Company: Southern California Gas Company (U 904 G)]
Proceeding: 2019 General Rate Case
Application: A.17-10-___
Exhibit: SCG-13

SOCALGAS

DIRECT TESTIMONY OF DEVIN ZORNIZER

(GAS CONTROL AND SYSTEM OPERATIONS/PLANNING)

October 6, 2017

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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SUMMARY

Table DKZ-1
Southern California Gas Company
Total Gas Control and System Operations/Planning O&M

GAS CONTROL & SYSTEMS OPERATION/PLANNING (In 2016 $)			
	2016 Adjusted-Recorded (000s)	TY 2019 Estimated (000s)	Change (000s)
Total Non-Shared Services	786	2,972	2,186
Total Shared Services (Incurred)	5,241	5,986	745
Total O&M	**6,027**	**8,958**	**2,931**

Southern California Gas Company (SoCalGas or the Company) requests approval of a Test Year 2019 (TY 2019) forecast of $8,958,000 for Gas Control and System Operations/Planning Operations and Maintenance (O&M) costs. The forecast is comprised of $2,972,000 for non-shared service activities and $5,986,000 for shared service activities. This forecast represents an increase of $2,931,000 over 2016 adjusted-recorded costs. Approval of the forecasts in this testimony will further enhance SoCalGas' continued objective of providing safe and reliable delivery of natural gas to customers at reasonable cost.

SOCALGAS DIRECT TESTIMONY OF DEVIN K. ZORNIZER
(GAS CONTROL AND SYSTEM OPERATIONS/PLANNING)

I. INTRODUCTION

My witness area reflects SoCalGas' forecast of costs associated with both Non-Shared (NSS) and Utility Shared Services (USS) Operation and Maintenance (O&M) for multiple organizations that support system utility operations and emergency response. The purpose of my testimony is to demonstrate that the following O&M expenses are reasonable and warrant approval by the California Public Utilities Commission (CPUC or Commission).

The forecasted activities and services described in my testimony are intended to enhance SoCalGas' objective to sustain its operational excellence in providing the safe, and reliable transportation and delivery of natural gas to its customers at a reasonable cost.

For the purposes of forecasting for this General Rate Case, the following departments in my witness area are:

- Storage Products Manager
- Energy Markets & Capacity Products-Director, Manager & Support
- Gas Scheduling
- Gas Transmission Planning
- Gas Control & SCADA Operations
- SoCalGas Emergency Services

Additionally, this testimony provides supporting policy for the O&M and capital costs associated with the development and execution of a new Distribution Operations Control Center (DOCC), the enhancement and reconstruction of SoCalGas' electronic bulletin and scheduling system, ENVOY®, as well as physical and IT system improvements related to the SoCalGas Emergency Services organization. The forecasts for the capital costs associated with these projects are in the applicable supporting testimony of Michael Bermel, Christopher Olmsted, and Carmen Herrera. I also present the reasonableness review linked to the capital costs associated with revenue requirements recorded in the Operational Flow Cost Memorandum Account (OFCMA). Details regarding the treatment of the revenue requirements within the OFCMA appear in the testimony of Rae Marie Yu.

A. Summary of O&M Cost and Activities

For my witness area, SoCalGas requests the approval of a Test Year 2019 (TY 2019) forecast of $8,958,000. The forecast is comprised of $2,972,000 in non-shared service activities and $5,986,000 in shared service activities. This forecast represents an increase of $2,931,000 over 2016 adjusted-recorded base-year costs. Unless otherwise noted, all costs in this testimony are in thousands of 2016 dollars. Table DKZ-2 below summarizes my total sponsored costs at a high level, while Table DKZ-3 provides a breakdown for the departments that make up the shared costs. In addition to this testimony, please also refer to my workpapers, Exhibit SCG-13-WP, for additional information on the activities and costs described herein.

Table DKZ-2
Total O&M Services (Non Shared and Shared)
(Thousands of 2016 dollars)

GAS CONTROL & SYSTEM OPERATIONS (In 2016 $)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019 Estimated (000s)**	**Change (000s)**
Total Non-Shared Services	786	2,972	2,186
Total Shared Services (Incurred)	5,241	5,986	745
Total O&M	**6,027**	**8,958**	**2,931**

Table DKZ-3
Summary of TY 2019 Shared Costs:

GAS CONTROL & SYSTEM PLANNING (In 2016 $)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019 Estimated (000s)**	**Change (000s)**
A. Energy Markets & Capacity Products	1,553	1,550	-3
B. Gas Scheduling	600	724	124
C. Gas Transmission Planning	607	691	84
D. Gas Control & SCADA Operation	2,481	3,021	540
Total Shared Services (Incurred)	**5,241**	**5,986**	**745**

The following is a high-level summary of the O&M cost activities for each of the departments in my witness area. More detail is provided in Sections III and IV.

Storage Products Manager

Storage Products Manager operates the California Energy Hub (CEH) to provide unbundled natural gas storage and parking services. The group manages the business relationship with unbundled storage and CEH service customers and purchases natural gas to maintain system integrity.

SoCalGas Emergency Services

The SoCalGas Emergency Services Department main objective is to support SoCalGas' goals of maintaining comprehensive and coordinated emergency response and recovery programs to comply with applicable state and federal requirements. The department consists of four key groups:

- Core Emergency Operations Center Operations
- Emergency Services Enhancement Program
- Enterprise Planning, Technology Advancement & Training Program
- Regulatory Compliance, Stakeholder Outreach and Development Program

Energy Markets & Capacity Products-Director, Manager, and Support

Energy Markets & Capacity Products' shared service elements include both direct customer service and staff support. Specific groups in this area include Capacity Products Support and Capacity Products – Manager. These shared services provide capacity services for gas marketers that serve both SoCalGas and SDG&E customers, large nonresidential customers who choose to act as their own gas supplier, and core aggregators. The group also manages business relationships with upstream pipelines that serve the SoCalGas and SDG&E systems; provides analytical and regulatory compliance support for Backbone Transportation Service, unbundled storage and CEH transactions; and represent SoCalGas in the development and modification of gas industry standards for gas scheduling.

Gas Scheduling

Gas Scheduling is responsible for day-to-day management and operation of the ENVOY® system for nominations, allocations and scheduling of gas transportation for approximately 920 of SoCalGas' non-core customers and 125 of SDG&E's non-core customers.

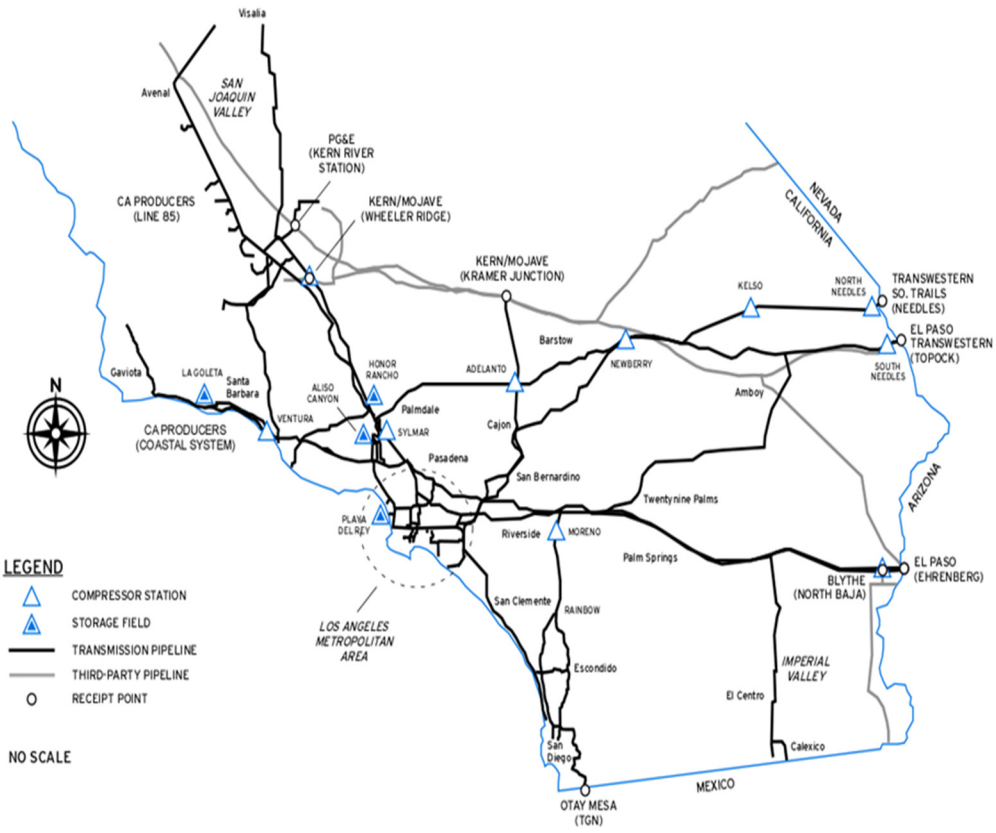
Gas Transmission Planning

Gas Transmission Planning is responsible for long-term planning and design of SoCalGas and SDG&E's gas transmission systems. This group continually assesses the transmission system's ability to: meet CPUC-mandated design standards; meet existing service obligations and satisfy new customer demand; provide new services and products to customers; and access new sources of natural gas supply. The department is also directly responsible for developing analysis and reporting on the system's ability to remain reliable through major system outages and make recommendations to maintain system resiliency.

Gas Control & SCADA Operations

Gas Control and SCADA Operations is responsible for the remote monitoring, control, and real-time operation of SoCalGas and SDG&E's combined gas-transmission system depicted in SCG-DKZ-1, including its' associated pipelines, line compressor stations, and underground storage facilities.

Figure SCG DKZ-1
Southern California Gas Company
SoCalGas Transmission System



B. Summary of Safety and Risk Related Costs

The departments covered in my testimony are organized to provide safe and reliable delivery of service to customers at reasonable cost and to operate the system in accordance with all applicable codes and regulations. The key objectives of these departments are to operate the pipeline system safely, maintain system reliability, facilitate utility-wide emergency preparedness by ensuring effective, comprehensive, and coordinated emergency response & recovery programs. This is accomplished leveraging the combined efforts of the departments described above, in concert with real-time remote monitoring and operation of valves, compressor stations, pressure regulation equipment, and gas flow across the system in a 24/7 control room environment.

The costs identified for the SoCalGas Emergency Services Department supported in my testimony are driven by activities described in SoCalGas and SDG&E's November 30, 2016 Risk Assessment Mitigation Phase (RAMP) Report. However, costs specific to Gas Control and SCADA were not included in the November 2016 RAMP filing itself. Rather, these costs are presented in this GRC as post-RAMP and described below in Table DKZ-4. The RAMP Report[1] presented an assessment of the key safety risks of SoCalGas and SDG&E and proposed plans for mitigating those risks. The Risk Management testimony chapter of Jamie York (Exhibit SCG-02/SDG&E-02, Chapter 3) discusses how the costs of the risk-mitigation projects and programs were translated from that RAMP Report into the individual witness areas, and into general RAMP forecasting.

[1] I.16-10-015/I.16-10-016 Risk Assessment and Mitigation Phase Report of San Diego Gas & Electric Company and Southern California Gas Company, November 30, 2016. *Available at*: https://socalgas.com/regulatory/I16-10-016.shtml. Please also refer to the Risk Management testimony chapters of Diana Day and Jamie York (Exhibit SCG-02/SDG&E-02, Chapters 1 and 3, respectively) for more details regarding the utilities' RAMP Report.

Table DKZ-4
Southern California Gas Company
Total Gas Control & System Operations/Planning RAMP

GAS CONTROL & SYSTEM OPERATIONS/PLANNING (In 2016 $)			
RAMP Risk Chapter	**2016 Embedded Base Costs (000s)**	**TY 2019 Estimated Incremental (000s)**	**Total (000s)**
SCG-2 Employee, Contractor, Customer and Public Safety	640	2,060	2,700
SCG-4 Catastrophic Damage Involving High-Pressure Pipeline Failure	2,482	526	3,008
Total O&M	**3,122**	**2,586**	**5,708**

C. Summary of Aliso Canyon Related Costs

Table DKZ-5
Southern California Gas Company
Gas Control & System Operations/Planning Aliso

GAS CONTROL & SYSTEM OPERATIONS/PLANNING			
Workpaper	**2015 Adjustment (000s)**	**2016 Adjustment (000s)**	**Total (000s)**
2GS001.000, Emergency Services	0	-307	-307
Total Non-Shared	**0**	**-307**	**-307**
2200-0246.000, Energy Markets & Capacity Products - Director	0	-2	-2
2200-2329.000, Gas Transmission Planning	0	0	0
Total Shared Services	**0**	**-2**	**-2**
Total O&M	**0**	**-309**	**-309**

In compliance with D.16-06-054[2], the Aliso Incident Expenditure Requirements testimony of Andrew Steinberg (Exhibit SCG-12) describes the process undertaken so the 2019 Test Year forecast does not include the additional cost from the Aliso Canyon Storage Facility gas leak incident (Aliso Incident), and demonstrates that the itemized recorded costs are removed from the historical information used by the impacted GRC witnesses.

Historical costs relating to the Aliso Incident have been removed from Gas Control and Systems Operations/Planning's adjusted recorded data. Because my forecasting method

[2] *See* D.16-06-054, at 332 (Ordering Paragraph (OP) 12) and 324 (Conclusion of Law 75).

(described below) utilizes this adjusted recorded data, my TY 2019 funding request does not include Aliso Incident response costs. The removal of Aliso Incident costs from historical Gas Control and Systems Operation/Planning costs is demonstrated in my workpapers through labeled adjustments to historical costs.

D. Forecast Methodology

The following forecast methodology has been utilized for the development of all the costs in my witness area. The TY 2019 forecast of expense was determined by utilizing a five-year adjusted recorded annual averaging methodology for years 2012 through 2016. The recorded costs were adjusted to remove expenses associated with any one-time events (including Aliso Canyon Leak Mitigation related cost) as found in my workpapers. The results of this process were then utilized in the calculation of three, four, and five-year linear-trend, and three, four, and five-year annual-averaging results. Comparative analysis of the results produced by each of the methodologies resulted in minor numerical differences.

Rather than simply relying on the results of multi-year averaging principles, I also considered the reasonableness of the various results to further aid in identifying the best available, and more applicable, predictor of future period base costing. Through this process, I determined there was adequate justification for utilizing the five-year annual-averaging methodology due to its reliance on a greater extended period of recent historical data.

Next, I reviewed any new and proposed O&M activities to identify and quantify any new and emerging activities expected to be realized over the term of the GRC period, and developed cost estimates for these activities. These future year incremental cost estimates were then added to the five-year annual average results. The combined results of these calculations then establish my resulting TY 2019 forecast.

E. Support For Other Witnesses – (Introduction)

In addition to sponsoring the costs within my witness area, my testimony also provides policy support for cost forecasts sponsored in the following witness areas:

1. Mr. Christopher Olmsted – Information Technology (Exhibit SCG-26)
    - Web Emergency Operation Center (WebEOC) Applications Replacement Project
    - Emergency Field Communication Services

- High Operation Flow Order (OFO)_Emergency Flow Order (EFO), Triennial Cost Allocation Proceeding (TCAP), ENVOY®
- Low OFO and EFO

2. Ms. Carmen Herrera –Fleet Services and Facility Operations (Exhibit SCG-23)
   - Emergency Command Vehicle Centers
   - Physical Relocation of Gas Control Facility
3. Mr. Michael Bermel – Gas Major Projects (Exhibit SCG-08)
   - Distribution Operations Control Center (DOCC)
4. Ms. Rae Marie Yu – Regulatory Accounts (Exhibit SCG-42)
   - Operational Flow Cost Memorandum Account (OFCMA)

Additional information addressing policy justification support for these topics and witnesses is located in Section V and VI in my testimony. Where this testimony discusses these areas or related topics, the above referenced exhibits also provide additional information.

II. RISK ASSESSMENT MITIGATION PHASE AND SAFETY CULTURE

A. Risk Assessment Mitigation Phase

As illustrated in Table DKZ-7, part of my requested funds is linked to mitigating some of the top safety risks that were identified in the RAMP Report. These risks are further described in Table DKZ-6 below:

Table DKZ-6
Southern California Gas Company
Gas Control & System Operations/Planning-RAMP Descriptions

RAMP Risk	Description
SCG-2 Employee, Contractor, Customer and Public Safety	The Employee, Contractor, Customer, and Public Safety risk covers the risk of conditions and practices which may result in severe harm to employee, contractor, customer, and/or public safety such as driving, customer premises, and appliance conditions, as well as non-adherence to company safety policies, procedures, and programs.
SCG-4 Catastrophic Damage Involving High-Pressure Pipeline Failure	The Catastrophic Damage Involving a High-Pressure Gas Pipeline Failure (High-Pressure Pipeline Failure) risk relates to the potential public safety and property impacts that may result from the failure of high-pressure pipelines.

As described in my testimony, the Gas Control, SCADA, and SoCalGas Emergency Services departments are organized to provide safe and reliable delivery of service to customers at reasonable cost and to operate the system in accordance with applicable regulations.

The Gas Control and SCADA safety-related mitigation activities that were not included in the November 2016 RAMP Report have been marked as post-RAMP and treated as if they had been included in the original RAMP Report. For each of these risks, an 'embedded' 2016 cost-to-mitigate, and any incremental costs expected by the Test Year 2019 are shown in Table DKZ-7. RAMP-related costs are further described in Sections III, IV, and V below as well as in my workpapers. The table DKZ-7 also provides the location in my workpapers where the specific adjustments representing those incremental costs can be found.

Table DKZ-7
Southern California Gas Company
Gas Control & System Operations/Planning-RAMP Forecasts

GAS CONTROL & SYSTEM OPERATIONS/PLANNING (In 2016 $)			
SCG-2 Employee, Contractor, Customer and Public Safety	**2016 Embedded Base Costs (000s)**	**TY 2019 Estimated Incremental (000s)**	**Total (000s)**
2GS001.000, Emergency Services	640	2,060	2,700
Total	**640**	**2,060**	**2,700**
SCG-4 Catastrophic Damage Involving High-Pressure Pipeline Failure	**2016 Embedded Base Costs (000s)**	**TY 2019 Estimated Incremental (000s)**	**Total (000s)**
2200-2289.000, GAS CONTROL & SCADA OPERATION GROUP - USS	2,482	526	3,008
Total	**2,482**	**526**	**3,008**

My incremental request supports the on-going management of these risks that could pose significant safety, reliability and financial consequences to our customers and employees. The anticipated risk reduction benefits that may be achieved by my incremental requests are summarized below by risk.

SCG-2: Employee, Contractor, Customer and Public Safety

SoCalGas Emergency Services support the mitigation of the risk identified in RAMP Chapter SCG-2, Employee, Contractor, Customer and Public Safety by developing and driving emergency preparedness and response programs for the safety of our employees, first responders and the public. This is accomplished by collaborating with departments across the organization

in the development and review of their Business Continuity & Resumption Plans (including Emergency Action Plans), facilitating emergency preparedness and response table top and functional exercises, and training, and outreaching with first responders to keep them informed of our operations and of SoCalGas' first responder support capabilities in the event of an emergency.

SoCalGas Emergency Services department's responsibilities also include adhering to pipeline safety parameters established by Federal and State agencies. This is represented in the estimated incremental requests shown in Table DKZ-7 for RAMP Risk SCG-2, which includes the costs for the following mitigations: (1) the development and implementation of full-scale and functional emergency preparedness/response exercise training in compliance with regulatory requirements to implement an Incident Command System (ICS) structure, (2) enhancing our response/recovery programs for employees and operations, and (3) expanding our public awareness program with first responders (e.g., appropriate fire, police, and other public officials).

There are additional risk mitigation activities that my testimony sponsors which are described in Section V, Support for Other Witness, below. The specific cost details regarding each of the projects or activities referenced above can be found within the testimony and workpapers of each of the identified witnesses. These are the following: (1) the WebEOC application, and (2) the Emergency Field Communication Services equipment. The costs for these requests are discussed by Mr. Olmsted (Ex. SCG-26). In addition, my testimony sponsors the risk mitigation effort for the acquisition of three Emergency Command Vehicle Centers (Post-RAMP). The costs for these three centers are discussed by Ms. Herrera (Ex. SCG-23).

In addition, Safety Enforcement Division (SED) had commented on the SCG-2 Employee, Contractor, Customer and Public Safety chapter as it relates mitigations to establish an emergency responder website with external access features and security, and to enhance our current high-frequency radio system for emergency communications.

With regard to the emergency responder website access, my discussion in this section under the heading "SCG-2: Employee, Contractor, Customer and Public Safety" discusses our WebEOC application and coordination with external first responders. Our request to implement full-scale emergency response exercise around external responders includes enhancing our emergency response programs, which, in turn, involves raising awareness of our resources, including WebEOC, with external responders.

With regard to the High-Frequency radio emergency communications, my discussion in in Section V under the heading "Emergency Field Communications Services" describes the proposed acquisition of specially-equipped trailers for an Emergency Field Communications System, which will replace outdated legacy equipment and be outfitted with new-technology radio and satellite communications systems to support emergency response in an event of an incident. Currently, high frequency radio systems are used as a best management practice in the event that digital communications are not available.

Alternatives Considered

In reviewing the risk mitigations described above, alternatives were considered and dismissed based on potential costs, and risk of resources not being available when an incident occurs. This resulted in identifying the most cost-effective and reliable mitigation options. The following was considered: (1) the retention of consultants to manage the emergency management program and (2) the lease of the communication equipment and command vehicles. These alternatives were considered because in the event of a major incident (e.g., earthquake), these resources may not be readily available to the company as needed, and these resources may get diverted to first responders (e.g., fire department, police or first responders) or other utilities.

SCG-4: Catastrophic Damage Involving High-Pressure Pipeline Failure High Consequence Area

Gas Control and SCADA support mitigating the risk identified in SCG-4 by operating the pipeline system in a real-time control room environment, providing a centralized and holistic view of system health, and where the remote monitoring and operation of valves, compressor stations, pressure regulation equipment, and gas flow across the system enables Controllers to acknowledge, react and respond to both normal and abnormal operating conditions.

My incremental request includes adding control room staff and cybersecurity personnel, that will support pipeline safety parameters established by Federal and State agencies, such as Control Room Management per 49 CFR Section 192.631[3]. In addition, the incremental staff will enhance response time and awareness of system operations, further improving the SCG-4 risk mitigation efforts described in the paragraph above associated with the safe and reliable

[3] Title 49 Code of Federal Regulation (CFR) section 192 *et seq*., Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, *available at*: https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49cfr192_main_02.tpl.

operation of the gas transmission system. More detail about the incremental request is provided in Section IV of my testimony below.

As previously discussed, Gas Control and SCADA departments' responsibilities include adhering to analyzing and responding to abnormal or emergency situations on the pipeline system, coordinating necessary pipeline shutdowns for maintenance and/or emergency measures, and serving as a communication center between various departments conducting maintenance on the transmission pipeline system.

Specifically, these efforts include the real-time remote monitoring and operation of valves, compressor stations, pressure regulation equipment, and gas flow across the system in a 24/7 control room environment; developing a daily operating plan that includes demand forecasts and facility utilization; and preparing to have contingencies ready for changes in system conditions resulting from changes in weather patterns and loads, forecast error, and abnormal operating conditions.

Alternatives Considered

In reviewing the specific risk mitigations described above, maintaining the current risk mitigation approach was considered a reasonable and viable alternative. The reduction or elimination of the Gas Control and SCADA system would be in violation of 49 CFR Section 192.631[4], and would increase the safety risk we are trying to mitigate. By not having a centralized control room that monitors the pipeline system, operator-qualified controllers would not be able to respond to abnormal operating conditions. The current Gas Control and SCADA operation prioritizes safety in the most cost-effective and prudent manner, as they meet regulatory requirements and provide for a centralized, holistic method to operate the transmission system and to respond to any abnormal operating condition or emergency situations.

B. Safety Culture

SoCalGas is committed to providing safe and reliable service to its customers. Our safety-first culture focuses on public, customer, and employee safety, with this commitment embedded in every aspect of our work. Our safety culture efforts include developing a trained workforce, operating and maintaining the gas infrastructure, and providing safe and reliable gas service.

[4] *Id*.

Part of SoCalGas' commitment to safety is the continuous implementation of safety training and education of SoCalGas' workforce to ensure the safe operations of our gas transmission system for the benefit of the public as well as the workers. For the departments covered in my testimony, the training and education program includes specific training and Operator Qualification for control room operators that follow strict adherence to SoCalGas' Control Room Management Plan in accordance with CFR 192.631[5].

In addition, SoCalGas has established a public awareness program for first responders that reside within our service territory as well as areas outside our service territories where we have transmission pipelines and/or compressor stations. The program is designed to educate first responders with our emergency response and recovery programs as well as enable SoCalGas employees to enhance their responsibilities and resources that are available in event of emergency. SoCalGas has the responsibility to train its employees on the company's emergency procedures as well establishing liaison with first responders in accordance with Title 49 CFR section CFR 192.615[6] General Order 112-F section 143.6[7]

Gas Control and System Operations/Planning operations activities are driven by customer usage, market forces, and pipeline capacity. Operations risk impacts are considered through daily operating decision-making activities based on effective utilization of available data, resources, and analytics. Risks identified in gas transmission are assessed and factored into cost decisions on an enterprise-wide basis.

An effective safety culture requires developing and maintaining a qualified workforce. Knowledge management consists of driving a culture of ongoing transference of historical operational knowledge. Gas Control and System Operations/Planning works with Human Resources to develop a strategy to include knowledge transfer into the organization. This strategy identifies the critical skills that should be transitioned to new employees prior to the departure of critical staff and aids in the mitigation of risk associated with not having qualified resources.

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[5] *Id*.
[6] *Id*.
[7] General Order (GO) 112-F "State of California Rules Governing Design, Construction, Testing, Operation, and Maintenance of Gas Gathering, Transmission, and Distribution Piping Systems," *available at*: http://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&DocID=163327660.

III. NON-SHARED OPERATIONS AND MAINTENANCE COSTS

"Non-Shared Services" are activities performed by a utility exclusively for its sole benefit. Corporate Center provides certain services to the utilities and to other subsidiaries. For purposes of this general rate case, SoCalGas treats costs for services received from Corporate Center as Non-Shared Services costs, consistent with any other outside vendor costs incurred by the utility.

Table DKZ-8 summarizes the total non-shared O&M forecasts for the listed cost categories.

The expenditures discussed in this chapter represent SoCalGas' forecast of non-shared costs in the areas of Storage Products Manager, and SoCalGas Emergency Services for TY 2019. SoCalGas is requesting the Commission to approve TY 2019 forecast for Non-Shared services cost of $2,972,000. This forecast represents an increase of $2,186,000 over 2016 adjusted-recorded base-year costs.

Table DKZ-8
Summary of TY 2019 Non-Shared Services Costs:

GAS CONTROL & SYSTEM PLANNING (In 2016 $)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019 Estimated (000s)**	**Change (000s)**
A. Storage Products Manager	146	156	10
B. Emergency Services	640	2,816	2,176
Total Non-Shared Services	**786**	**2,972**	**2,186**

C. Storage Products Manager: Costs and Underlying Activities

An increase of $10,000 between TY 2019 and 2016 recorded actuals is forecasted for the activity. This increase is the result of the 5-year annual averaging cost modeling calculation. SoCalGas believes this marginal increase is prudent and should be approved by the Commission.

The Omnibus Decision of 2007 (Decision 07-12-019) transferred CEH operations and System Reliability from SoCalGas Gas Acquisition to the System Operator, and is managed by the Storage Products Manager group. The group manages the sale of storage products and CEH services through sales campaigns, open seasons, and bi-lateral negotiations to meet customer needs and to maximize reliability and value for SoCalGas and SDG&E and their ratepayers.

This group also procures and sells spot purchases and baseload gas supply to support System Reliability, as mentioned in SoCalGas' Rule 41[8].

D. SoCalGas Emergency Services: Costs and Underlying Activities

Currently there are six employees supporting this cost category. SoCalGas is requesting an increase of $2,176,000 for an incremental 14 positions: one Director, three Emergency Services Managers, six Emergency Services Advisors and four Emergency Services Response Technologists, and non-labor costs associated with company-wide, full-scale emergency preparedness functional exercises.

The primary cost drivers behind this incremental forecast are based on enhancing compliance with mandated state and federal rules which require:

- communicating emergency response information as well as reviewing and discussing emergency contingency plans with each local agency (fire, police, and emergency officials)
- maintaining adequate response plans including establishing an Incident Command System (ICS) compatible structure (which is outlined in CPUC General Order 112-F[9])
- implementing emergency procedures and provide training to employees as well as establishing and maintaining liaison with appropriate fire, police, and other public officials.

The need for more resources is further driven by the large service territory that the workgroup must cover (approximately 12 counties, 220 incorporated cities and over 200 police and fire agencies). In addition, as mentioned above Emergency Services is responsible for implementing a compatible ICS structure which will require developing new emergency preparedness & response exercise training materials including supporting functions for the Emergency Operations Center (EOC), Transmission Control Post (TCP) and regional Gas Emergency Centers (GECs) for SoCalGas. In order to maintain compliance with these regulatory requirements, SoCalGas will need to enhance internal and consultant support, tabletop exercises, and training and exercises frequencies as well as amend company standards and

[8] SoCalGas' Rule No. 41, "Utility System Operation," CAL. P.U.C. SHEET NO. 51670-G, (effective December 3, 2015) *available at*: https://www.socalgas.com/regulatory/tariffs/tm2/pdf/41.pdf.
[9] *Supra* note 7.

policies to comply with emerging regulation mentioned above. See my 2GS001.000 workpapers, Exhibit SCG-13-WP for more detail.

IV. SHARED OPERATIONS AND MAINTENANCE COSTS

The costs presented within this section are necessary to support the following Utility Shared Service (shared services) function of "Utility System Operations" for both SoCalGas and SDG&E. The O&M forecasted costs associated with these shared services are reasonable and appropriate for adoption by the Commission.

The following departments in my witness area are:

1. Energy Markets & Capacity Products
2. Gas Scheduling
3. Gas Transmission Planning
4. Gas Control and SCADA Operations

I am sponsoring the forecasts on a total incurred basis, as well as the shared services allocation percentages related to these costs. The allocation percentages are presented in my shared services workpapers, Exhibit SCG-13-WP, along with a description explaining the activities being allocated. The dollar amounts allocated to the SDG&E affiliate are presented in the Shared Services and Shared Assets Billing, Segmentation, and Capital Reassignments testimony of James Vanderhye (Exhibit SCG-34/SDG&E-32). Table DKZ-9 summarizes the total shared O&M forecasts for the functional groups listed above.

Table DKZ-9
Total Shared O&M Services
(Thousands of 2016 dollars)

GAS CONTROL & SYSTEM OPERATIONS (In 2016 $)			
(In 2016 $) Incurred Costs (100% Level)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019 Estimated (000s)**	**Change (000s)**
A. Energy Markets & Capacity Products	1,553	1,550	-3
B. Gas Scheduling	600	724	124
C. Gas Transmission Planning	607	691	84
D. Gas Control & SCADA Operations	2,481	3,021	540
Total Shared Services (Incurred)	**5,241**	**5,986**	**745**

In total SoCalGas is requesting that the Commission adopt its TY 2019 forecast of $5,986,000 for the departments listed above. SDG&E does not provide any gas control and

system operations services to SoCalGas. Total TY 2019 forecast funding requirements for my witness area's shared services are shown in Table DKZ-10. All costs are shown in thousands of 2016 dollars, unless otherwise noted.

For all the cost centers described below, these costs consist of salaries and expenses relating to the provision of qualified utility shared service functions performed by SoCalGas personnel reporting under each of the cost centers listed, and are charged as a direct expenditure of cost to the respective cost centers.

Table DKZ-10
O&M Shared Services
(Thousands of 2016 dollars)

GAS CONTROL & SYSTEM OPERATIONS (In 2016 $)			
(In 2016 $) Incurred Costs (100% Level)			
	2016 Adjusted-Recorded (000s)	**TY 2019 Estimated (000s)**	**Change (000s)**
A. Energy Markets & Capacity Products			
i. Energy Markets & Capacity Products - Director	328	316	-12
ii. Capacity Products - Manager	615	615	0
iii. Capacity Products - Support	610	619	9
Incurred Costs Total	**1,553**	**1,550**	**-3**
B. Gas Scheduling			
Gas Scheduling	600	724	124
Incurred Costs Total	**600**	**724**	**124**
C. Gas Transmission Planning			
Gas Transmission Planning	607	691	84
Incurred Costs Total	**607**	**691**	**84**
D. Gas Control & SCADA Operations			
Gas Control & SCADA Operations	2,481	3,021	540
Incurred Costs Total	**2,481**	**3,021**	**540**

A. Energy Markets & Capacity Products – Cost Centers 2200 – 0246, 0330, and 0328

SoCalGas is forecasting a $3,000 net reduction in cost for TY 2019, for the combined services provided by the collective workgroup.

Energy Markets & Capacity Products' shared service elements include both direct customer service and staff support. Specific groups in this area include: Capacity Products Support, and Capacity Products Manager. The Energy Market & Capacity Products shared services schedules gas transportation and storage services on the SDG&E and SoCalGas transportation and storage system; and, provides capacity services for gas marketers that serve both SoCalGas and SDG&E customers, large nonresidential customers who choose to act as their own supplier, and core aggregators. Energy Markets & Capacity Products also manages business relationships with upstream pipelines that serve the SoCalGas and SDG&E systems. This area also provides analytical and regulatory compliance support for Backbone Transportation Service, unbundled storage, and CEH transactions; and represents SoCalGas in the development and modification of gas industry standards for gas scheduling.

Methodology of Energy Markets & Capacity Products' Allocation to SDG&E:

Expenses are allocated to SDG&E based on collective work group (all 3 cost centers listed above) activity analysis, resulting in 50% of its daily activities consumed in support of storage (all SoCalGas) with the other 50% in support of transportation/transmission. To allocate the latter 50%, total gas throughput between SoCalGas and SDG&E was used.

- Total throughput: 2,834 MMCF, SDG&E: 384 MMCF
- SDG&E as a percent of Total = 13.55%
- SDG&E allocation of time spent = 50% X 13.55% = 7%

1. Energy Markets & Capacity Products – Director (2200-0246)

The Energy Markets & Capacity Products – Director cost center contains costs associated with the management and supervision of groups within the Energy Markets & Capacity Products organization.

2. Capacity Products - Manager (2200-0330)

The Capacity Products – Manager group supports Energy Markets & Capacity Products by monitoring and analyzing market and pricing information, recommending changes to capacity and storage market activities in response to market developments, developing pricing guidelines for storage and CEH products, and monitoring the financial performance of CEH product offerings.

Capacity Products – Manager also provides support to all other Energy Markets & Capacity Products groups. This support involves major transmission products like Backbone

Transportation Service (BTS) and Off System Delivery service. Staff examines general market conditions to assess the value of these products.

3. Capacity Products Support (2200-0328)

Capacity Support is responsible for developing and maintaining ENVOY® business requirements; administering Backbone Transportation Service (BTS); managing gas marketer, supplier and upstream pipeline business relationships; administering the core transportation aggregation program; providing back office support for the CEH; participating in North American Energy Standards Board (NAESB) activities at the committee level on behalf of SoCalGas and SDG&E where industry standards are developed; participating in regulatory matters under the authority of the Federal Energy Regulatory Commission (FERC) concerning the upstream pipelines serving the SoCalGas and SDG&E system that affect operations; and establishing policies and procedures for scheduling and nominations on the SoCalGas and SDG&E system.

B. Gas Scheduling – Cost Center 2200-2158

Gas Scheduling is a 24/7operation that manages the day-to-day system and operations for nominations, allocations and scheduled gas transportation for approximately 920 of SoCalGas' non-core customers and 125 of SDG&E's non-core customers. Gas Scheduling also is responsible for implementing the Operational Flow Order (OFO) rules.

As part of the scheduling processes, Gas Scheduling manages transportation nominations for on-system and off-system deliveries based on priority rights; confirms nominations to interstate and intrastate suppliers; reports scheduled quantities to customers; tracks storage accounts; tracks and clears shipper imbalances; and, administers the imbalance trading process. Gas Scheduling also makes regular postings on Envoy® (SDG&E's and SoCalGas' electronic bulletin board), including critical and non-critical notices, transmission and storage system conditions, and hourly, and daily capacity operational information, to communicate in a transparent and consistent manner with the gas marketplace.

SoCalGas is forecasting a $124,000 increase in TY 2019 funding for the Gas Scheduling department. The funding increase is attributable to additional labor required to support the increase in regulatory mandated enhancements to ENVOY®.[10] An additional Scheduling

[10] *See* D.15-06-004 at 30-31 and D.16-12-015 at 8-9, 21-23.

Advisor will be added for daily imbalance trading and one incremental ENVOY® position will be added to support system changes.

Methodology of Gas Scheduling's Allocation to SDG&E:

- Total system throughput: 972,583 MMcf
- SDG&E throughput: 108,405 MMcf
- 108,405/972,583 = 11.15%

C. Gas Transmission Planning – Cost Center 2200-2329

Gas Transmission Planning is responsible for the long-term planning and design of the SoCalGas and SDG&E gas transmission systems. Using hydraulic analytical tools, Gas Transmission Planning continually assesses the transmission system's ability to meet CPUC-mandated design standards, meet existing service obligations, serve new customer demand, and access new sources of gas supply. Gas Transmission Planning also works closely with departments tasked with maintaining the safety and integrity of the gas transmission system, and assesses the impact on operations and customer service resulting from these maintenance activities.

SoCalGas is forecasting a $84,000 increase in TY 2019 funding. The funding increase is attributable to evaluating operational and planning challenges arising from the Aliso Canyon storage field; increased levels of support for regulatory proceedings and litigation; increased levels of support for PSEP and gas transmission maintenance projects and other compliance driven integrity maintenance requirements; workforce retirement planning; and anticipated support for hydraulic modeling efforts associated with SB380.

Methodology of Gas Transmission Planning's Allocation to SDG&E:

The calculation of allocation to SDG&E is based on the distribution of department workload between SoCalGas' and SDG&E's system planning support activities. Since the closure of the San Onofre Generating Station, the department has experienced an increase in workload associated with SDG&E related projects. The weekly average SDG&E related workload increased from 2.0 FTEs to 3.0 FTEs. With a department staffing level of 7 FTEs, this represents 42.86% of the department's resources (3.0 FTE/7.0 FTE = 42.86%).

D. Gas Control and SCADA Operations – Cost Center 2200-2289

The Gas Control units' responsibilities consist of 24/7 staffing for control room monitoring and the remote control of pipeline and compression facilities on the transmission

system. Control room functions include monitoring and managing the piping system in accordance with pipeline safety parameters as established by Federal and State agencies, analyzing and responding to abnormal and/or emergency situations on the pipeline system, coordinating necessary pipeline shutdowns for maintenance and/or emergency measures, and serving as a communication center between various departments conducting maintenance on the transmission pipeline system.

The Supervisory Control and Data Acquisition (SCADA) Operations department manages the planning, operation and maintenance of the SCADA system. The SCADA system provides for remote monitoring and operation of valves, compressors, pressure regulation equipment, and gas flow across the system. The collective organization's responsibilities include compliance with Control Room Management - PHMSA rule 49 CFR § 192.631[11] regarding alarm management, system change management, fatigue mitigation, system operating experience, and personnel training requirements. The costs represented for this department support all the Control Room and SCADA Operations functions as described above.

SoCalGas is forecasting $540,000 increase in TY 2019 funding for the Gas Control and SCADA groups. The funding increase is attributable to the addition of five Gas Control dispatch/controllers, and one SCADA Cyber Security position, as described below.

Five (5) additional dispatch/controller positions are required to maintain an appropriate level of compliance in accordance Control Room Management - PHMSA rule 49 CFR § 192.631[12]. Controller workload has increased due to increased pipeline safety enhancement activities which resulted in additional system generated telemetry alarms and pipeline project work, in addition to maintenance activities. The additional workload requires incremental control room staffing to maintain sufficient time to analyze and react to incoming alarms.

SoCalGas is also requesting one incremental position to address growing cyber security requirements and risks. The threat of cyber-attacks on critical infrastructure has increased the significance of integrating cyber security within SCADA operations. Security concerns need to be considered part of the process of provisioning new hardware and software. In addition, ongoing operations and maintenance activities require greater security awareness than in the

[11] 49 CFR 192.631 ("Control Room Management").
[12] *Id*.

past. The speed at which these types of attacks can occur makes it necessary to have staff support to plan for and respond to cyber events.

To address these challenges, SoCalGas has adopted the (National Institute of Standards and Technology (NIST) Cybersecurity Framework.[13] The Framework focuses on using business drivers to guide cybersecurity activities and considering cybersecurity risks as part of the organization's risk management processes. The result is a set of cybersecurity activities, outcomes, and informative references that provide the detailed guidance for the organization to align its cybersecurity activities with its business requirements. The result of these growing cyber security requirements supports SoCalGas' request to increase SCADA staffing by one (1) additional FTE.

Methodology of Gas Control and SCADA Operations' Allocation to SDG&E:

Expense allocated to SDG&E based on the percentage of SDG&E customer meters compared to combined total of joint utility (SDG&E and SoCalGas) customer meters.

- Number of SDG&E meters: 885,663
- Number SoCalGas meters: 5,948,063
- Combined total number of meters: 6,833,726
- Calculation: 885,663/6,833,726 = 12.96% SDG&E, 87.04% SoCalGas

V. SUPPORT FOR OTHER WITNESSES – (DETAIL)

In addition to sponsoring my own organization's costs, my testimony also provides policy support for the following witness areas. The specific cost details regarding each of the projects or activities below can be found within the testimony and work papers of each of the identified witnesses.

I. Mr. Christopher Olmsted – Information Technology Ex. SCG-26

II. Web Emergency Operation Center (WebEOC) Applications Replacement Project

Mr. Olmsted is sponsoring the capital costs associated with the replacement of the WebEOC, which is needed to support CPUC General Order (GO) 112-F [14] which

[13] *See* "*Framework for Improving Critical Infrastructure Cybersecurity*," National Institute of Standards and Technology, February 12, 2014; *available at*: https://www.nist.gov/sites/default/files/documents/cyberframework/cybersecurity-framework-021214.pdf.
[14] *Supra* note 7.

states that all gas utilities are to have the ICS in place. Currently SoCalGas uses a system called WebEOC which is based on the framework of ICS and supports mission critical functions of the EOC, TCP and regional GECs as well as Gas Operations. SoCalGas implemented WebEOC more than eight years ago and in that time, the system has not kept pace with current information technology advancements, preventing WebEOC from being able to be integrated with other mission critical systems that the company uses. The system is limited in its ability to expand and adapt to changing business, regulatory and technical requirements including the ability to adopt ICS changes and generate compliance reports. Additionally, maintenance and upkeep of the system requires significant internal and external resources to alter the system to encompass the growing regulatory demands.

Given these limitations, a new system is needed to be compatible with current technologies and to allow the ease of access to multiple systems through a single portal, providing real-time information and reduced workloads. A new system will have added benefits that will include external access for first responders providing relevant incident information (e.g. maps and facility information), the ability to easily expand and adapt to changing business, regulatory and technical requirements and deliver sophisticated data management capabilities.

1. Emergency Field Communication Services

Mr. Olmsted is also sponsoring the capital costs associated with procuring an Emergency Field Communication System. Emergency Field Communication Systems are communication trailers that support company employees and first responders (as necessary) by enhancing the ability to coordinate and communicate in the field when an incident occurs.

Currently, Information Technology has eight emergency communication trailers that were originally built and deployed to support the field emergency communication needs of the business at the time of their deployment. All of these trailers have older technology and no longer meet the needs of the business for emergency field operations communications and coordination. In addition, the communication trailers do not support the current standards (e.g., satellite and microwave broadband capabilities) being deployed nor will they meet the increasing demands of the business because they

contain technology that is outdated and no longer compatible with our IT infrastructure. Therefore, these communication trailers will require a complete redesign and/or replacement to support the emergency events in the field. Earlier in my non-shared cost section (SoCalGas Emergency Services), I discussed the underlying emergency response and preparedness policies for this item in justification of my sponsored cost.

2. High OFO_EFO TCAP ENVOY®

In Decision (D.)16-06-039 (Decision Addressing the Phase 1 Issues and the Joint Motion to Adopt the Settlement Agreement) in A. 14-12-017, the Commission approved SoCalGas' request to seek, in its next general rate case, recovery of costs related to High OFO information system enhancements.[15]

System enhancements were implemented in ENVOY® and in the Specialized Contract Billing System (SCBS) to support compliance with proposed changes to SoCalGas tariff G-IMB, Rule 30, and Rule 41. Enhancements and modifications included changing SCBS billing logic to assess the new high operational flow order compliance, to remove the previous buy-back logic, and to calculate and bill balancing charges. Enhancements to ENVOY® included modification of affected reports, monitoring pages, and noticing pages. Costs in 2017 will relate to the completion of the enhancements and modifications.

3. Low OFO and EFO

In D.15-06-004, the Commission granted SoCalGas permission to implement Low OFO and EFO procedures and establish the OFCMA to track the costs associated with the implementation.[16] The execution required substantial system enhancements in ENVOY® and in the SCBS. These enhancements were necessary to support compliance with proposed changes to SoCalGas tariff G-IMB, Rule 30, and Rule 41 and included modifications to the SCBS billing logic to assess the new low and emergency operational flow order compliance, to remove the previous winter balancing logic, and to calculate and bill balancing charges. Enhancements to ENVOY® included modification of

[15] *See* D.16-06-039 at 64 (OP 12).
[16] *See* D.15-06-004 at 42-44 (OP 6-13).

affected reports, monitoring pages, and noticing pages. In my testimony below I provide more information about the project and the reasonableness of the costs in the OFCMA.

4. ENVOY® Generation MA (Microservice Architecture)

The existing ENVOY® system was developed over many years and consists of legacy coding, software architecture, and programing that has been piecemealed together to effectuate and enforce regulatory changes. The result is a system that is difficult and costly to modify and adjust in a new regulatory environment that changes rapidly.

SoCalGas proposes to replace the existing ENVOY® system from the ground up, making the system more flexible and customer friendly, allowing it to adapt quickly to regulatory changes and enhancing the customer experience. Modularizing the architecture of ENVOY® will make it more configurable. The individual functions and business rules that are processed in the system will be coupled loosely allowing for individual updates and deployments, permitting Gas Scheduling to quickly and efficiently comply with regulatory mandates. To improve customer experience, ENVOY® will further enhance and optimize the mobile capabilities on multiple platforms. Computational graphics and event driven architecture will be used to disseminate information to the marketplace quickly and allow for complex computations to be displayed interactively. By utilizing suggestive transactions, ENVOY® will predict and display the results of customers' actions allowing the customer to analyze the potential outcome prior to committing to the transaction.

5. ENVOY® Next Generation

The SoCalGas ENVOY® Next Generation Project entails a fully revamped interface and navigational menus, expanded to provide customers with up-to-date information, additional data querying functions and reporting, additional accessibility (neutral web browser use and mobile platforms), customizable account functions, and stronger web security. These additional capabilities were developed based on input from ENVOY® service users. The project is divided into multiple phases. Phase I of the project was developed and implemented in 2016. Phase II and Phase III were developed and implemented in 2017. Phase IV will be developed in the later part of 2017 and will be implemented in early 2018.

III. Ms. Carmen Herrera – Fleet Services and Facility Operations Ex. SCG-23

1. Emergency Command Vehicle Centers

Ms. Herrera is sponsoring O&M costs for Emergency Command Vehicle Centers. SoCalGas is requesting three (3) Emergency Command Vehicle Centers that will be strategically placed within our service territory. Currently, SoCalGas does not have any Emergency Command Vehicle Center to support incidents in the field. The use of an Emergency Command Vehicle Center is used by various public safety and health agencies (e.g., fire, police) as well as other utilities (e.g., PG&E, SDG&E) in the event of emergency incidents such as an earthquake or wild fires. The Emergency Command Vehicle Centers will be able to provide field company employees and first responders (e.g., fire, police, and other public officials) a place to have meetings as well as allowing them access to communication tools (e.g., phone, satellite, internet) and mapping and printing capabilities. The ability to manage and communicate on-site is essential to supporting the company's emergency response in the field. Earlier in my non-shared cost section (SoCalGas Emergency Services), I discussed the underlying emergency response and preparedness policies for this item in justification of my sponsored cost.

2. Physical Relocation of Gas Control Facility

This request is necessary to fund the planning, permitting, construction, and relocation of a new Gas Control Center. Workforce increases within the Gas Control and SCADA departments have resulted in the need for additional improvements, space reconfigurations, and building modifications that will allow SoCalGas to support future business requirements and increase functionality. The existing building facility and site cannot accommodate these requirements and necessary functionality. SoCalGas proposes a new multi-use facility which will have the capacity to accommodate this expansion for additional control room activities such as the Distribution Operations Control Center (described below), and provide for flexibility so that the space can evolve as people, technology, and business needs change over time.

The existing transmission Gas Control Center is located in a building that has been used for remotely operating the SoCalGas pipeline system since the 1940s. Multiple renovations have been completed on the facility due to its age. Nonetheless, the facility can no longer be renovated to meet workforce space requirements. The facility houses

the Gas Control and SCADA departments which are mission-critical (as explained above) and are responsible for the remote monitoring, control, and real-time operation of SoCalGas and SDG&E's combined gas-transmission system, including its' associated pipelines, line compressor stations, and underground storage facilities. Responsibilities of the Gas Control and SCADA departments include adhering to pipeline safety parameters established by Federal and State agencies, such as Control Room Management per CFR Part 192 Section 192.631; analyzing and responding to abnormal or emergency situations on the pipeline system; coordinating necessary pipeline shutdowns for maintenance and/or emergency measures; and serving as a communication center between various departments conducting maintenance on the transmission pipeline system.

IV. Mr. Michael Bermel – Gas Major Projects Ex. SCG-08

1. Distribution Operations Control Center (DOCC)

SoCalGas and SDG&E intend to establish a distribution Control Center that is functionally similar and integrated into to its existing transmission Gas Control Center (Gas Control). As discussed above, Gas Control's responsibilities consist of 24/7 staffing 365 days a year for control room monitoring and the remote control of pipeline and compression facilities on the transmission system. Control room functions include ensuring pipeline safety parameters as established by Federal and State agencies; analyzing and responding to abnormal and/or emergency situations on the pipeline system; coordinating necessary pipeline shutdowns for maintenance and/or emergency measures; and, serving as a communication center between various departments conducting maintenance on the transmission pipeline system.

The Gas Control center is managed and operated by SoCalGas, but also monitors and operates the SDG&E gas transmission pipeline network. The overall system utilizes SCADA technology to monitor pressures, flows, and related data at thousands of points on the transmission system, which includes facilities such as storage fields and regulator and compressor stations. The SCADA system uses alarms to notify Gas Control of operating conditions that require attention. SCADA also enables operators to control system flows and pressures at key points, such as interconnects with natural gas suppliers, storage fields, main line compressor stations, and regulator stations.

In contrast, SoCalGas and SDG&E control its gas distribution systems locally rather than centrally, and rely on technologies commonly used throughout the gas distribution industry. This system can create time lags between data collection and preventative and remedial action. Consistent with the operating philosophy of the transmission system, moving to a distribution control center represents a shift from a monitor-and-respond philosophy to a monitor, operate, and control philosophy, with an emphasis on system reliability, safety, and proactive control. The proposed Distribution Operations Control Center (DOCC) will be the single point of coordination to operate the gas distribution system and will enhance SoCalGas' ability to prevent and acknowledge events, support emergency response, provide reliable service to customers, and improve distribution system knowledge, integrity, and planning. While the system will not be fully completed until 2022, select assets will be placed in service in 2018/9 and require maintenance and operating resources in and or prior to TY 2019.

The DOCC will provide SoCalGas and SDG&E enhanced system visibility and control of its distribution medium and high pressure systems. It will provide real-time visibility into the dynamic pressures and flows within the gas distribution system. It will have remote control capability for multiple critical distribution facilities such as regulators and valves, which will enable a responsive, centralized system operation that will be integrated with the existing transmission system control room operation. SoCalGas intends to leverage this information proactively to keep the system working normally and to mitigate safety-related events. If an incident occurs despite these preventative capabilities (e.g., a dig-in), the DOCC will enable faster response and more robust mitigation and control.

In its 2016 GRC Application A.14-11-004, SoCalGas and SDG&E requested funding to study technical alternatives for implementing a Distribution Operations Control Center. Specifically, SoCalGas proposed the following:[17]

"A part of their Gas Distribution Monitoring and Control Plan, SoCalGas and SDG&E will develop a plan for the future of their gas distribution control functions.

[17] A.14-11-004, *General Rate Case Application of Southern California Gas Company (U 904 G)*; Hearing Ex. SCG-58/SCG-04-R at pFBA-85-86 (March 2015), *available at*: https://www.socalgas.com/regulatory/documents/a-14-11-004/SCG-04-R-Frank_Ayala.pdf.

Utilizing information from the benchmarking effort described above, as well as support from industry experts, SoCalGas and SDG&E will develop a blueprint covering items such as the following:

- Plan for the development and implementation of a Gas Distribution Control Center. This plan will assess items such as the level of integration between this new control center and the current transmission Control Center, the dispatch function, and the Gas Emergency Centers; as well as the degree of physical and virtual integration.
- Plan for a centralized Control Center to utilize the integrated dispatch of personnel, gas system analysis technical support, and monitored information (electronic pressure monitors and SCADA) to provide centralized and efficient emergency response on a 24/7 basis.
- Plan for upgrading the SCADA system to incorporate the additional real-time operating data-telemetry communication sites throughout the distribution pipeline system. This will include recommendation of the type of communications needed for the new sites.
- Workforce plan for the personnel needed to staff the Control Center, and to maintain and operate the SCADA system.
- Plan describing the requirement for building space, equipment and technology needed for the additional personnel and facilities.
- Plan for the ongoing operations and maintenance of the new systems, facilities and equipment."

The Commission, in D.16-06-054 authorized SoCalGas funding for this evaluation work in TY 2016.[18] In alignment with its proposal in A.14-11-004 and subsequent Decision, SoCalGas and SDG&E completed a preliminary draft engineering study in early 2017 addressing the scope/objectives for a Distribution Operations and Control Center (DOCC). The preliminary draft engineering study concluded that a DOCC supporting advanced monitoring and control of select distribution pipelines, will add significant value to our operational efficiency, swiftness of response, and ability to

[18] *See* D.16-06-054 at 252-54.

manage unplanned pipeline incidents and associated emergencies on our distribution system.

SoCalGas proposes to establish a system which employs a hybrid of hourly and real-time monitoring of distribution pipelines and control of larger distribution pressure regulating stations assets. The system will also provide additional real time and exception-based alarm reporting of pressures across the distribution pipeline network. Consistent with my description above regarding the relocation of the existing Gas Control Center, its proposed that the DOCC be co-located with our transmission operations (Gas Control) control center. This allows for the synergies of having multiple System Gas Controllers in a control room environment, operator qualified and operating under a single, consistent Control Room Management plan.

Some of the major features of this proposed DOCC system include the following:

- Control of critical regulator stations and provide for associated flow and pressure measurement.
- Provide for at least one real-time pressure measurement and trending in each of the 650+ medium pressure districts to monitor and trend the pressure in each major pressure zone/district.
- Monitor 2,250 electronic pressure monitors (EPMs) on an hourly basis. Additional system points will be monitored using alarm-based notifications that provide real time pressures, to help determine the origin of a pressure excursion in medium pressure districts served by multiple regulator stations. These monitoring stations can be called up to monitor in real-time under abnormal/emergency situations.
- Monitor core-customer meters on an hourly to provide a district wide characteristic view of core customer consumption.
- Monitor non-core customers for pressure, flow and temperature on an hourly basis.
- The ability to remotely shut-off and or set pressure at our critical regulator stations to support and analyze pipeline, valve and/or regulator station failures.

- Virtual data connectivity with both our Emergency Operations Center and Distribution Dispatch centers for integrated system data sharing and improved event response.

VI. OPERATIONAL FLOW COST MEMORANDUM ACCOUNT (OFCMA)

The purpose of this section of my testimony is to establish the reasonableness of expenditures recorded in the OFCMA. Currently, $1.696 million in capital expenditures have been incurred in implementing the modifications to SoCalGas' Operational Flow Order (OFO) and Emergency Flow Order (EFO) procedures (this implementation shall be referred to as "OFO/EFO Implementation").[19] As described below, SoCalGas submits that these costs are reasonable and requests approval for recovery.

In the TY 2016 GRC, SoCalGas submitted $956,000 in Low OFO/EFO costs as part of a larger request for capital IT costs. The total request for capital IT was approved by the Commission,[20] and with respect to the Low OFO/EFO project, under certain provisions and with the establishment of a memorandum account (the OFCMA) described below under the heading 'Procedural Background'. Accordingly, with the implementation of the OFO/EFO system, SoCalGas seeks a finding that its incurred costs for this project are reasonable, and the authorization to amortize the balance of costs accrued to the OFCMA (revenue and expenses) and close the OFCMA.

My testimony (1) describes the activities and reasonableness of costs recorded in the OFCMA for the OFO/EFO Implementation as directed by the Commission in D.15-06-004 (OFO/EFO Decision), and (2) in accordance with Ordering Paragraph (OP) 13 of the OFO/EFO Decision, submits as reasonable the costs of the OFO/EFO Implementation. Details regarding the treatment of the revenue requirements within the OFCMA can be found in the testimony and workpapers of Ms. Yu (Ex. SCG-42) (Regulatory Accounts witness).

A. Procedural Background

SoCalGas and SDG&E filed Application (A.) 14-06-021 requesting changes to their Low Operation Flow Order and Emergency Flow Order Requirements. Specifically, SoCalGas and SDG&E (jointly, Sempra Utilities) requested authorization to replace their winter balancing rules

[19] While D.15-06-004 applied to both SoCalGas and SDG&E, the implementation was undertaken only by SoCalGas' System Operator.
[20] *See* D.16-06-054 at 261.

with OFO and EFO procedures similar to those implemented by Pacific Gas and Electric Company (PG&E) and set forth in PG&E's Rule 14.[21] The Sempra Utilities proposed to have a low OFO be triggered when they forecasted exhaustion of the 340 million cubic feet per day (MMcfd) of storage withdrawal allocated to balancing.[22] The Sempra Utilities also proposed that they be authorized to invoke EFOs when they forecast or actually experience a supply and/or capacity shortage that threatens deliveries to end-use customers.[23]

After an evidentiary hearing, the Commission authorized the proposed changes to the OFO and EFO requirements as proposed by the Sempra Utilities.[24]

Regarding cost recovery for the Commission-authorized OFO/EFO implementation, the Commission stated:

> San Diego Gas & Electric Company and Southern California Gas Company shall file a Tier 2 Advice Letter within 30 days of the effective date of this Decision establishing a memorandum account that records the costs to implement the procedures for the Operational Flow Order and Emergency Flow Order. These costs will be reviewed for reasonableness for recovery in a future General Rate Case (GRC). The utilities bear the burden of showing the reasonableness of any recorded cost submitted for recovery. San Diego Gas & Electric Company and Southern California Gas Company shall establish a memorandum account to track the costs. These costs will be reviewed for reasonableness for recovery in rates in a future GRC.[25]

In addition, the Commission provided for certain program oversight, including quarterly reports with OFO/EFO forecast model performance, among other requirements. Specifically, the Commission ordered:

> 2. For each three-month period in the twelve months following the implementation of the proposed operational flow order requirements Southern California Gas Company and San Diego Gas & Electric Company shall file a report presenting the Operational Flow Orders or Emergency Flow Orders called based on the forecast model versus Operational Flow Orders or Emergency Flow Orders that would have been called if actual rather than forecast data were used. The reports shall include a narrative comments describing the results and the degree to which results fell within the criteria used to evaluate the forecast model as presented by Southern California Gas Company and San Diego Gas & Electric Company in response to item 1(c) above [or whatever the appropriate reference in

[21] *See* A.14-06-021 at 5-6.
[22] *See* D.15-06-004 at 3.
[23] *Id.*
[24] *Id*. at 40-43 (OP 1, 6-11).
[25] *Id.* at 43-44 (OP 13).

the decision would be to the criteria]. The report shall be provided to the Natural Gas Section of the Energy Division within 30 days of the end of each period.[26]

3. Southern California Gas Company and San Diego Gas & Electric Company shall each file a report with the Natural Gas Section of the Energy Division not later than August 31, 2016 summarizing the performance of the forecast model and changes made to the model for the period of one year following implementation. The report shall present any necessary modifications to the model based on the results, the specific basis for any modifications including the expected impact on the future performance of the forecast model.

* * * *

5. Southern California Gas Company and San Diego Gas & Electric Company shall report on the performance, modifications already implemented and any anticipated changes of the forecast models in their scheduled Customer Forums.

* * * *

12. Within one year from the approval of the Tier 2 Advice Letters, the issuance of this decision, San Diego Gas & Electric Company and Southern California Gas Company shall report to the Commission's Energy Division, Natural Gas Section, all safety-related benefits of the low Operational Flow Order and Emergency Flow Order requirements authorized by this decision.

B. Standard of Review and Other Commission Guidance

This section of my testimony summarizes the applicable standard of review and other applicable Commission guidance.

1. Preponderance of the Evidence Standard

The standard of proof to be applied by the Commission in an after-the-fact reasonableness review is preponderance of the evidence.[27] Preponderance of the evidence is defined "in terms of probability of truth, e.g., 'such evidence as, when weighed with that opposed to it, has more convincing force and the greater probability of truth.'"[28] In other words, SoCalGas "must present more evidence that supports the requested result than would support an alternative outcome."[29]

[26] *Id.* at 41-42 (OP 2).
[27] *See* D.14-06-007 at 13.
[28] *Id*. (citing Witkin, Calif. Evidence, 4th Edition, Vol. 1, 184).
[29] *Id*.

2. Reasonable Manager Standard

To assess the reasonableness of incurred costs, the Commission applies the reasonable manager standard.[30] To meet this standard, "[t]he act of the utility should comport with what a reasonable manager of sufficient education, training, experience and skills using the tools and knowledge at his disposal would do when faced with a need to make a decision and act."[31] As explained by the Commission, "reasonable and prudent acts do not require perfect foresight or optimum outcomes, but may fall within a spectrum of possible acts consistent with utility needs, ratepayer interests, and regulatory requirements."[32] Under this standard, the Commission holds utilities to "a standard of reasonableness based upon the facts that are known or should be known at the time."[33] In so doing, the Commission looks to the decision-making process and information available to the manager to assess whether the course of action was within the "bounds of reasonableness, even if it turns out not to have led to the best possible outcome."[34] As explained by the Commission, this is to "avoid the application of hindsight in reviewing the reasonableness of a utility decision."[35]

C. Low OFO and EFO Project Background

In order to comply with D.15-06-004 discussed above, SoCalGas submitted the following Advice Letters and reports as described in Table DKZ-11.

Table DKZ-11
SoCalGas Advice Letters and Reports

Report or Advice Letter	Date of Compliance	Commission Action (if any)/OP
Implementation of the Low OFO/EFO procedures	Filed Advice Letter (AL) 4822 on June 29, 2015	Commission approved Advice Letters 4822-G and 4822-G-A on January 4, 2016, effective as of December 3, 2015/ OP 1.
Establishment of the OFCMA	Filed AL 4838 on July 10, 2015	Commission approved AL 4838-G on August 10, 2015, effective as of June 11, 2015/OP 13.
Quarterly OFO/EFO Compliance Reports	April 1, 2016, July 1, 2016, October 3, 2016,	OP 2.

[30] *See* A.14-12-016, *Assigned Commissioner and Administrative Law Judges' Scoping Memo and Ruling*, (filed April 1, 2015), at 5-6.
[31] D.90-09-088 at 16.
[32] D.97-08-055 at 54.
[33] *Supra* note 30 at 15 (*citing* D.88-03-036 at 5).
[34] D.89-02-074 at 169 (Conclusion of Law 3).
[35] *Supra* note 30 at 15.

	January 3, 2017, and April 3, 2017	
Summary Report on Operational Flow Orders	January 3, 2017	OP 3.
Reporting during Scheduled Customer Forums	2016 Utility Customer Forum held on June 2, 2016 and 2017 Utility Customer Forum held on May 8, 2017	OP 5.
Safety Report on Operational Flow Orders	December 5, 2016	OP 12.

D. Project Organization and Controls

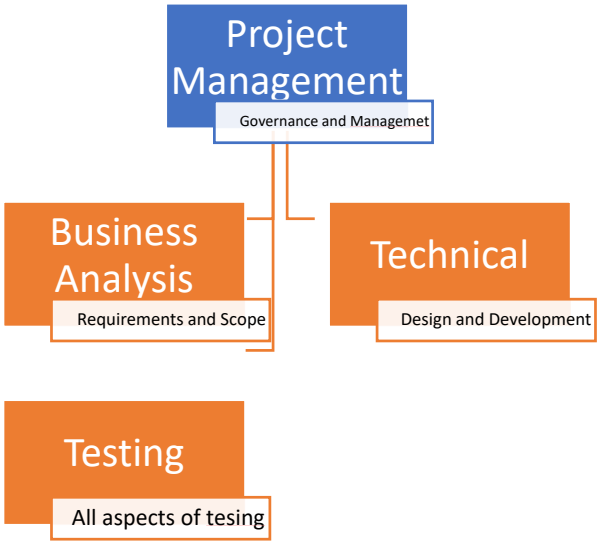
Major system enhancements were required in the ENVOY and SCBS applications to execute the OFO/EFO Implementation. These enhancements included:

- Creation of new screens to view, process, and archive the Low OFO Calculations
- Modifications to the Gas Scheduling processes to replace the Winter balancing rules with the new Low OFO rules
- Creation of new alerts and notices spcific to the Low OFO
- Updates to the ENVOY and SCBS interface to accommodate the transfer of Low OFO declaration, stage, and tolerance to the billing system

To implement the Envoy enhancements, SoCalGas leveraged in-house expertise in the Information Technology department (IT) to support and develop the project scope and requirements. IT formed and utilized a team structure led by management personnel who are experienced and knowledgeable in the IT enhancements required to complete the OFO/EFO Implementation efficiently and in a timely manner.

Figure SCG DKZ-2 depicts the OFO/EFO Implementation team structure.

Figure SCG DKZ-2
OFO/EFO Implementation Team Structure



The responsibilities of three workstreams in the OFO/EFO Implementation team structure are briefly described below:

- Project Management Team: Provide planning of project tasks, schedules, and day-to-day project management of project teams. Provide governance on scope, schedule, and budget of the project.
- Business Analysis Team: Perform system analysis and provide detail requirements, functional specifications, test case validations, and user acceptance testing.
- Technical Team: Perform system design, development, unit tests, source and version control management, system environment utilization and provisioning, build and promotion management, and deployments of application.
- Testing Team: Manage all testing efforts of project including delivering test strategy, producing test summary reports, and coordinating and/or executing system, integration, performance, regression, security, and UAT tests.

E. Cost Summary

Table DKZ-12 contains a summary of the cost of the OFO/EFO Implementation project through 2017. These are all capital costs.

Table DKZ-12
OFO/EFO Cost Summary

Capital Cost through 2017		
Internal Labor	$	560,251
Consultants	$	944,575
Other Direct Costs	$	1,756
Indirect Costs	$	135,791
AFUDC	$	53,512
Grand Total	**$**	**1,695,885**

The costs associated with Internal Labor consisted of in-house experts in the Project Management Team, Business Analysis Team, and Technical Team. Internal experts in project management were used to set the overall scope and timeline of the project. Internal experts in the Business Analysis team were used to develop detailed requirements and test cases. They were also involved in the testing of the application prior to implementation. Internal experts in the Technical team were tasked with the overall design and architecture of the system.

The costs associated with Consultants consist of contract labor which was used predominantly for the day to day project management. Contract labor was also used in the Technical team for building and deployment of the application. Testing of the application was conducted with the assistance of consultants who are experts in that field.

Indirect costs are all costs not directly charged to capital or O&M projects or to O&M accounts.

Allowance for Funds Used During Construction (AFUDC) is the Sempra Energy Utilities' net cost for borrowed funds used for construction purposes plus a reasonable rate on other funds, such as equity.

F. OFCMA Conclusion

My testimony demonstrates that the $1.696 million in costs currently recorded to the OFCMA in connection with the OFO/EFO implementation have been reasonably incurred. These costs directly supported the achievement of our objective of replacing our circa-1998 winter balancing rules, which in turn has enhanced operational stability. In accordance with the

reasonable manager standard, SoCalGas designed and executed the Low OFO/EFO implementation to enhance the reliability of utility service while maintaining reasonable costs through prudent planning and oversight.

VII. CONCLUSION

The forecast of the TY 2019 costs associated with the safe and reliable system operation and emergency response of the SoCalGas and SDG&E gas transmission system as presented in this testimony are reasonable and should be adopted by the Commission. The TY 2019 forecast of $2,972,000 for Non-Shared operating expenses, and $5,986,000 (SoCalGas's incurred Book Expense) for Shared Services Operating and Maintenance expenses reflects SoCalGas' commitment toward sustaining safe and reliable service to our customers while also striving to control operating expenses without compromising safety or regulatory compliance. This concludes my prepared direct testimony.

VIII. WITNESS QUALIFICATIONS

My name is Devin K. Zornizer. I presently hold the position of Director Gas Control and System Planning for SoCalGas and SDG&E. I hold a Bachelor's of Science degree in Civil Engineering from California Polytechnic State University, Pomona. I am a Registered Civil Engineer in the State of California, RCE 67723.

I have a broad background in engineering and natural gas pipeline operations with over 17 years of experience with SoCalGas. I have held a number of technical and managerial positions with increasing responsibility in the Gas Engineering, Gas Operations, and Gas Transmission Departments. In these positions, I have been responsible for gas system control operations, field operations, technical services, and engineering design and construction. I have held my current position as the Director of Gas Control and System Planning since March of 2016. I have not testified previously before the Commission.

LIST OF ACRONYMS

Distribution Operations Control Center (DOCC)

Emergency Flow Order (EFO)

Emergency Operation Center (EOC)

Gas Emergency Center (GEC)

High Operational Flow Order (High OFO)

Incident Command System (ICS)

Low Operational Flow Order (Low OFO)

Operational Flow Cost Memorandum Account (OFCMA)

Operational Flow Order (OFO)

SoCalGas ENVOY® (ENVOY®) (Not an acronym, SoCalGas' electronic bulletin board and scheduling system)

Specialized Contract Billing System (SCBS)

Supervisory Control and Data Acquisition (SCADA)

Transmission Command Post (TCP)

Triennial Cost Allocation Preceding (TCAP)

Web Emergency Operation Center (WebEOC)