Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2019 General Rate Case
Application: A.17-10-___
Exhibit: SDG&E-06

SDG&E

DIRECT TESTIMONY OF BETH MUSICH

(GAS TRANSMISSION OPERATION)

October 6, 2017

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

317168

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SUMMARY

Table EAM-1
San Diego Gas & Electric Company
Total Gas Transmission O&M

GAS TRANSMISSION (In 2016 $)			
	2016 Adjusted-Recorded (000s)	TY 2019 Estimated (000s)	Change (000s)
Total Non-Shared Services	4,370	5,110	740
Total Shared Services (Incurred)	0	0	0
Total O&M	**4,370**	**5,110**	**740**

San Diego Gas & Electric Company (SDG&E or the Company) requests approval of a Test Year (TY) forecast of $5,110,000 for Gas Transmission Operations and Maintenance (O&M) costs. The forecast is comprised of $5,110,000 for non-shared service activities. SDG&E Gas Transmission does not provide any shared services to Southern California Gas Company or other Sempra affiliates. This forecast represents an increase of $740,000 over 2016 adjusted recorded costs. Approval of the forecasts in this testimony will further SDG&E's 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 SDG&E's forecast of Gas Transmission O&M costs for Non-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 SDG&E-07).

SDG&E DIRECT TESTIMONY OF BETH MUSICH
(GAS TRANSMISSION OPERATIONS)

I. INTRODUCTION

A. Summary of Costs

In this testimony, I sponsor the TY 2019 forecasts of O&M costs for non-shared services for the forecast years 2017, 2018, and 2019 that are associated with Gas Transmission activities for SDG&E. SDG&E requests the California Public Utilities Commission (CPUC or Commission) to adopt its TY 2019 forecast of $5,110,000 for total Gas Transmission O&M expenses. This represents an increase of $740,000 over 2016 adjusted-recorded costs. SDG&E Gas Transmission does not provide any shared services to Southern California Gas Company (SoCalGas) or other Sempra affiliates. The forecasts in this testimony will further SDG&E's 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 following SDG&E 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 SDG&E's natural gas transmission system. Capital expenditures in support of SDG&E's gas transmission operations are addressed by Mr. Bermel and Ms. Musich (Ex. SDGE-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 SDGE-06-WP, for additional information on the activities described herein.

Table EAM-2 summarizes my sponsored costs.

Table EAM-2
San Diego Gas & Electric Company
Total Gas Transmission O&M

GAS TRANSMISSION (In 2016 $)			
	2016 Adjusted-Recorded (000s)	TY 2019 Estimated (000s)	Change (000s)
Total Non-Shared Services	4,370	5,110	740
Total Shared Services (Incurred)	0	0	0
Total O&M	**4,370**	**5,110**	**740**

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.

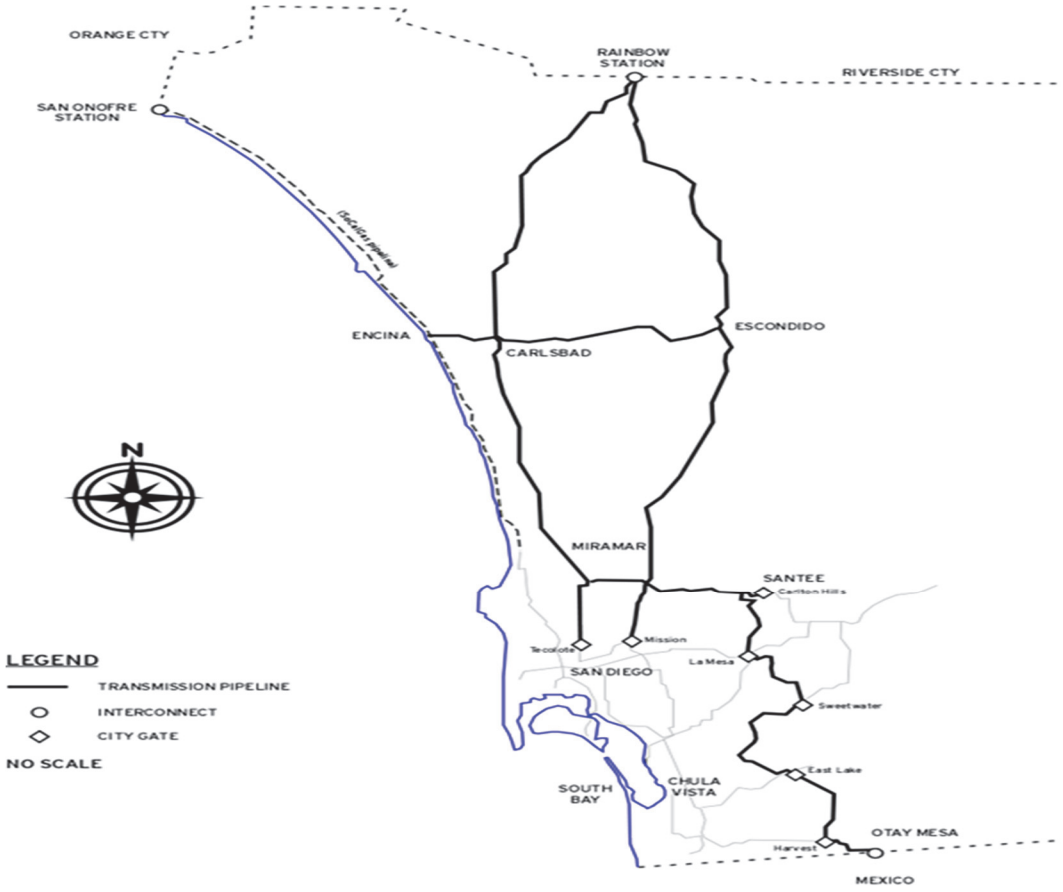
The SDG&E transmission system service territory encompasses the City and County of San Diego. Gas is received into the transmission system from Southern California Gas Company (SoCalGas) facilities through interconnection points at the San Diego/Riverside County border in Rainbow, California and at the San Onofre receipt point in San Clemente, California. The system is also designed to receive re-gasified Liquefied Natural Gas supplies through an interconnection located in the community of Otay Mesa, San Diego.

The Gas Transmission organization is responsible for the safe operation of approximately 175 miles of high-pressure gas pipeline and one compressor station totaling approximately 13,385 horsepower.[1] The United States Department of Transportation (DOT) utilizes engineering criteria (as opposed to the functional approach used by SDG&E) to define the term "transmission line" under 49 C.F.R. 192.3. Using the DOT definition, SDG&E Gas Distribution and Gas Transmission operating units collectively operate approximately 234 miles of "DOT-defined transmission" pipeline, with approximately 59 miles of "DOT-defined transmission" pipeline maintained and operated by the Distribution organization. (*See* Exhibit 04 SDG&E/Orozco-Mejia). The transmission system is designed to receive natural gas from intrastate and interstate pipelines. The quality of the gas is analyzed then measured, and the pipeline-quality gas is delivered to SDG&E's gas distribution system and certain non-core customers.

Figure SDG&E EAM-1 below is a map of the system.

[1] *See* PHMSA EOY 2016 SDG&E GT_GG_Annual_Form_PHMSA_F71002-1.

Figure SDG&E EAM-1
San Diego Gas & Electric Company
SoCalGas Transmission System



C. Gas Transmission Supports SDG&E's 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

SDG&E's 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 SDG&E 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 SDG&E-11).

E. Summary of Cost Related to Fueling our Future (FoF)

As described in the testimony of 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 SDG&E's Gas Transmission FoF cost reductions covered in my testimony.

Table EAM-3
San Diego Gas & Electric Company
Gas Transmission FoF O&M

FoF-Ongoing/<Benefits>	Estimated 2017 (000s)	Estimated 2018 (000s)	Estimated 2019 (000s)
1GT001.000, Compressor Station Operations	-39	-52	-52
Total	**-39**	**-52**	**-52**

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

F. Summary of Aliso Canyon (SoCalGas) Related Costs

Table EAM-4
San Diego Gas & Electric Company
Gas Transmission Aliso O&M

GAS TRANSMISSION			
Workpaper	**2015 Adjustment (000s)**	**2016 Adjustment (000s)**	**Total (000s)**
Total Non-Shared	**0**	**0**	**0**
Total Shared Services	**0**	**0**	**0**
Total O&M	**0**	**0**	**0**

SDG&E Gas Transmission did not provide any assistance nor incur any cost associated with the SoCalGas Aliso Canyon Leak Mitigation incident.

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 SoCalGas' Aliso Canyon Leak Mitigation-related costs, see the Aliso Incident Expenditure Requirements testimony of Andrew Steinberg

(Exhibit 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 TY 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 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 SDG&E-21).

II. RISK ASSESSMENT MITIGATION PHASE AND SAFETY CULTURE

Certain costs supported in my testimony are driven by activities described in SDG&E and SoCalGas' November 30, 2016 Risk Assessment Mitigation Phase (RAMP) Report.[2] The RAMP Report presented an assessment of the key safety risks of SDG&E and SoCalGas 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.

[2] 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.

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
San Diego Gas & Electric Company
Total Gas Transmission O&M

GAS TRANSMISSION (In 2016 $)			
RAMP RISK CHAPTER: SDG&E-10 Catastrophic Damage Involving High-Pressure Pipeline Failure	**2016 Embedded Base Costs (000s)**	**TY2019 Estimated Incremental (000s)**	**Total (000s)**
1GT000.000, Pipeline Operation	54	0	54
1GT002.000, Technical Services	140	0	140
Total	**194**	**0**	**194**

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. This risk is further described in the table below:

RAMP Risk	**Description**
SDG&E-10 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 these risks. Through this review it was determined that the historical embedded programs are appropriate for the required mitigation of risk and for continuation of funding at historic levels. My testimony therefore does not include a request for an increase in funding associated with the continuation of current mitigation programs. 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.

Safety Culture

In addition to the focus on safety through our RAMP efforts, SDG&E 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, complying with legal and regulatory requirements, and providing safe and reliable gas service.

Gas Transmission efforts in support of achieving a culture of safety include the identification of risks, the assignment of specific roles and responsibilities, and developing and activating emergency response efforts to mitigate risks.

Finally, part of SDG&E's commitment to safety is the continuous safety training and education of its SDG&E workforce to ensure the safe operations of our gas transmission system for the benefit of the public as well as the workers. This is demonstrated by conducting recurring refresher training sessions, safety awareness postings at company facilities, Job Site Safety Plans at active construction sites, safety stand-down sessions, and our Injury Illness and Prevention Plans.

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 Station; and
- Technical Services.

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

Table EAM-6
San Diego Gas & Electric Company
Total Non-Shared O&M Services

GAS TRANSMISSION (In 2016 $)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019 Estimated (000s)**	**Change (000s)**
A. Gas Transmission Pipelines	1,342	1,839	497
B. Compressor Station	2,981	3,124	143
C. Technical Services	47	147	100
Total Non-Shared Services	**4,370**	**5,110**	**740**

A. Pipeline Operations

1. Description of Costs and Underlying Activities

The Gas Transmission Pipeline 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 ($295);
- Pipeline Leakage Investigation and Mitigation – (non-capital repairs) ($120); and
- Right-Of-Way Maintenance ($250).

a. Pipeline Operations Support Staffing

In order to maintain employee safety, regulatory compliance and system reliability, an additional District Operations Supervisor is required. This additional position is needed as a 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 operation and maintenance responsibilities includes 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 increasing staffing is $295,000.

Three incremental work vehicles are required for this work, and are reflected in the testimony of Ms. Herrera (Ex. SDGE-21).

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, SDG&E's 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 three OMDs on an annual basis and forecasts $18,000 in associated equipment calibration cost, $102,000 in contract labor expense on an annual basis, and $120,000 in associated non-labor expenses.

c. Right-Of-Way Maintenance

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 pipeline access roadway resurfacing. Maintenance of access roads is critical to ensure compliance is maintained, that pipelines can be accessed in a timely manner, minimal third-party pipeline damages, and prevention of wild fire damage.

B. Compressor Stations

1. Description of Costs and Underlying Activities

The Gas Compression Operations function is responsible for the safe day-to-day operation and maintenance of SDG&E's Moreno compressor station facility 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, 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 and emergency 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 Station 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:

- Station Instrumentation Support Staffing ($150); and
- Peak Load - Extended Maintenance Support Staffing ($66).

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

- Discontinue Operation – Rainbow Compressor Station (-$52).

a. 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 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 $148,000 for labor and $2,000 for non-labor will allow the addition of an Instrument Technical Advisor who has the required skillset to train and mentor less-experienced employees in maintenance and programming new instrumentation and control equipment.

b. Peak Load – Extended Maintenance Support Staffing

The SDG&E system relies on gas supplies delivered through the Moreno compressor station. During peak load operation periods, reliability and availability of the compression equipment and its associated auxiliary systems is critical and is maintained by increasing

staffing. Mechanical and instrumentation personnel are maintained on site during peak usage hours. For this activity, we have forecast $66,000 in incremental labor.

c. Discontinue Operation – Rainbow Compressor Station

Decommissioning the Rainbow compressor station facility eliminates all preventive maintenance and inspection work associated with the compressor equipment and all associated auxiliary equipment located at the facility. Decommissioning the station results in a $52,000 annual cost reduction forecast.

C. Technical Services

1. Description of Costs and Underlying Activities

The Technical Services function includes the activities of design and 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 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 SDG&E's transmission operations are addressed by Mr. Bermel and Ms. Musich (Ex. SDG&E-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. Incremental 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 ($48).

a. Technical Support Staffing

An additional Project Specialist is required. The added position is necessary to comply with contract delegation, material traceability, changes in pipeline location class, and various other operations project support.

IV. CONCLUSION

The forecast of the TY 2019 costs associated with the operation and maintenance of the SDG&E Gas Transmission system as presented in this testimony are reasonable and should be adopted by the Commission. The TY 2019 forecast of $5,110,000 for Non-Shared Operating and Maintenance expenses reflects SDG&E's 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 SDG&E's 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 SDG&E's commitment to mitigate risks associated with hazards to public and employee safety, infrastructure integrity, and system reliability.

This concludes my prepared direct testimony.

V. 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.