Company: Southern California Gas Company (U 904 G)
Proceeding: 2019 General Rate Case
Application: A.17-10-____
Exhibit: SCG-06

SOCALGAS

DIRECT TESTIMONY OF BETH MUSICH

(GAS TRANSMISSION OPERATION)

October 6, 2017

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

317169

TABLE OF CONTENTS

SUMMARY

Table EAM-1
Southern California Gas Company
Total Gas Transmission O&M

GAS TRANSMISSION (In 2016 $)			
	2016 Adjusted-Recorded (000s)	TY 2019 Estimated (000s)	Change (000s)
Total Non-Shared Services	29,310	50,918	21,608
Total Shared Services (Incurred)	950	1,016	66
Total O&M	**30,260**	**51,934**	**21,674**

Southern California Gas Company (SoCalGas or Company) requests approval of a Test Year (TY) forecast of $51,934,000 for Gas Transmission Operations and Maintenance (O&M) costs. The forecast is comprised of $50,918,000 for non-shared service activities and $1,016,000 for shared service activities. This forecast represents an increase of $21,674,000 over 2016 adjusted-recorded costs. Approval of the forecasts in this testimony will further SoCalGas' continued objective of providing safe and reliable delivery of natural gas to customers at a reasonable cost. The requests are reasonable and justified in that:

- The activities are consistent with applicable laws, codes, and standards established by local, state, and federal authorities;
- The activities maintain the safety and reliability of the gas transmission system;
- The activities respond to operations, maintenance, and construction needs;
- The activities maintain a qualified workforce; and
- The activities support SoCalGas' commitment to mitigate risks associated with hazards to public and employee safety, infrastructure integrity, and system reliability.

The expenditures discussed in this chapter reflect SoCalGas' forecast of Gas Transmission O&M costs for both Non-Shared and Utility Shared Services expense for TY 2019. The forecast of Gas Transmission capital-related costs is presented in the Gas Transmission testimony of Michael Bermel and Beth Musich (Exhibit SCG-07).

SOCALGAS DIRECT TESTIMONY OF BETH MUSICH
(GAS TRANSMISSION OPERATION)

I. INTRODUCTION

A. Summary of Costs

In this testimony, I sponsor the TY 2019 forecasts of O&M costs for both non-shared and shared services for the forecast years 2017, 2018, and 2019 that are associated with Gas Transmission activities for SoCalGas. SoCalGas requests the California Public Utilities Commission (CPUC or Commission) to adopt its TY 2019 forecast of $51,934,000 for total Gas Transmission O&M expenses, which is comprised of $50,918,000 for non-shared service activities and $1,016,000 for shared service activities. This represents an increase of $21,674,000 over 2016 adjusted-recorded costs. The forecasts in this testimony will further SoCalGas' objective of providing safe and reliable delivery of natural gas to customers at a reasonable cost.

The purpose of my testimony is to demonstrate that the requested SoCalGas Gas Transmission O&M expenses are reasonable and should be approved by the Commission. Expenditures discussed in this testimony represent day-to-day expenses associated with operating and maintaining SoCalGas' natural gas transmission system. Capital expenditures in support of SoCalGas' gas transmission operations are addressed by Mr. Bermel and Ms. Musich (Exhibit SCG-07). Unless otherwise noted, all costs in this testimony are shown in 2016 dollars and all costs in tables are shown in thousands of dollars. In addition to this testimony, please also refer to my workpapers, Exhibit SCG 06-WP, for additional information on the activities described herein.

Table EAM-2 summarizes my sponsored costs.

Table EAM-2
Southern California Gas Company
Total Gas Transmission O&M

GAS TRANSMISSION (In 2016 $)			
	2016 Adjusted-Recorded (000s)	TY 2019TY2019 Estimated (000s)	Change (000s)
Total Non-Shared Services	29,310	50,918	21,608
Total Shared Services (Incurred)	950	1,016	66
Total O&M	**30,260**	**51,934**	**21,674**

B. Summary of Activities

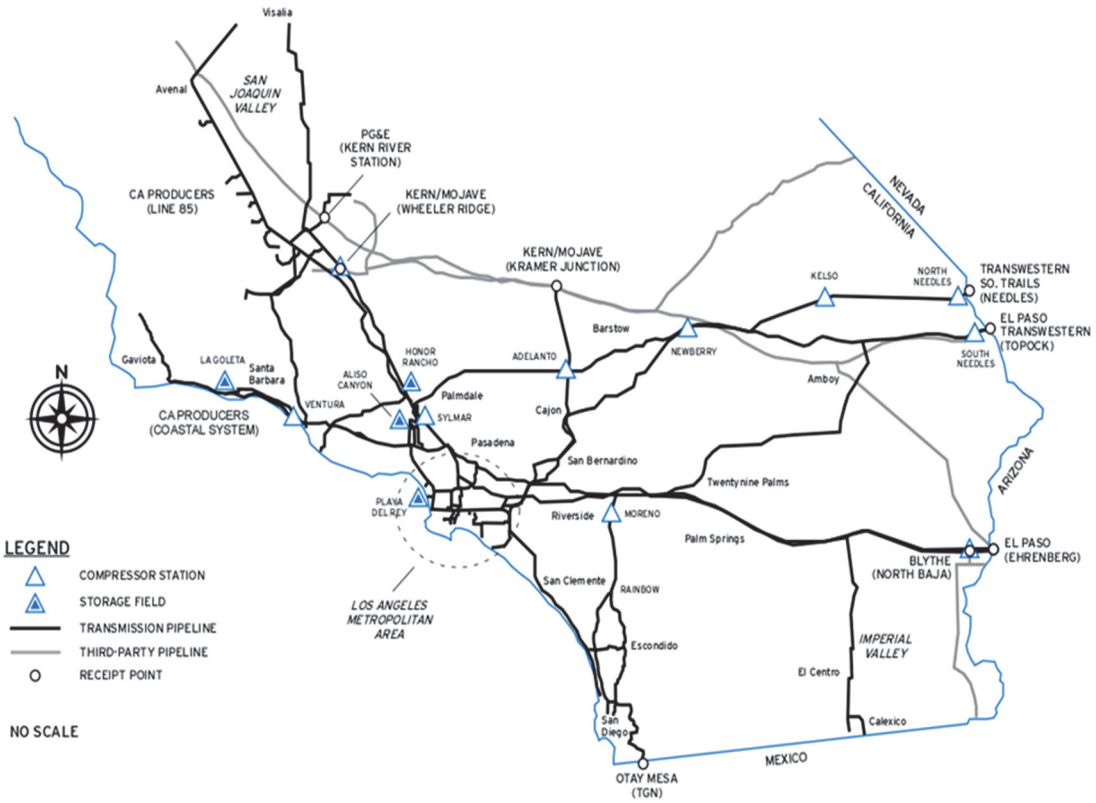
Key objectives of the Gas Transmission organization are to operate safely, achieve compliance with applicable legal and regulatory requirements, and provide customers with reliable natural gas service at a reasonable cost.

The SoCalGas transmission system service territory spans from the California–Arizona border to the Pacific Ocean and from the California–Mexico border to Fresno County. Gas Transmission operates facilities in the counties of San Bernardino, Riverside, Imperial, Orange, Los Angeles, Ventura, Santa Barbara, Kern, Tulare, Kings, San Luis Obispo and San Diego. The Gas Transmission organization is responsible for the safe operation of approximately 2,918 miles of high-pressure gas pipeline and nine compressor stations totaling approximately 112,638-horsepower, plus an additional 9,362-horsepower for plant electric generation.[1] The United States Department of Transportation (DOT) utilizes engineering criteria (as opposed to the functional approach used by SoCalGas) to define the term "transmission line" under 49 CFR 192.3. Using the DOT definition, SoCalGas' Gas Distribution, Gas Transmission, and Storage operating units collectively operate approximately 3,455 miles of "DOT-defined transmission" pipeline, with approximately 765 miles of "DOT-defined transmission" pipeline maintained and operated by the Distribution organization. *See* Exhibit SCG/Orozco-Mejia. In addition, approximately 228 miles of high-pressure pipelines that are not defined as transmission under DOT regulations are operated by the Gas Transmission organization. The transmission system is designed to receive natural gas from interstate pipelines and various California offshore and onshore production sources. The quality of the gas is analyzed then measured, and the pipeline-quality gas is delivered to SoCalGas' gas distribution system, gas storage fields, and certain non-core customers.

Figure SCG-EAM-1 below is a map of the system.

[1] *See* PHMSA EOY 2016 SCG GT_GG_Annual_Form_PHMSA_F71002-1.

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



C. Gas Transmission Supports SoCalGas' Safety and Reliability Goals

Gas Transmission is organized to provide safe and reliable delivery of service to customers at a reasonable cost and to operate the system in accordance with all applicable codes and regulations.

D. Safety/Risk Considerations

SoCalGas' Risk Management & Policy witness, Diana Day (Exhibit SCG/SDG&E-02), describes how risks are assessed and factored into cost decisions on an enterprise-wide basis. Other aspects of risk mitigation in the SoCalGas system, some of which pertain to Gas Transmission, are addressed under the Transmission Integrity Management Program, described in the Pipeline Integrity for Transmission & Distribution testimony of Maria Martinez (Exhibit SCG-14). Operations and maintenance activities for the gas transmission system are influenced by customer usage, market forces, and available pipeline capacity. Operational risk impacts are considered by Gas Transmission with reference to these key factors.

E. Summary of Cost Related to Fueling our Future

As described in the Fueling our Future Policy testimony of Hal Snyder and Randall Clark (Exhibit SCG/SDG&E-03), the utilities began the Fueling our Future (FoF) initiative in May 2016 to examine operations across the Company and identify opportunities for efficiency improvements. Through this process, ideas were generated, reviewed, analyzed, and targeted for implementation from 2017 through TY 2019. Table EAM-3 provides a summary of SoCalGas' Gas Transmission FoF cost reductions covered in my testimony.

Table EAM-3
Southern California Gas Company
Gas Transmission FoF O&M

GAS TRANSMISSION (In 2016 $)			
FoF O&M	**Estimated 2017 (000s)**	**Estimated 2018 (000s)**	**Estimated 2019 (000s)**
FoF-Ongoing/<Benefits>	0	-2,568	-5,095
Total O&M	**0**	**-2,568**	**-5,095**

FoF-Ongoing/<Benefits>	**Estimated 2017 (000s)**	**Estimated 2018 (000s)**	**Estimated 2019 (000s)**
2GT000.000, Pipeline Operations	0	-2,568	-5,095
Total	**0**	**-2,568**	**-5,095**

Specific cost reduction savings are discussed further in section III of my testimony.

F. Summary of Aliso Canyon Related Costs

Table EAM-4
Southern California Gas Company
Gas Transmission Aliso O&M

GAS TRANSMISSION			
Workpaper	**2015 Adjustment (000s)**	**2016 Adjustment (000s)**	**Total (000s)**
2GT000.000, Pipeline Operations	0	-2	-2
2GT001.000, Compressor Station Operations	0	-1	-1
2GT002.000, Technical Services	0	-8	-8
Total Non-Shared	**0**	**-11**	**-11**
Total Shared Services	**0**	**0**	**0**
Total O&M	**0**	**-11**	**-11**

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 TY 2019 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.

As a result of removing historical costs related to the Aliso Incident from Gas Control and Systems Operations/Planning adjusted recorded data, and in tandem with the forecasting method(s) employed and described herein, additional costs of the Aliso Incident response are not included as a component of my TY 2019 funding request.

G. Cost Forecast Methodology

The TY 2016 forecast of expense was determined by first reviewing five years (2012 through 2016) of historical recorded costs. The recorded costs were adjusted to remove expenses associated with any one-time events (including Aliso Incident-related costs, see the testimony of Mr. Steinberg (Ex. SCG-12); and Fueling our Future (FoF) related adjustments; see testimony of Mr. Snyder and Mr. Clark (Ex. SCG/SDG&E-03)) and by making other applicable accounting adjustments. The results of this process were then used to calculate three-, four-, and five-year linear trend results, and three-, four-, and five-year annual-averaging results. In the case of Gas Transmission O&M expenses, differences in the results of each of the methodologies proved to be minor in scale.

Rather than simply relying on multi-year averaging principles to determine the Test Year cost forecast, I considered the reasonableness of the various results to identify the best available, and most applicable, predictor of future period base costing. Through this process, I determined that for Gas Transmission O&M expenses there was adequate justification for utilizing the five-year annual averaging methodology results.

Next, I reviewed operational standards and 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. This resulted in costs that both increased and decreased the Test Year forecast. The future period incremental changes were

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

then added and/or subtracted from the five-year annual average results. The combined result established my TY 2019 forecast.

H. Support to and from Other Witnesses

My testimony provides support for Fleet Acquisition cost forecasts that are discussed in the Fleet Services and Facility Operations testimony of Carmen Herrera (Exhibit SCG-23).

II. RISK ASSESSMENT MITIGATION PHASE AND SAFETY CULTURE

Certain of the costs supported in my testimony are driven by activities described in SoCalGas and SDG&E's November 30, 2016 Risk Assessment Mitigation Phase (RAMP) Report.[3] The RAMP Report presented an assessment of the key safety risks of SoCalGas and SDG&E and proposed plans for mitigating those risks. As discussed by Ms. Day (Ex. SCG/SDG&E-02), the costs of risk-mitigation projects and programs were translated from that RAMP Report into the individual witness areas.

In the course of preparing my GRC forecasts, I evaluated the scope, schedule, resource requirements and synergies of RAMP-related projects and programs. Therefore, the final representation of RAMP costs may differ from the ranges shown in the original RAMP Report. Table EAM-5 provides a summary of the RAMP-related costs, by RAMP risk, supported by my testimony.

Table EAM-5
Southern California Gas Company
Total Gas Transmission O&M

GAS TRANSMISSION (In 2016 $)			
SCG-4 Catastrophic Damage Involving High-Pressure Pipeline Failure	**2016 Embedded Base Costs (000s)**	**TY2019 Estimated Incremental (000s)**	**Total (000s)**
2GT000.000, Pipeline Operation	4,536	0	4,536
2GT002.000, Technical Services	2,387	17,000	19,387
Total	**6,923**	**17,000**	**23,923**

[3] 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. Please also refer to Exhibit SCG 02 (Diana Day) for more details regarding the utilities' RAMP Report.

As illustrated in Table EAM-5, some of my requested funds are linked to mitigating a safety risk that has been identified in the RAMP Report. The risk is further described in the table below:

RAMP Risk	Description
SCG-4 Catastrophic Damage Involving High-Pressure Pipeline Failure	This risk relates to the potential public safety and property impacts that may result from the failure of high-pressure pipelines (greater than 60 psi).

In developing my request, priority was given to this key safety risk to determine which currently established risk control measures would continue and what incremental efforts were needed to further mitigate this risk. Two items were identified requiring incremental funding – right-of-way maintenance and remediation of high consequence areas (HCA).

The forecast provided herein includes the costs to plan, design and engineer, permit, procure material, and mitigate any environmental impacts that may arise in order to perform the hydrostatic testing of these pipelines. These O&M expenses are included in this testimony.

Projects and programs that help to mitigate these risks appear in my testimony as adjustments to my forecasted costs. This adjustment process was used to identify both RAMP mitigation costs embedded as part of traditional and historic activities as well as forecasted RAMP-incremental costs which are also associated with mitigation strategies and correspond to historic or new activities. These can be found in my workpapers as described below. The general treatment of RAMP forecasting is described by Ms. Day (Ex. SCG/SDG&E-02).

The RAMP risk mitigation efforts are associated with specific programs and projects. For each of these mitigation efforts an evaluation was conducted to determine what portion, if any, was already performed in our historical activities. A determination was also made of what portion could be accommodated within a particular forecasting methodology such as averaging or trending, as well as what portion, if any, represented a true incremental cost increase or decrease from that forecasting methodology.

My incremental request supports the ongoing management of risks that pose significant safety, reliability and financial consequences to our customers and employees.

Right-of-Way Maintenance

My incremental request includes risk mitigation efforts such as maintenance of access roads and pipeline rights-of-way. Such mitigation is critical in order to maintain compliance, permit timely access to pipelines, prevent third-party pipeline damages, and maintain the safety of employees and the public.

High Consequence Area Pipelines

Remediation of High Consequence Area (HCA) class location changes is driven by residential, commercial and/or industrial development that encroach on transmission pipelines and change the class location for the existing pipeline. Changes in the number of structures near the pipeline require analysis and verification that the pipeline complies with regulations set forth in 49 C.F.R. 192.611.[4] If the pre-existing Maximum Allowable Operating Pressure (MAOP) exceeds the revised MAOP for the new class location, the pipeline section needs to be remediated by either replacement (for which the cost of replacement is capitalized), reducing the pressure if operationally feasible, or hydrostatically testing the pipeline in order to confirm the MAOP. When the class location for a pipeline changes, SoCalGas has two years to remediate the pipeline. The cost associated with remediating the risk by conducting hydrostatic testing is an O&M expense.

If the remediation doesn't occur within that period, the MAOP must be reduced, which in turn causes reliability and operational issues.

Safety Culture

In addition to the focus on safety through our RAMP efforts, SoCalGas maintains a foundational safety-first culture that focuses on public, customer, and employee safety. Our commitment to safety is embedded in every aspect of our work including our efforts to develop a trained workforce, our efforts in operating and maintaining the natural gas infrastructure, and by providing safe and reliable natural gas service while maintaining compliance with applicable regulatory and environmental regulations.

A common theme throughout our testimony is the foundational aspect of safety in every decision we make. This is evidenced in part by recurring training, safety awareness postings at

[4] 49 CFR 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.

SoCalGas facilities, Job Site Safety Plans at active construction sites, safety stand-down sessions, and our Injury Illness and Prevention Plans. Gas Transmission shares the common goal throughout SoCalGas of achieving operational excellence in providing safe and reliable natural gas service at a reasonable cost.

III. NON-SHARED OPERATIONS AND MAINTENANCE COSTS

The costs presented in this testimony are necessary to support the following Gas Transmission Non-Shared Service operational functions:

- Gas Transmission Pipelines;
- Compressor Stations; and
- Technical Services.

Table EAM-6 summarizes the total non-shared O&M forecasts for the listed cost categories.

Table EAM-6
Southern California Gas Company
Total Non-Shared O&M Services

GAS TRANSMISSION (In 2016 $)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019TY2019 Estimated (000s)**	**Change (000s)**
A. Gas Transmission Pipelines	17,692	14,463	-3,229
B. Compressor Stations	9,732	9,988	256
C. Technical Services	1,886	26,467	24,581
Total Non-Shared Services	**29,310**	**50,918**	**21,608**

A. Gas Transmission Pipelines

1. Description of Costs and Underlying Activities

The Gas Transmission Pipelines function within Gas Transmission is responsible for the safe day-to-day operation and maintenance of gas transmission pipeline facilities and related infrastructure. This includes operating and maintaining equipment at pipeline receipt points, valve control stations, major customer delivery custody-transfer points, and all associated monitoring, metering, and control facilities, odorization equipment, and real-time operating data telemetry communications between gas facilities and SoCalGas' Gas Control Operations department. Pipeline Operations also performs leak surveys of all transmission pipeline

facilities, maintains our rights-of-way, operates and maintains the cathodic protection systems, conducts surveillance of third-party construction activities around the vicinity of buried pipeline facilities, and performs locate-and-mark services to identify the location of buried facilities. Additional responsibilities include:

- Developing and implementing gas handling procedures;
- Providing emergency services in response to earthquakes, wildfires, dig-ins, or other events as needed in order to minimize the potential for danger to the public and minimize impact upon system reliability;
- Investigating, enforcing and addressing gas quality standards and issues; and
- Maintaining compliance with applicable environmental and regulatory agency safety requirements. These regulations cover air quality, asbestos, lead, polychlorinated biphenyls, natural resources, ground water, storm water, hazardous waste and materials handling, and above- and below-ground pipeline appendances. As a result, Gas Transmission continuously monitors changes in regulatory requirements and adjusts and adds operations accordingly to uphold compliance and satisfy all legal requirements.

2. Forecast Method

The TY 2019 forecast was determined using a five-year (2012 through 2016) annual average methodology, unless otherwise indicated (*) in the Cost Drivers section below. This methodology was selected because it utilizes recent historical data. Future year incremental cost estimates were then added to the five-year annual average results. The combined results of these two calculations establish my TY 2019 forecast.

3. Incremental Cost Drivers

Maintenance and enhancement of the integrity of the transmission pipeline system drives a need for incremental labor and non-labor costs in the following areas:

- Pipeline Operations Support Staffing ($412);
- Pipeline Leakage Investigation and Mitigation – (non-capital repairs) ($600);
- Cathodic Protection Maintenance and Repair ($434); and
- Post-PSEP Equipment Installations Incremental Maintenance ($776).

Additionally, scheduled changes to a pipeline lease agreement and a procedural efficiency improvement will result in the following reductions:

- Termination of City of Long Beach Pipeline Lease (-$5,054); and
- Overtime Reduction Resulting from Notice of Shutdown Automation (-$29).

a. Pipeline Operations Support Staffing

In order to maintain employee safety, regulatory compliance and system reliability, an additional District Operations Manager is needed in SoCalGas' desert area. The need for an additional $130,000 in labor costs for the District Operations Manager is the result of an increase in workload activity related to ongoing pipeline operations and maintenance and will provide greater oversight of our employees and decrease travel time. The operations and maintenance responsibilities include gas measurement, pressure regulation, non-core customer equipment and facilities, instrumentation, cathodic protection, locate-and-mark activities, standby, patrol, leakage survey, class location survey, bridge and span inspections and valve inspections. Adding this position will directly support the continued safety and reliability of pipeline operation in compliance with applicable laws and regulations.

Two additional Pipeline Technician positions also are needed for locate-and-mark activities, standby, patrol, increased requirements for leak survey, leak investigations, valve inspections, gas handling, pipeline pigging, pipeline replacement, right-of-way maintenance, and other tasks as assigned. The increase in TY 2019 forecast associated with this incremental work is $137,000.

Two new receipt points were added off of PG&E's pipeline system in order to support system reliability and integrity. O&M costs to operate and maintain these new custody transfer receipt points have also been included in the TY 2019 forecast. The costs are inclusive of both labor and non-labor to operate and maintain new metering, gas quality equipment and controls, and to provide supplemental odorization.

An additional administrative support position has been necessitated by an increase in scheduled maintenance inspections of incremental assets installed by the PSEP program, which has resulted in increased data entry for appropriate recordkeeping. Additionally, support is needed for the tracking and reporting requirements imposed by General Order No. 112-F, effective January 1, 2017, for leak indications, encroachments, and over-pressurizations.

Three incremental work vehicles are required for this work, and are reflected in the testimony of Ms. Herrera (Ex. SCG-23).

b. Pipeline Leakage Investigation and Mitigation – (Non-Capital Repairs)

The TY 2019 forecast includes O&M costs for leak repairs of packing leaks, leaking tap valves, replacing gaskets, replacing tubing fittings, excavations, shoring, permitting and related activities. It is anticipated that the new General Order No. 112-F requirement for twice-annual instrumented leak surveys will necessitate more repairs or replacements than experienced in prior years when instrumented leak surveys were only required to be conducted on an annual basis. Moreover, SoCalGas' leakage classification policy has been made more robust by removing the below-ground minor leak classification. The removal of this classification may result in more excavations of valves to access buried lubrication fittings to repair leaks that are contained in valve cans. Additional funding is needed so such leakage indications may be addressed promptly.

The forecast includes costs for third-party vendor services for quarterly calibration of additional Optical Methane Detector (OMD) leak survey equipment. The funding is requested to pay for a third-party calibration service at a cost of $6,000 per year for each device. Quarterly calibration checks the accuracy of leak survey devices and properly documents the calibration of each piece of equipment. Gas Transmission anticipates using 16 OMDs on an annual basis and forecasts $100,000 in non-labor expenses.

c. Cathodic Protection Maintenance and Repair

Based on pipeline characteristics, some pipelines have been identified to have additional electric current requirements. The additional electric current requirements will result in increasing the cathodic protection current density on pipelines which will improve the amount of polarization protecting these pipelines. In order to satisfy the additional current requirements, additional rectifiers and power generating engines for remote locations are required. These facilities will require incremental inspections and maintenance to satisfy regulatory compliance requirements. The additional labor funding forecasted for maintaining the additional facilities is $77,000. An additional $40,000 in non-labor funding is forecasted to keep the facilities operational.

An additional Cathodic Protection Specialist is requested to remediate out-of-tolerance and/or marginal cathodic protection systems. An additional $88,000 of labor funding is forecasted for this position. Non-Labor funding of $150,000 is forecasted to be utilized across Gas Transmission for excavating locations where troubleshooting indicates issues such as coating anomalies and metallic or electrolytic shorts.

An additional $100,000 is included in the forecast in order to standardize electrolysis test stations (ETS). This funding will allow the installation and/or replacement of ETSs with terminals where electric current and potentials will be capable of being monitored.

One incremental work vehicle will be required for this work, and is reflected in the testimony of Ms. Herrera (Ex. SCG-23).

d. Post-PSEP Equipment Installations Incremental Maintenance

Transmission will incur additional costs for labor and materials for the new PSEP equipment being installed on the pipeline. The equipment includes new valves, actuators, line break controls, instrumentation and controls. Thirty-six new valves are included in 2017 costs, an additional 10 valves in 2018 costs, and an additional 21 valves in 2019 costs.

No incremental work vehicles are required for this maintenance.

e. City of Long Beach Pipeline Lease Termination

SoCalGas will realize a reduction in annual cost as a result of termination and non-renewal of the pipeline lease agreement between SoCalGas and the City of Long Beach. Termination of the lease will not result in any negative impact to SoCalGas' ability to transport and deliver gas.

f. Notice of Shut-down Procedure - Overtime Reduction

SoCalGas will also realize a reduction in annual costs as a result of implementing e-technology that will be utilized to report planned system shut-downs (i.e., removal of equipment from service to perform planned maintenance). The automation of this procedural process will not result in any negative impact to SoCalGas' safe and reliable delivery of gas to ratepayers.

B. Compressor Stations

1. Description of Costs and Underlying Activities

The Gas Compression Operations function is responsible for the safe and reliable day-to-day operation and maintenance of SoCalGas' nine compressor station facilities and related infrastructure. This responsibility includes operating and maintaining compressor engines and ancillary equipment, all associated monitoring, metering, and control facilities, odorization equipment, filtration vessels, cooling equipment, and real-time operating data telemetry communications between compression facilities and Gas Control. Additional responsibilities include:

- Developing and implementing gas compression operating and maintenance procedures;
- Air emission monitoring and testing;
- Conducting compressor unit and station inspections under planned maintenance schedules as well as after service interruptions caused by events such as earthquakes, wildfires, pipeline shut-ins, etc., in order to maximize system and equipment availability and reliability and therefore minimize the impact of such events upon the Gas Transmission, Underground Storage, Gas Distribution and Customer Services operations;
- Adjusting operating parameters to maintain Gas Transmission system integrity and address/mitigate gas quality issues;
- Providing 24-hour staffing at strategic locations and response to address any compression operation issues; and
- Maintaining compliance with applicable regulatory requirements.

Applicable regulatory requirements include those pertaining to: air quality; asbestos; lead; polychlorinated biphenyls; natural resources; ground water; storm water; process waste water; hazardous waste and materials; and above- and below-ground tanks. In order to uphold compliance with applicable regulations and permitting and reporting requirements, Gas Transmission continually tracks and analyzes changes in regulatory requirements and adjusts and adds operations accordingly.

2. Forecast Method

The TY 2019 forecast was determined using a five-year (2012 through 2016) annual average methodology, unless otherwise indicated (*) in the Cost Drivers section below. This methodology was selected due to its utilization of recent historical data. Future year incremental cost estimates were then added to the five-year annual average results. The combined results of these two calculations then establish my TY 2019 forecast.

3. Incremental Cost Drivers

The costs represented under the Compressor Stations category support Gas Transmission's achievement of operational safety, reliability, and regulatory compliance objectives. Additional funding to support work in the following areas is requested:

- Peak Load - Extended Maintenance Support Staffing ($109);
- Station Instrumentation Support Staffing ($202); and
- Ventura Station – Station Mechanic Staffing ($190).

Additionally, changes in operations planning will result in the following reduction in costs:

- Discontinue Operation - Desert Center and Cactus City Compressor Stations (-$84).

a. Peak Load - Extended Maintenance Support Staffing

The Southern System relies on supplies from specific receipt points and compressor stations. During peak load operation periods, reliability and availability of the Blythe compressor station is maintained by increasing staffing. Mechanical and instrumental personnel are maintained on site during peak usage hours. Incremental labor costs of $109,000 are forecast for these activities to support Blythe.

b. Station Instrumentation Support Staffing

Knowledge management is the planned transfer of critical skills and attributes to new employees that mitigates risk associated with not having experienced personnel operating and maintaining systems vital to maintaining and reporting compliance with air emission standards at compressor facilities. The modernization of equipment has increased the need for higher-skilled instrumentation personnel and requires specialized training unique to each station. In addition, new training programs that incorporate on-the-job training rely on supervisor- and senior-level

personnel to act as trainers at each facility. The funding requests of $200,000 for labor and $2,000 for non-labor will allow the addition of two positions -- an Instrument Tech Advisor who has the required skillset to train and mentor less-experienced employees in maintenance and programming new instrumentation and control equipment and a Technical Specialist.

c. Ventura Station – Station Mechanic Staffing

Two additional Station Mechanic positions are required to address increased work activity and maintenance on compressor station main unit compression and auxiliary support equipment. The Ventura Station is a 3,300-horsepower station that is utilized to provide increased suction pressure to the La Goleta Storage Field. The incremental work is the result of a combination of emissions and other environmental regulations as well as aging engines and compressors.

Regulatory compliance requires enhanced monitoring, recording and reporting requirements. Regulations also require more rigorous engine operations recordkeeping, which results in incremental engine and equipment maintenance in order to achieve full permit compliance. In addition, main units and compressors are required to operate at optimum efficiency and require immediate emission performance maintenance and repairs in order to operate in compliance within the strict parameters.

d. Discontinue Operation - Desert Center and Cactus City

Cost reductions resulting from decommissioning the Desert Center and Cactus City compressor facilities are reflected in the TY 2019 forecast. Decommissioning these facilities eliminates all preventive maintenance and inspection work orders associated with a single turbine compressor and all associated auxiliary equipment located at each of the two facilities. Decommissioning the two facilities results in a cost reduction forecast of $84,000 annually.

C. Technical Services

1. Description of Costs and Underlying Activities

The Technical Services function includes the activities of design engineering, instrumentation, control, project support, and environmental services in support of the day-to-day operations and maintenance of the gas transmission system.

Responsibilities include right-of-way maintenance, providing on-site technical expertise to Pipeline and Compression Operations field personnel, and troubleshooting technical issues for

both capital and O&M projects. Capital expenses in support of SoCalGas' transmission operations are addressed by Mr. Bermel and Ms. Musich (Ex. SCG-07).

2. Forecast Method

The TY 2019 forecast was determined using a five-year (2012 through 2016) annual average methodology, unless otherwise indicated (*) in the Cost Drivers section below. This methodology was selected due to its utilization of recent historical data. Future year incremental cost estimates were then added to the five-year annual average results. The combined results of these two calculations establish my TY 2019 forecast.

3. Cost Drivers

The costs represented in the Technical Services category support achievement of Gas Transmission's operational safety, reliability, and regulatory compliance objectives. Additional funding is requested to support work in the following areas:

- Technical Support Staffing ($56);
- Satellite Monitoring of Ground Movement ($50);
- High Consequence Area (HCA) - Class Location Mitigation ($12,000);
- Contracts and Procurement Support Staffing ($181);
- Right-Of-Way Maintenance ($5,000); and
- Southern Gas System Reliability Project Abandonment Recovery ($7,162);

*Non-Standard Escalation Forecast (NSE)

a. Technical Support Staffing

An additional Project Specialist is required. The added position is necessary to comply with contract delegation, material traceability and various other project reconciliation requirements.

b. Satellite Monitoring of Ground Movement

Satellite Monitoring of pipelines in the Coastal Mountain Pipeline System, which covers pipelines running between the Goleta coastal area into and through Castaic, is being implemented in order to monitor changes in ground movement and provide a proactive response to analyzing and effectively addressing land movement and the continued integrity of the pipelines.

c. Contracts & Procurement Support Staffing

Additional funding is required to hire two contract administrators to inspect and reconcile the incremental right-of-way and class location projects**.**

d. Right-Of-Way Maintenance

As discussed in my testimony above, right-of-way maintenance serves to mitigate the RAMP identified risk categorized as catastrophic failure of high-pressure pipeline. Funding for right-of-way maintenance is necessary for the overall general safety of employees and the public and includes span painting, pipeline maintenance, storm damage repair, removal of previously abandoned pipelines, vegetation removal, and right-of-way maintenance. Maintenance of access roads is critical to ensure compliance is maintained and that pipelines can be accessed in a timely manner, minimizing third-party pipeline damages and prevention of wild fire damages.

e. HCA Class Location Mitigation

Mitigation of HCA class location is discussed above in Section II.

f. Southern Gas System Reliability Project Abandonment Recovery *NSE

Please refer to the joint testimony of Mr. Bermel and Ms. Musich (Ex. SCG-07) for a detailed explanation of this request.

IV. SHARED OPERATIONS AND MAINTENANCE COSTS

The costs presented in this testimony are necessary to support the following Shared Service function groups within the SoCalGas' Gas Transmission organization:

- Director Gas Transmission;
- Field Operations Managers; and
- Technical Services Manager.

I am sponsoring the forecasts on a total incurred basis, as well as the shared services allocation percentages related to those costs. Those percentages are presented in my shared

services workpapers, Ex. SCG-06-WP, along with a description explaining the activity allocation.

The dollar amounts allocated to affiliates are presented in the Shared Services and Policy & Billing testimony of James Vanderhye (Exhibit SCG-34).

Table EAM-7 summarizes the total shared O&M forecasts for the shared services functional groups.

Table EAM-7
Southern California Gas Company
Total Shared O&M Services

GAS TRANSMISSION (In 2016 $)			
	2016 Adjusted-Recorded (000s)	TY 2019 Estimated (000s)	Change (000s)
Total Shared Services (Incurred)	950	1,016	66
Total O&M	**950**	**1,016**	**66**

The purpose of the Shared Services section of my testimony is to demonstrate that the following SoCalGas and SDG&E Shared Services O&M forecast expenditures are reasonable and should be adopted by the Commission. Forecast expenditures are to support management of operations, maintenance, and engineering support services relating to gas transmission operations at both SoCalGas and SDG&E.

SDG&E Gas Transmission operations are managed and supported, in part, by SoCalGas management personnel. This section addresses material changes in shared service expenses in TY 2019 compared to 2016 base year adjusted incurred expenses. These expenses support overall Gas Transmission and System Operations Administrative Management, Pipeline and Gas Compression Operations, and Field Engineering and Technical Support Administration.

Forecast expenditures are consistent with SoCalGas and SDG&E's overarching objective to provide safe and reliable receipt, transportation and delivery of natural gas to customers at a reasonable cost to ratepayers.

In total, SoCalGas requests the Commission adopt the TY 2019 forecast of $1,016,000 for Gas Transmission Shared Services. SDG&E does not provide any Gas Transmission-related shared services to SoCalGas.

Total TY 2019 forecast funding requirements for SoCalGas Gas Transmission shared services addressed in this testimony are shown in Table EAM-8.

Table EAM-8
Southern California Gas Company
Total O&M Shared Services

GAS TRANSMISSION (In 2016 $)			
(In 2016 $) Incurred Costs (100% Level)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019 Estimated (000s)**	**Change (000s)**
A. DIRECTOR GAS TRANSMISSION	198	240	42
B. FIELD OPERATIONS MANAGERS	272	419	147
C. TECHNICAL SERVICES MANAGER	480	357	-123
Total Shared Services (Incurred)	**950**	**1,016**	**66**

SoCalGas' Gas Transmission Shared Services are provided by three individual functional group cost center organizations. These organizations are:

- Director Gas Transmission;
- Field Operations Managers; and
- Technical Services Manager.

These costs consist of salaries and expenses relating to the provision of utility shared service functions by SoCalGas personnel reporting under each of the cost center organizations, and they are charged as a direct expenditure to the respective cost centers.

SoCalGas personnel remain SoCalGas employees even though organizational responsibilities include responsibility for supervision and management of SDG&E pipeline, compressor assets and personnel.

The costs allocated to SDG&E varies by individual cost center, as the allocations are based on applicable cost center-specific allocation methodologies. Individual cost center allocation methodologies are described below.

A. Director Gas Transmission – Cost Center 2200-0253

1. Description of Costs and Underlying Activities

The Director of the Gas Transmission Operations' organization is responsible for Gas Transmission and System Operations' overall operational and directional leadership, operation and maintenance performance, regulatory compliance, financial performance and work measurement reporting. These tasks are administered by the Director and a Technical Specialist.

Expenses are allocated to SDG&E based on the percentage of SDG&E employees, as compared to the combined total of joint utility (SDG&E and SoCalGas) Gas Transmission organization employees, as follows:

Number of SDG&E employees	27
Number SoCalGas employees	263
Total Gas Transmission Employees	290

Calculation: 27 / 290 = 9.31% (SDG&E)
263 / 290 = 90.69% (SoCalGas)

2. Forecast Method

SoCalGas forecasts a $42,000 increase in TY 2019 funding compared to 2016 base year adjusted recorded spend. The TY 2019 forecast was determined through the use of a five-year (2012 through 2016) annual average method. This methodology was selected due to its utilization of recent historical data.

3. Cost Drivers

The incremental cost increase is the result of the selected five-year cost averaging methodology.

B. Cost Center 2200-0265

1. Description of Costs and Underlying Activities

The Field Operations Managers organization is responsible for departmental operational leadership, staffing management, operation and maintenance performance, regulatory compliance, financial and work measurement performance and reporting for Gas Transmission pipeline and compressor station operations within both SoCalGas and SDG&E. The scope of operation and maintenance management includes SDG&E's 171.13 miles of Gas Transmission-

operated pipeline assets and the Moreno compressor station. Pipeline and Compression operation and maintenance activities for these SDG&E assets is performed by SDG&E employees, with managerial responsibilities administered by SoCalGas' Gas Transmission Field Operations Managers, a Technical Specialist, and Administrative Clerk personnel; and SDG&E's District Operation Manager, Compressor Station Maintenance Supervisor, and Technical Specialist personnel.

Expenses are allocated to SDG&E based on the percentage of SDG&E employees as compared to the combined total of joint utility (SDG&E and SoCalGas) Gas Transmission organization employees as follows:

Number of SDG&E employees	25
Number SoCalGas employees	94
Total Gas Transmission Employees	119

Calculation: 25 / 119 = 21.01% (SDG&E)
94 / 119 = 78.99% (SoCalGas)

2. Forecast Method

SoCalGas forecasts a $147,000 increase in TY 2019 funding compared to 2016 base year adjusted recorded spend. The TY 2019 forecast was determined through the use of a five-year (2012 through 2016) annual average method. This methodology was selected due to its utilization of recent historical data.

3. Cost Drivers

The incremental cost increase is the result of the selected five-year cost averaging methodology.

C. Technical Services Manager – Cost Center 2200-2172

1. Description of Costs and Underlying Activities

The Technical Services Manager's organization is responsible for departmental operational leadership, staffing management, and technical support services of the combined utilities' Technical Services departments.

Expenses are allocated to SDG&E based on the percentage of SDG&E employees as compared to the combined total of joint utility (SDG&E and SoCalGas) Gas Transmission organization employees as follows:

Number of SDG&E employees	2
Number SoCalGas employees	26
Total Gas Transmission Employees	28

Calculation: 2/28 = 7.14% (SDG&E)
26/28 = 92.86% (SoCalGas)

2. Forecast Method

SoCalGas forecasts a reduction of $123,000 in TY 2019 funding compared to 2016 base year adjusted recorded spend. The TY 2019 forecast was determined through the use of a five-year (2012 through 2016) annual average method. This methodology was selected due to its utilization of recent historical data.

3. Cost Drivers

The reduction in costs is the result of the selected five-year cost averaging methodology.

V. CONCLUSION

The forecast of the TY 2019 costs associated with the operation and maintenance of the SoCalGas gas transmission system as presented in this testimony are reasonable and should be adopted by the Commission. The TY 2019 forecast of $50,918,000 for Non-Shared operating expenses, and $1,016,000 (SoCalGas' Book Expense) for Shared Services Operating and Maintenance expenses, reflects SoCalGas' commitment to sustaining safe and reliable service to our customers while also striving to control operating expenses without compromising safety or regulatory compliance. Approval of the forecasts in this testimony will further SoCalGas' continued objective of providing safe and reliable delivery of natural gas to customers at a reasonable cost. The requests are reasonable and justified in that:

- The activities are consistent with applicable laws, codes, and standards established by local, state, and federal authorities;
- The activities maintain the safety and reliability of the gas transmission system;

- The activities respond to operations, maintenance, and construction needs;
- The activities maintain a qualified workforce; and
- The activities support SoCalGas' commitment to mitigate risks associated with hazards to public and employee safety, infrastructure integrity, and system reliability.

This concludes my prepared direct testimony.

VI. WITNESS QUALIFICATIONS

My name is Beth Musich. I presently hold the position of Director of Gas Transmission for SoCalGas and SDG&E. I have a Bachelor of Science degree in Mechanical Engineering from Colorado School of Mines in Golden, Colorado.

I was originally employed by Pacific Enterprises in 1993 and moved to SoCalGas in 1996. I have held positions of increasing responsibilities in the Marketing, Regulatory and Operations departments. I have held my current position as the Director of Gas Transmission since January 2015.

I have previously testified before the Commission on behalf of Southern California Gas Company and San Diego Gas & Electric Company.