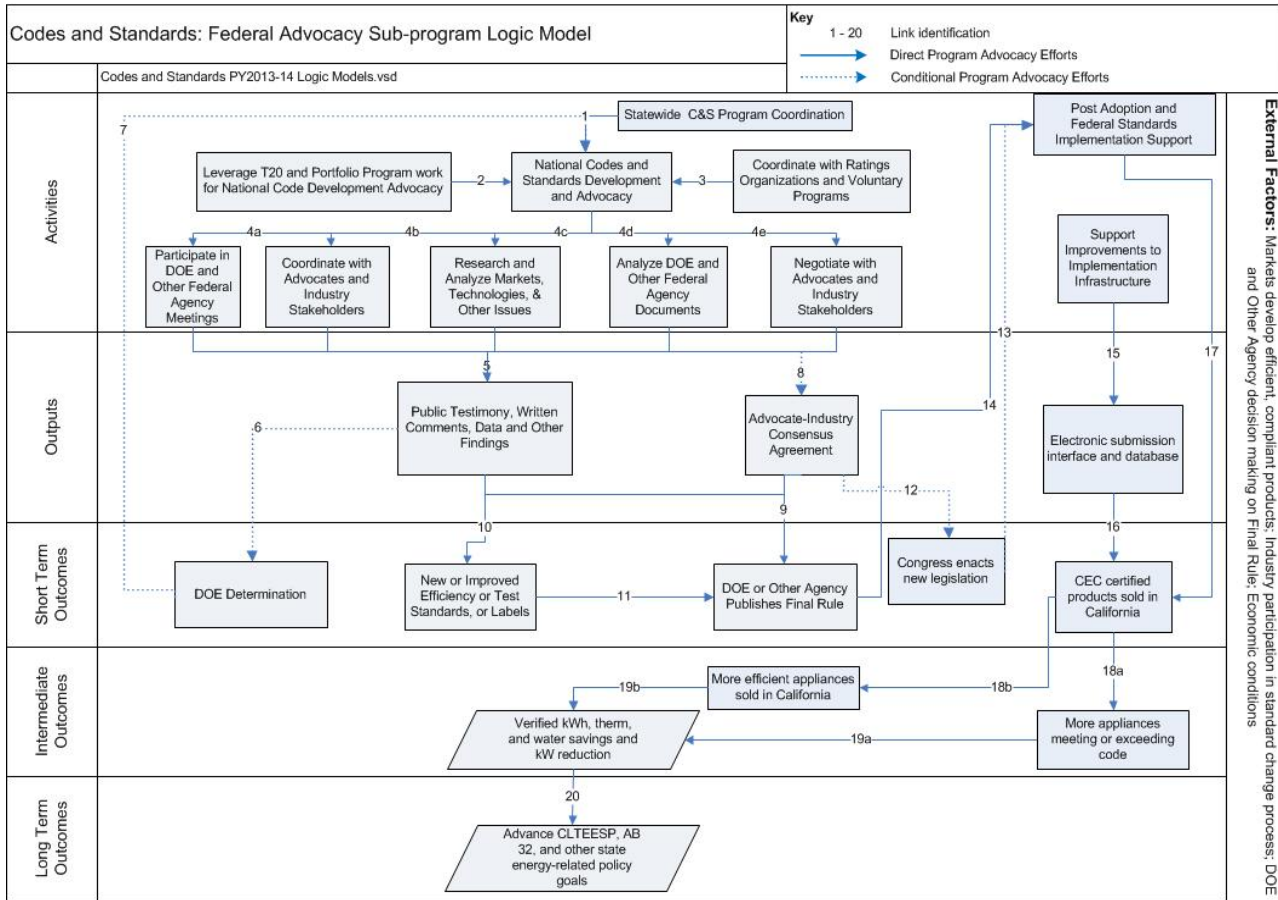
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	is included in the CEC adopted Title 20 standards	<ul style="list-style-type: none"> • Updated Title 20 Standards adopted and published by CEC
13	IOUs draft CASE report recommendations is adopted voluntarily by industry or into local reach code ordinances	<ul style="list-style-type: none"> • Industry voluntary agreements and/or adoption of reach code standard based on 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

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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 automatically meet the code requirement and compliance increases	<ul style="list-style-type: none"> • 22a. Increased market presence of efficient products improved compliance rate • 22b. Energy and water savings calculations with compliance rates
23	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: 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 analysis in reports and internal communications • 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	<p>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</p>	<ul style="list-style-type: none"> • Percentage of DOE rulemakings for which written comments are submitted by IOUs • Percentage of DOE meetings with IOU

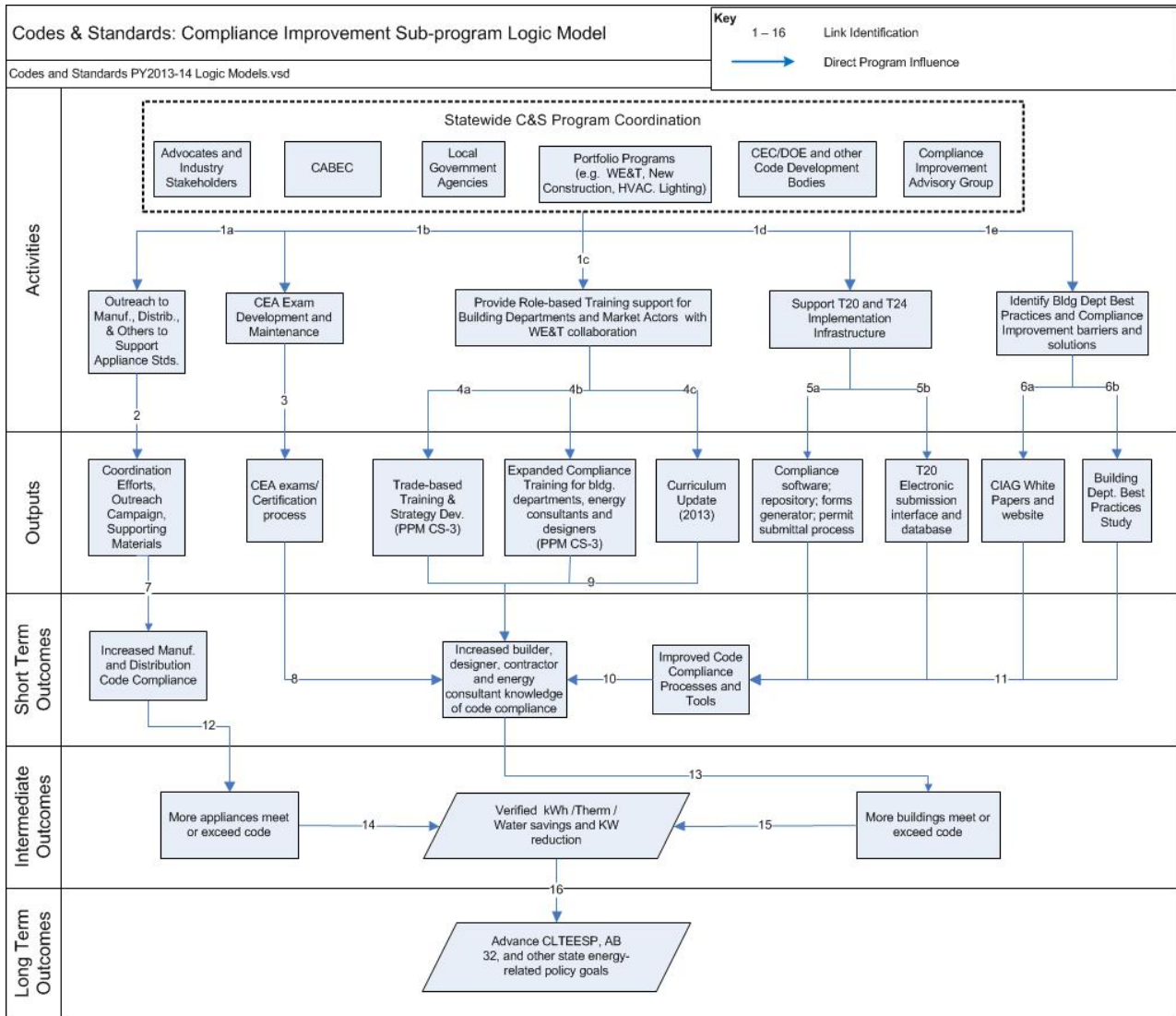
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	DOE staff and their consultants during the rulemaking.	<ul style="list-style-type: none"> participation • Communication, including email and phone records, with DOE staff and their consultants. • Public testimony to DOE
6	C&S Program comments and 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
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	DOE publishes a Final Rule to integrate new standards and/or test procedures established	<ul style="list-style-type: none"> • DOE Final Rule published in the Federal Register

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	<p>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"> • Communication with standard organizations committee members and other stakeholders to identify implementation support need
15	<p>C&S Program promotes development of, and improvements to, infrastructure to ensure successful code change implementation</p>	<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	<p>Compliance electronic infrastructure is accepted and adopted by the CEC</p>	<ul style="list-style-type: none"> • CEC approves and implements compliance electronic infrastructure
17	<p>The adoption of stringent energy efficient standards accelerate market adoption of efficient technologies</p>	<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	<p>As market presence of high efficiency models increases, more products sold automatically meet the code requirement and compliance increases</p>	<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	<p>Adopted and implemented codes lead to advancement towards long term strategic goals</p>	<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: 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

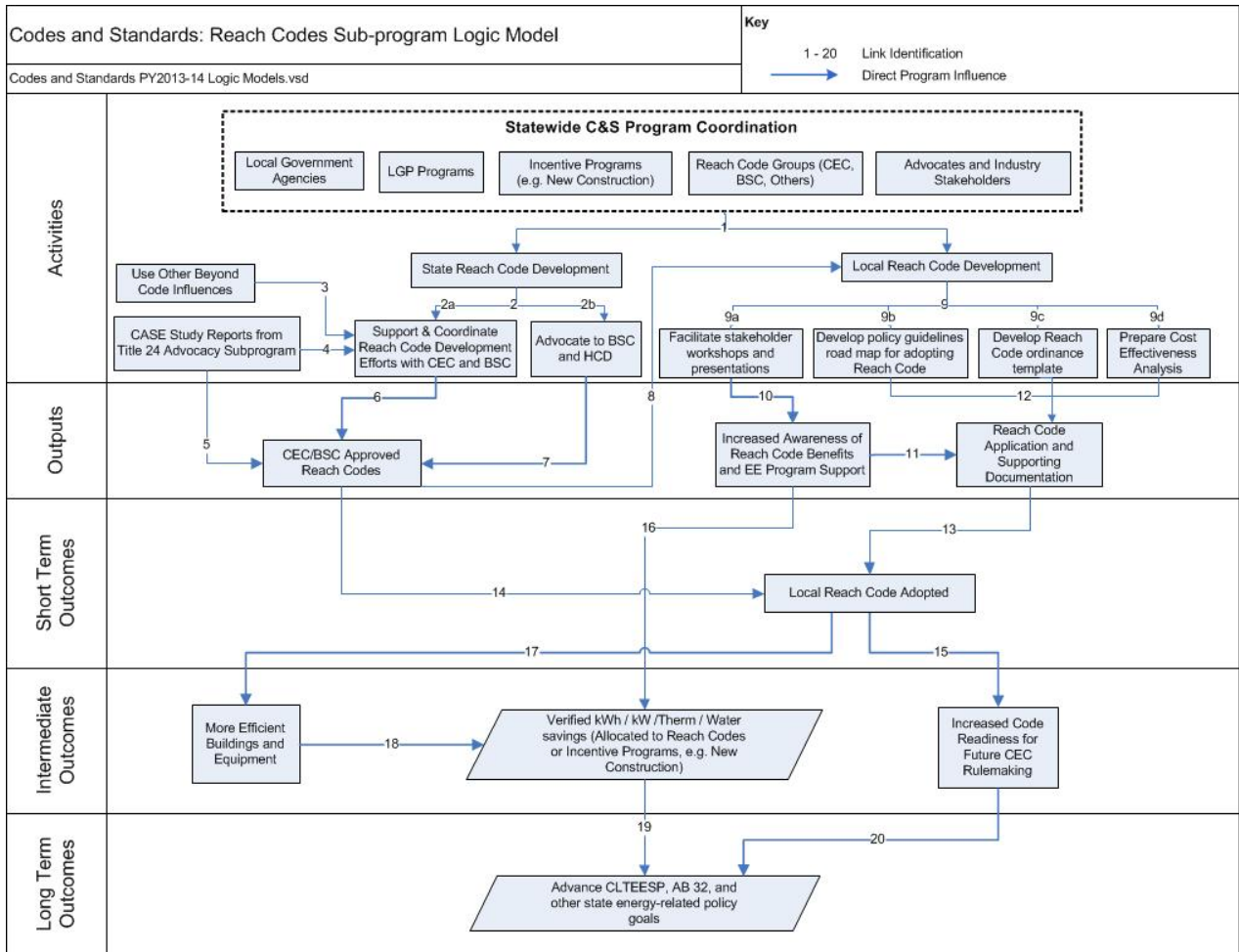
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Link	Program Theory	Potential Indicators
4b	C&S Program develops and implements compliance training to building departments, energy consultants and designers that expands beyond classroom-based training to include live webinars and other activity-based online training	<ul style="list-style-type: none"> • Number of participants • Number of training sessions • Number of courses developed • Number of training sessions • Number of participants
4c	C&S Program updates the current role-based building department and energy consultant training curriculum incorporating feedback from the CEC, WE&T and CIAG	<ul style="list-style-type: none"> • Updated curriculum to reflect 2013 Title 24 Standards
5a	C&S Program provides support to CEC/CPUC to develop a framework for an electronic repository database 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	<ul style="list-style-type: none"> • Needs assessment recommendations
5b	C&S Program provides feedback and support to CEC/CPUC to develop an improved user interface for the CEC appliance database	<ul style="list-style-type: none"> • Interface improvement recommendations
6a	CIAG prepares white papers that identify and prioritize compliance-specific issues, propose solutions and recommend next steps for C&S Program consideration C&S Program supports and maintains CIAG website that houses the white papers and collects feedback and disseminates information	<ul style="list-style-type: none"> • Issue-specific white papers (4-8) • CIAG website
6b	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 C&S Program works collaboratively with participating building departments to document best practices that are shared with local jurisdictions statewide	<ul style="list-style-type: none"> • Comprehensive best practices assessment and gap analysis report • Tools, training materials and implementation strategies
7	C&S Program outreach and coordination efforts results in increased awareness among manufacturers and distributors	<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"> • kwh savings • therm savings • water savings • kw reduction
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

**2013-2014 Energy Efficiency Programs
Statewide Codes and Standards Program
Program Implementation Plan**

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

Attachment 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

Attachment 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

- o Participate in consensus negotiations with industry and energy advocacy groups (which typically develop standards levels which DOE eventually adopts)
- o 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:
 - o Continue delivering training to plans examiners and energy consultants. Update curriculum to cover what's new in the 2013 code. (*per OP 93*)
 - o 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
 - o Identify opportunities to insert code compliance modules in existing curriculum, such as training required for technicians
- On-line Compliance Training:
 - o Explore training delivery mechanisms beyond the traditional classroom to include live webinars, activity-based online training, and in-field demonstrations
- Tools and Process Improvements:
 - o 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:
 - o Support development of improved forms and compliance-related documentation for 2013 Title 24
- Nonmonetary Compliance Improvement Incentives:
 - o 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:
 - o Collaborate with the CEC to identify problem areas and potential compliance improvement solutions through white papers developed by CIAG members (*per OP 95*)
 - o 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:
 - o 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.

- o 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:
 - o Conduct monthly calls with CPUC personnel to share progress and discuss issues *(per OP 91)*
- CEC Communication:
 - o Maintain statewide weekly calls with CEC staff regarding building codes and appliance standards *(per OP 91)*
- National Stakeholders Communication:
 - o Conduct regular conference calls with national stakeholders regarding appliances *(per OP 91)*
- Compliance Advisory Group Communication:
 - o Host quarterly meetings with Compliance Improvement Advisory Group regarding compliance improvement activities *(per OP 91, 152)*
- Local Government Partnership Communication:
 - o 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:
 - o 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)*