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Proceeding: 2016 General Rate Case
Application: A.14-11-XXX
Exhibit: SCG-05

SOCALGAS

DIRECT TESTIMONY OF JOHN L. DAGG

(GAS TRANSMISSION OPERATIONS AND MAINTENANCE)

November 2014

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



TABLE OF CONTENTS

I. INTRODUCTION	1
A. Summary of Costs.....	1
B. Summary of Activities.....	2
C. Gas Transmission Supports SoCalGas’ Safety and Reliability Goals.....	4
D. Safety/Risk Considerations.....	4
E. Cost Forecast Methodology	4
F. Support To/From Other Witnesses.....	5
II. NON-SHARED OPERATIONS AND MAINTENANCE COSTS.....	5
A. Gas Transmission Pipelines.....	6
1. Description of Costs and Underlying Activities.....	6
2. Forecast Method.....	7
3. Cost Drivers	7
B. Compressor Stations	17
1. Description of Costs and Underlying Activities.....	17
2. Forecast Method.....	18
3. Cost Drivers	18
C. Field Engineering and Technical Support	23
1. Description of Costs and Underlying Activities.....	23
2. Forecast Method.....	23
3. Cost Drivers	24
III. SHARED OPERATIONS AND MAINTENANCE COSTS.....	28
A. Director Gas Transmission – Cost Center 2200-0253.....	30
1. Description of Costs and Underlying Activities.....	30
2. Forecast Method.....	31
3. Cost Drivers	31
B. Gas Transmission Manager – Cost Center 2200-0265.....	31
1. Description of Costs and Underlying Activities.....	31
2. Forecast Method.....	32
3. Cost Drivers	32
C. Technical Services Manager – Cost Center 2200-2172.....	32
1. Description of Costs and Underlying Activities.....	32

2. Forecast Method	33
3. Cost Drivers	33
D. Gas Control and SCADA Operations Group (Cost Center 2200-2289).....	34
1. Description of Costs and Underlying Activities.....	34
2. Forecast Method	35
3. Cost Drivers	36
IV. CONCLUSION	38
V. WITNESS QUALIFICATIONS.....	39

APPENDICES

Appendix A: Glossary of Acronyms.....	A-1
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TABLES

Table JLD-1 – Total Gas Transmission O&M.....	1
Table JLD-2 – Total Non-Shared O&M Services.....	6
Table JLD-3 – Total Shared O&M Services	28
Table JLD-4 – Total O&M Shared Services	29

FIGURES

Figure JLD-1 – SoCalGas Transmission System.....	3
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SUMMARY

GAS TRANSMISSION			
Shown in Thousands of 2013 Dollars	2013 Adjusted-Recorded	TY2016 Estimated	Change
Total Non-Shared	28,869	35,757	6,888
Total Shared Services	3,624	5,292	1,668
Total	32,493	41,049	8,556

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Southern California Gas Company (SoCalGas or the Company) requests approval of a Test Year (TY) forecast of \$41,049,000 for Gas Transmission Operations and Maintenance (O&M) costs. The forecast is comprised of \$35,757,000 for non-shared service activities and \$5,292,000 for shared service activities. This forecast represents an increase of \$8,556,000 over 2013 adjusted-recorded costs. Approval of the forecasts in this testimony will further SoCalGas' objective to sustain operational excellence in the provision of safe, reliable delivery of natural gas to customers at a reasonable cost.

The expenditures discussed in this chapter reflects SoCalGas' forecast of Gas Transmission O&M costs for both Non-Shared and Utility Shared Services expense for TY2016. The forecast of Gas Transmission capital-related costs is presented in the Direct Testimony of Raymond Stanford, Exhibit SCG-07.

SOCALGAS DIRECT TESTIMONY OF JOHN L. DAGG
GAS TRANSMISSION OPERATIONS AND MAINTENANCE

I. INTRODUCTION

A. Summary of Costs

I sponsor the TY 2016 forecasts of O&M costs for both non-shared and shared services for the forecast years 2014, 2015, and 2016 that are associated with the Gas Transmission activities for SoCalGas. SoCalGas requests the Commission adopt its TY 2016 forecast of \$41,049,000 for total Gas Transmission O&M expenses, which is comprised of \$35,757,000 for non-shared service activities and \$5,292,000 for shared service activities. This represents an increase of \$8,556,000 over 2013 adjusted-recorded costs. The forecasts in this testimony will further SoCalGas' objective to sustain operational excellence in the provision of safe and reliable delivery of natural gas to customers at reasonable cost.

The purpose of my testimony is to demonstrate that the following SoCalGas Gas Transmission O&M expenses are reasonable and should be approved by the California Public Utilities Commission (CPUC or 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 in the Direct Testimony of Raymond Stanford, Exhibit SCG-07. Unless otherwise noted, all costs in this testimony are shown in thousands of 2013 dollars. In addition to this testimony, please also refer to my workpapers, Exhibit SCG-05-WP, for additional information on the activities described here.

Table JLD-1 summarizes my sponsored costs.

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

GAS TRANSMISSION			
Shown in Thousands of 2013 Dollars	2013 Adjusted-Recorded	TY2016 Estimated	Change
Total Non-Shared	28,869	35,757	6,888
Total Shared Services	3,624	5,292	1,668
Total	32,493	41,049	8,556

1 **B. Summary of Activities**

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

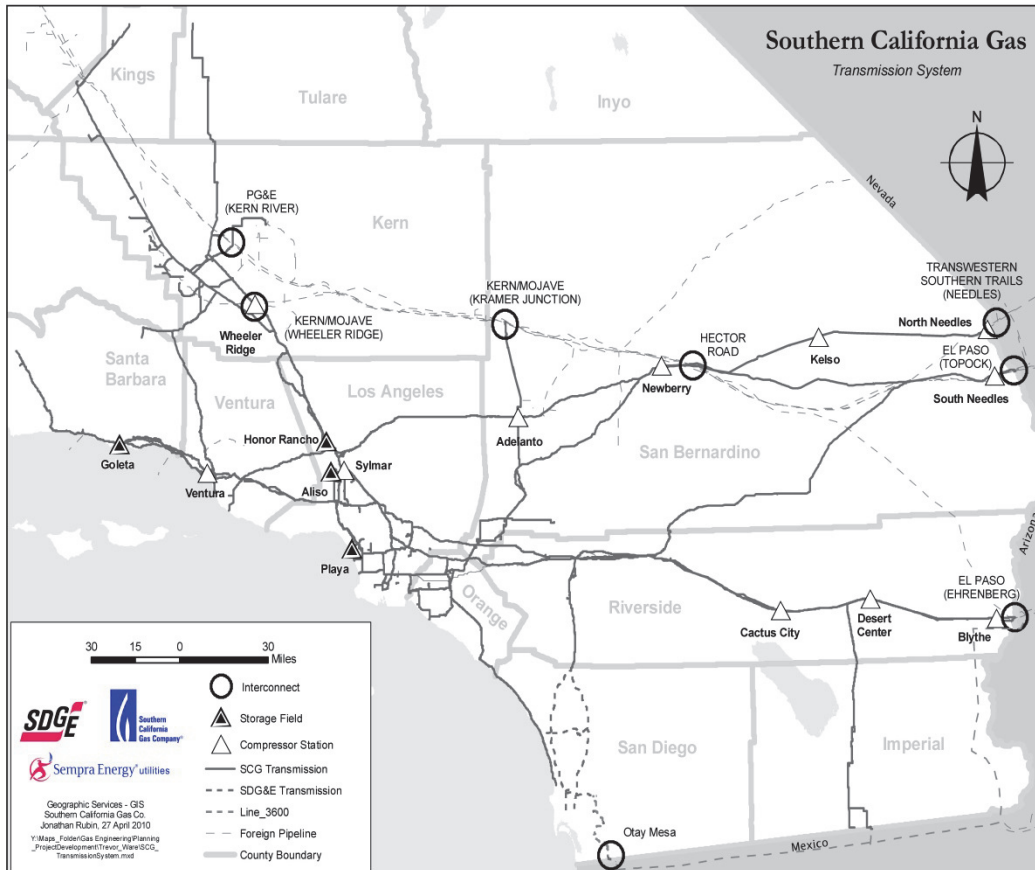
5 The SoCalGas transmission system service territory spans from the California–Arizona
6 border to the Pacific Ocean and from the California–Mexico border to Fresno County.
7 Transmission facilities are operated in the counties of San Bernardino, Riverside, Imperial,
8 Orange, Los Angeles, Ventura, Santa Barbara, Kern, Tulare, Kings, San Luis Obispo and San
9 Diego. The Gas Transmission organization is responsible for the safe operation of
10 approximately 2,972 miles of high-pressure gas pipeline and eleven compressor stations totaling
11 approximately 125,038 horsepower, plus an additional 9,362 horsepower for plant electric
12 generation.¹ The United States Department of Transportation (DOT) utilizes engineering criteria
13 (as opposed to the functional approach used by SoCalGas) to define the term “transmission line”
14 under 49 CFR 192.3. Using the DOT definition, SoCalGas’ Gas Distribution, Gas Transmission,
15 and Storage operating units collectively operate approximately 3,509 miles of “DOT-defined
16 transmission” pipeline, with approximately 765 miles of “DOT-defined transmission” pipeline
17 maintained and operated by the Distribution organization. In addition, approximately 228 miles
18 of high pressure pipelines that are not defined as transmission under DOT regulations are
19 operated by the Gas Transmission organization. The system is designed to receive natural gas
20 from interstate pipelines and various California offshore and onshore production sources,
21 monitor gas quality, measure and deliver pipeline-quality gas to SoCalGas’ gas distribution
22 system. The quality of the gas is analyzed then measured, and the pipeline-quality gas is
23 delivered to SoCalGas’ gas distribution system, gas storage fields, and certain non-core
24 customers.

25 This system was first developed and placed into service in the 1930s with the discovery
26 of natural gas in the San Joaquin Valley. In the late 1940s and early 1950s, the Blythe system
27 was expanded to provide for an inter-connection with the Kinder Morgan (formerly El Paso)
28 Interstate Pipeline to accept gas from the Permian Basin in Texas at the California border.
29 These facilities remain in use today. In the last sixty five years, the system has been expanded to
30 accept natural gas supplies from the San Juan Basin in New Mexico, the Rocky Mountain area of

¹ *From* End of Year 2013 SCG GT_GG_Annual_Form_PHMSA_F71002-1.

1 Wyoming, and from Canadian sources. More recently, additional system upgrades were
2 completed to provide for receipt of re-gasified liquefied natural gas supplies through the Blythe
3 System. Figure SCG-JLD-1 below is a map of the system.

4 **Figure JLD-1**
5 **Southern California Gas Company**
6 **SoCalGas Transmission System**



7 In total, the gas transmission system is designed to receive, on a firm basis, 3.875 billion
8 cubic feet Bcf per day of interstate and intrastate gas supplies at its receipt points, provided
9 sufficient demand continues. With a combination of pipeline receipts and storage withdrawal,
10 the system in total is capable of sending out up to six Bcf per day to customers. The recorded
11 single day peak send-out is over 5.3 Bcf. Annual send-out has averaged 980.0 Bcf over the last
12 five years with a peak send out of 1.034 trillion cubic feet in 2012. SDG&E's annual send-out
13 has averaged 125.1 Bcf over the last five years with a peak send-out of 140.4 Bcf in 2012.

1 **C. Gas Transmission Supports SoCalGas' Safety and Reliability Goals**

2 Gas Transmission is organized to provide safe and reliable delivery of service to
3 customers at reasonable cost and to operate the system in accordance with all applicable codes
4 and regulations. Key objectives of Gas Transmission are to operate safely, provide reliable
5 service, meet all regulatory agency compliance obligations, and provide customers with value
6 quality services.

7 **D. Safety/Risk Considerations**

8 SoCalGas' Risk Policy witnesses, Diana Day (Exhibit SCG-02) and Douglas Schneider
9 (Exhibit SCG-03), describe how risks are assessed and factored into cost decisions on an
10 enterprise-wide basis. Other aspects of risk mitigation in the SoCalGas system, some of which
11 address Gas Transmission, are addressed under the Transmission Integrity Management
12 Program, described in the Direct Testimony of Maria Martinez (Exhibit SCG-08).

13 Operation and maintenance activities for the gas transmission system are primarily
14 influenced by customer usage, market forces, and available pipeline capacity. Given these key
15 factors, operational risk impacts are considered by Gas Transmission through daily operating
16 decision-making activities. This time-sensitive critical method of risk assessment is utilized
17 throughout the daily management of the gas transmission system, and is based on effective
18 utilization of available real-time data and resources. This method of analytical examination
19 considers loss of operational ability resulting from potential system constraints, external
20 influences, resource availability and cost considerations.

21 **E. Cost Forecast Methodology**

22 The TY2016 forecast of expense was determined by first reviewing five years (2009
23 through 2013) of historical recorded costs. The recorded costs were adjusted to remove expenses
24 associated with any one-time events, and by making other applicable accounting adjustments.
25 The results of this process were then used to calculate three, four, and five-year linear-trends, and
26 three, four, and five-year, annual-averaging results. Differences in the results of each of the
27 methodologies evaluated proved to be small in scale.

28 Rather than simply relying on multi-year averaging principles to determine this cost
29 forecast, I considered the reasonableness of the various results to identify the best available, and
30 most applicable, predictor of future period costing. Through this process, I determined that there
31 is greater value in utilizing a shorter, more recent historical period result (three years) to forecast

1 a near-term future period of expense, especially when the expenses and activities are associated
2 with a continually evolving, regulatory and safety awareness-guided industrial environment, such
3 as Gas Transmission operations.

4 Next, I reviewed operational standards, and new and proposed O&M activities to identify
5 and quantify any new and emerging activities expected to be realized over the term of the GRC
6 period, and developed cost estimates for these activities. These future year incremental cost
7 estimates were then added to the three-year annual average adjusted-recorded results. The
8 results of these calculations establish my TY2016 forecast.

9 For costs identified as subject to non-standard escalation, the TY2016 forecast was
10 determined based on applying a zero-based (base year 2013) approach, and, depending on the
11 nature of the specific item of expense, were then adjusted annually, based either on applicable
12 multi-year averaging or other specific (state or federal) future year inflation indexes. Specific
13 forecast assumptions on these expenses are described in detail in each individual category of cost
14 in my workpapers (Exhibit SCG-05-WP).

15 **F. Support To/From Other Witnesses**

16 My testimony provides support for certain environmental costs forecasts that are
17 discussed in the Environmental Services testimony of Jill Tracy (Exhibit SCG-17), fleet
18 acquisition costs forecasts that are discussed in the Fleet Services and Facility Operations
19 testimony of Carmen Herrera (Exhibit SCG-15), and Operator Qualification cost forecasts that
20 are discussed in the Gas Distribution testimony of Frank Ayala (Exhibit SCG-04). Where this
21 testimony discusses Environmental, Fleet, Operator Qualification or related topics, those related
22 exhibits provide additional information.

23 **II. NON-SHARED OPERATIONS AND MAINTENANCE COSTS**

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

- 26 • Gas Transmission Pipelines;
- 27 • Compressor Stations; and
- 28 • Field Engineering and Technical Support.

29 Table JLD-2 summarizes the total non-shared O&M forecasts for the listed cost
30 categories.

Table JLD-2
Southern California Gas Company
Total Non-Shared O&M Services

GAS TRANSMISSION			
Shown in Thousands of 2013 Dollars	2013 Adjusted-Recorded	TY2016 Estimated	Change
A. Gas Transmission Pipelines	17,286	22,502	5,216
B. Compressor Stations	9,040	10,013	973
C. Field Engineering and Technical Support	2,543	3,242	699
Total	28,869	35,757	6,888

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, all associated monitoring, metering, and control facilities, odorization equipment, and real-time operating data telemetry communications between gas facilities and SoCalGas' Gas Control and SCADA (Supervisory Control and Data Acquisition System) Operations department. Pipeline Operations also performs leak surveys of all transmission pipeline facilities, 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 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, above and below-ground pipeline appendances, and the continuous need to track changes in regulatory requirements and adjust operations

1 accordingly to uphold compliance and satisfy all permitting and reporting
2 requirements.²

3 **2. Forecast Method**

4 The TY2016 forecast was determined through the use of a three-year (2011 through
5 2013) annual average method, unless otherwise indicated in the Cost Drivers section below.
6 This methodology was selected because the more recent historical period better reflects the
7 expenses and activities anticipated for Gas Transmission operations in the near term. Future year
8 incremental cost estimates were then added to the three-year annual average adjusted-recorded
9 results. The results of these calculations establish my TY2016 forecast.

10 For costs identified as subject to non-standard escalation in the Cost Drivers discussion
11 below, the TY2016 forecast was determined based on applying a zero-based (base year 2013)
12 approach, and, depending on the nature of the specific item of expense, were then adjusted
13 annually, based either on applicable multi-year averaging or other specific (state or federal)
14 future year inflation indexes. Specific forecast assumptions on these expenses are described in
15 detail in each individual category of cost in my workpapers (Exhibit SCG-05-WP).

16 **3. Cost Drivers**

17 Increased regulatory requirements and changes in Company policy relating to
18 maintenance and enhancement of the integrity of the transmission pipeline system drive a need
19 for additional labor and non-labor costs in the following areas:

- 20 • DOT Pipeline Safety Fee;
- 21 • City of Long Beach Pipeline Lease Agreement;
- 22 • Oxnard Pipeline District – Workload Increase;
- 23 • Knowledge Management/Succession Staffing;
- 24 • Operator Qualification – Training Increase;
- 25 • First Responder – Communication and Interaction Field Staffing;
- 26 • Cathodic Protection System Enhancements;
- 27 • Leakage Survey Safety Improvements;
- 28 • Aerial Leakage Survey Requirement;
- 29 • Administrative Support Staffing;
- 30 • Critical Facility - Security Upgrades;

² See also Ex. SCG-17, Direct Testimony of Jill Tracy.

- Specialized Skill-Set Training;
- Post-PSEP Incremental O&M; and
- Pipeline Valves and Infrastructure Compliance Maintenance.

a. DOT Pipeline Safety Fee

The DOT, through the Pipeline and Hazardous Materials Safety Administration (PHMSA), is authorized to assess and collect user fees to fund its pipeline safety program activities.³ The TY2016 fee amount was calculated using a non-standard escalation method, based on a sliding three-year averaging of both the annual rate-per-mile fee and the annual number of miles of pipeline that the fee assessment is applicable to. The sliding annual forecasting calculation is based on actual recorded per-mile assessed fee amounts for years 2012 through 2014, and estimated per-mile fee amounts for years 2015 and 2016. The resulting TY2016 forecast of \$922,000 is 14.10% above the base year (2013) adjusted recorded amount.

b. Long Beach Pipeline Lease

The increase in the Long Beach Pipeline Lease category is attributable to non-standard escalation, as provided for within the lease agreement held between SoCalGas and the City of Long Beach. The annual increase in expense was determined based on an estimated annual percentage of change in the United States All Urban Consumer Pricing Index, as published in June 2014, for years 2015 and TY2016. The application of this index in calculating the annual lease inflation amount is consistent with the terms and conditions set forth within the lease agreement. The TY2016 inflation rate was based on a sliding three-year averaging estimate of the applicable annual percentages of change for years 2015 and 2016. The sliding annual forecasting calculation utilized actual recorded rates of change for years 2012 through 2014, and estimated amounts for years 2015 and 2016. The result is a TY2016 non-labor forecast of \$5,200,000, which is 6.25% above the base year (2013) adjusted recorded amount.

c. Oxnard Pipeline District – Workload Increase

The Oxnard Pipeline District is comprised of two separate operating base locations. One is located in the City of Goleta and the other is in the City of Ventura. Combined, these operating bases are responsible for the operation and maintenance of approximately 300 miles of pipeline, and all associated gas measurement, pressure regulation, and non-core customer equipment and facilities. The work at these base locations is routinely performed under the

³ See 49 USCS § 60301.

1 direct supervision of a Field Operations Supervisor position. The Field Operations Supervisor
2 position provides direct front-line supervision and work direction to employees in their
3 performance of retrofit alterations and repairs, and operation and maintenance activities. The
4 position is critical to successful execution of all day-to-day operations. Gas Transmission has
5 identified the need to increase supervisory support in this area. This requirement for an
6 additional \$17,000 in labor costs is the result of an increase in workload activity related to
7 ongoing pipeline O&M retrofit activity, for which continuation and growth in this work is
8 forecast to continue. This addition directly supports the continued safety and reliability of
9 pipeline operations in compliance with applicable laws and regulations.

10 One incremental work vehicle is also required for this position and is reflected in the
11 testimony of Carmen Herrera, Exhibit SCG-15.

12 **d. Knowledge Management/Succession Staffing**

13 Knowledge Management consists of driving a culture of ongoing transference of
14 historical operational knowledge through use of innovative processes and technologies. Gas
15 Transmission has been working with the Human Resources organization to develop a broad
16 organization-wide strategy to embed knowledge management into the culture. The objective is
17 for effective knowledge management to become “the way we do our work,” in anticipation of the
18 turnover of key personnel. This strategy identifies the critical skills and attributes that must be
19 transitioned to new employees prior to the departure of critical work unit staffing and aids in the
20 mitigation of risk associated with not having experienced personnel in place who are fully
21 prepared to take on the daily operating responsibilities of key operational positions. Funding of
22 an additional \$55,000 for labor and \$5,000 for non-labor is required to enable a less-experienced
23 employee to shadow a retiring employee in a critical operations position within the Gas
24 Transmission Pipelines department for six months prior to the departure of the more-experienced
25 employee.

26 **e. Operator Qualification - Increased Employee Qualifications**

27 Maintaining a skilled, qualified and dedicated workforce is critical to SoCalGas’ success.
28 It is through the efforts of employees, that SoCalGas is able to continue to deliver safe and
29 reliable service to its customers and maintain its pipeline infrastructure. An integral component
30 of overall workforce proficiency is the Operator Qualification program. Operator Qualification
31 compliance is closely monitored and employees are trained, either formally or informally,

1 whenever significant changes occur in a work task or as required under SoCalGas' Gas
2 Standards, CPUC General Order 112-E, and 49 CFR 192.

3 SoCalGas is expanding its Operator Qualification program in order to better align the
4 program with broader gas industry leading practices (which primarily adhere to the American
5 Society of Mechanical Engineers (ASME) B31Q standards) and to increase the level and subject
6 matter discipline range of employee qualifications. Additionally, this expansion of the Operator
7 Qualification program is responsive feedback from the CPUC auditors at SDG&E's CPUC
8 operations audit on July 16, 2013.⁴

9 With SoCalGas increasing the overall number of Operator Qualification-covered tasks for
10 pipeline employees by 74 new tasks, impacted employees will be required to demonstrate
11 proficiency in each of the new covered task activities and will be subject to decreased intervals
12 between re-evaluations. The current program requires all tasks to be re-evaluated once every
13 five years. Under the expanded program, these same re-evaluations, along with the 74 additional
14 new tasks, will now be re-evaluated on a three-year cycle. Incremental funding of an additional
15 \$638,000 for overtime labor is required to implement this expansion of the Operator
16 Qualification program.

17 **f. First Responder - Communication and Interaction Field**
18 **Staffing**

19 The primary cost drivers for the forecasted increase of \$510,000 for labor and \$30,000
20 for non-labor in the category of First Responder – Communication and Interaction Field Staffing
21 are new legal and regulatory requirements. California State Assembly Bill 56 (AB 56), effective
22 January 1, 2012, requires that owners and operators meet once per calendar year with local fire
23 departments that have fire suppression responsibilities where gas lines are located to discuss and
24 review contingency plans for emergencies involving the intrastate transmission and distribution
25 lines within the jurisdiction of the local fire department.⁵ California State Senate Bill 44
26 (SB 44), effective January 1, 2012, directs the CPUC to establish compatible emergency
27 response standards, in consultation with first responders, to require owners and operators of
28 intrastate transmission and distribution lines to implement emergency response plans that are
29 compatible with PHMSA emergency plan regulations.⁶ The objective of those PHMSA

⁴ SDG&E Operations Audit by CPUC Safety and Enforcement Division (July 16, 2013).

⁵ Cal. Pub. Util. Code § 956.5.

⁶ Cal. Pub. Util. Code § 956(b).

1 regulations, as discussed in greater detail in the Direct Testimony of Raymond Stanford (Exhibit
2 SCG-07), is to heighten awareness of pipeline operations and safety, through enhanced
3 communications with various stakeholders, including local public officials, emergency officials,
4 excavators, land developers and the people who live and or work near gas transmission pipelines
5 and compressor stations.⁷

6 Additionally, gas system operators are now required to file a gas transmission and storage
7 safety report twice per year.⁸ The added positions will be involved with collecting information
8 required for the completion and filing of these reports.

9 Six additional Full Time Equivalent (FTE) resources are required, beginning in 2015, to
10 support the communication efforts specific to emergency response, which would include
11 specialized and technical dialog exchanges about response capabilities, scenario planning, and
12 hazardous training to raise the level of emergency response for First Responders and the
13 Company. The need for more resources is driven by the vast territory the workgroup must cover,
14 which covers twelve counties and over 180 fire agencies.

15 Six incremental work vehicles are also required for these positions, and are reflected in
16 the Direct Testimony of Carmen Herrera, Exhibit SCG-15.

17 **g. Cathodic Protection System Enhancements**

18 My forecast includes additional costs of \$474,000 in labor and \$309,000 in non-labor to
19 support enhancement of SoCalGas' Gas Transmission Cathodic Protection System. SoCalGas
20 has enhanced its cathodic protection practices to require that cathodic protection levels of 850
21 millivolts be maintained on its pipelines in all cases, as opposed to the 100 millivolt shift criteria
22 that was previously applied to some pipelines. SoCalGas will implement this policy
23 enhancement through a plan consisting of pipeline re-coat projects and the installation of
24 additional rectifiers and deep well anodes where the 100 millivolt shift criteria is currently being
25 utilized. Although the 100 millivolt shift criteria is a proven, safe, industry-recognized and
26 technically-sound practice, utilizing the new 850 millivolt criteria, and completing the re-coating
27 work and new rectifier/deep well anode installations, will provide greater flexibility for
28 troubleshooting down areas and achieve a higher safety factor.

⁷ Public Safety: Pipeline Operator Public Awareness Program; Final Rule, 70 Fed. Reg. 28833-28842
(posted May 19, 2005) (*codified in* 49 CFR 192, 195).

⁸ See Cal. Pub. Util. Code § 958.5.

1 An additional six FTEs are required to support the increased monitoring and maintenance
2 of the Cathodic Protection System and the installation of additional rectifiers and deep well
3 anodes, and other equipment being installed. See the Direct Testimony of Raymond Stanford,
4 Exhibit SCG-07, for the capital expenditures related to this Cathodic Protection System
5 enhancement. Additional non-Labor funding is required in 2015 and 2016 for additional parts,
6 materials, and utility bills associated with the new rectifiers.

7 Six incremental work vehicles are required for these positions, and are reflected in the
8 Direct Testimony of Carmen Herrera, Exhibit SCG-15.

9 **h. Leakage Survey Policy Change**

10 In order to enhance pipeline safety and reliability, SoCalGas is enhancing its internal
11 policies to require instrumented leak surveys in all class locations beginning in 2016. The
12 implementation of instrumented leakage surveys will provide a higher degree of ability for
13 detecting lower level leakage indications along these high-density populated pipeline areas. This
14 safety enhancement drives additional forecasted labor costs of \$806,000 and non-labor costs of
15 \$55,000.

16 Per 49 CFR 192.5, a “class location unit” is an onshore area that extends 220 yards (200
17 meters) on either side of the centerline of any continuous one- mile (1.6 kilometers) length of
18 pipeline. Each separate dwelling unit in a multiple dwelling unit building is counted as a
19 separate building intended for human occupancy. A Class 1 location is an offshore area or any
20 class location unit that has ten or fewer buildings intended for human occupancy. A Class 2
21 location is any class location unit that has more than ten but fewer than 46 buildings intended for
22 human occupancy.

23 Company operating standards currently provide for the performance of visual leakage
24 surveys in Class 1 and 2 location areas. This method for conducting leakage surveys has
25 historically been performed in conjunction with the performance of conducting pipeline patrols
26 while located within this same pipeline class location. In response to a scheduled change in
27 Company operating procedural standards to take place in 2016, leakage surveys within the
28 Class 1 and 2 areas will be required to be conducted utilizing instrumented leakage detection
29 equipment. Company policy will no longer provide for visual surveys to be conducted in these
30 class location areas simultaneously with pipeline patrols.

1 A requirement for an additional eleven positions system-wide has been identified to
2 perform this work. As a result of no longer allowing pipeline patrols as a form of leak survey for
3 Class 1 and 2 areas, current practices must change. Some locations will now need two
4 employees to conduct the leak surveys, whereas before, one employee could competently
5 complete them. In addition, this policy change will result in an increase in instrument leak
6 survey mileage. The increase is estimated to be approximately 1,810 miles (200% increase) in
7 Class 1 and 2 locations. In addition, approximately 362 miles of the 1,810 miles are not
8 accessible, and must be leak surveyed with another type of specialized instrument than the
9 traditional method, as spelled out in greater detail below.

10 Eleven incremental work vehicles are required for these positions, and are reflected in the
11 Direct Testimony of Carmen Herrera, Exhibit SCG-15.

12 **i. Aerial Instrumented Leakage Survey Requirement**

13 As mentioned above, approximately 362 miles of the additional 1,810 miles are not
14 accessible and must be leak surveyed with aerial leak detection technologies rather than the
15 traditional ground based methods. Additional non labor funding of \$200,000 is required for the
16 aerial technologies associated with completing instrumented leak survey for the inaccessible
17 areas.

18 **j. Administrative Clerical Workload – Staffing Requirement**

19 An additional two administrative support positions are required due to additional
20 workload related to new incremental fieldwork activities. The incremental increase forecasted
21 for Administrative Clerical Workload – Staffing Requirement is \$136,000 of labor costs. The
22 additional work planned for assignment to these resources is partially the result of transitioning
23 from SoCalGas' historical Meter and Regulator Records Control System the Systems,
24 Applications and Products (SAP) database processing system. This change results in a
25 significant amount of incremental data entry activity. The new positions will also assist in
26 mitigating any backlog of work order entry requirements that could result in the prevention of
27 required compliance work orders from being issued until the previous completed inspections
28 have entered into the system. In addition, these positions will also assist in the processing of
29 other applicable general office clerical functional responsibilities.

1 **m. Post-PSEP Incremental O&M**

2 In their joint Pipeline Safety Enhancement Plan (PSEP), first filed in August 2011 in
3 Rulemaking 11-02-019 (the Pipeline Safety Rulemaking), SoCalGas and SDG&E requested
4 approval and recovery of the revenue requirements resulting from capital and O&M forecasts of
5 the PSEP for years 2011 through 2015, to coincide with SoCalGas and SDG&E's anticipated
6 next General Rate Case cycles. The PSEP included a proposed Valve Enhancement Plan, and
7 through implementation of the approved PSEP,⁹ SoCalGas and SDG&E will install valves,
8 actuators, and related transmission system control components to isolate and depressurize critical
9 pipelines in the event of a rupture; installed enhanced flow measurement and telemetry
10 equipment at new pipeline locations; and install new check valves and other enhancements to
11 prevent the back-flow of gas into major pipeline isolation sections to be depressurized.

12 The cost forecasts submitted in 2011 for the PSEP included incremental O&M costs to
13 support the operation and maintenance of the enhanced valves and related infrastructure to be
14 installed as part of the PSEP through 2015. It was contemplated that in subsequent years (2016
15 and beyond) O&M costs associated with facilities and equipment previously-installed as part of
16 PSEP would be recovered in the utilities' TY2016 General Rate Case funding requests as part of
17 their overall operation and maintenance of their gas infrastructure. Consistent with this
18 approach, this cost category includes the TY2016 ongoing costs of operating and maintaining the
19 enhanced valves and related infrastructure installed through 2015 as part of PSEP.¹⁰

20 This cost category essentially incorporates the 2011 incremental O&M cost estimate that
21 was submitted in support of the PSEP at that time. Because implementation of the PSEP is
22 approximately one-year behind the schedule initially contemplated when those estimates were
23 prepared, however, this forecast incorporates the incremental O&M cost previously forecast to
24 be expended in year 2015 of the PSEP Valve Enhancement Plan to now be expended in TY2016.
25 Reliance on the 2011 estimate of incremental valve O&M costs to be incurred in 2015 as the TY

⁹ The PSEP was reviewed by the Commission in A.11-11-002 and approved in D.14-06-007. Actual PSEP costs will be reviewed and approved through a reasonableness review application process. Through that application process, SoCalGas and SDG&E will seek recovery of actual incremental O&M costs associated with operating and maintaining the enhanced valves through 2015.

¹⁰ In D.14-06-007, the Commission approved the PSEP, but not recovery of the forecasted costs of implementing the PSEP. Instead, actual PSEP costs will be reviewed and approved through a reasonableness review application process. Through that application process, SoCalGas and SDG&E will seek recovery of actual incremental O&M costs associated with operating and maintaining the enhanced valves through 2015.

1 2016 cost estimate results in an incremental labor forecast of \$64,000 and non-labor costs of
2 \$86,000.

3 One additional work vehicle is requested for this work, and is reflected in the Fleet and
4 Facility Operations testimony of Carmen Herrera (Exhibit SCG-15).

5 As discussed in the following section, the 2011 incremental valve maintenance cost
6 estimates were determined to be potentially insufficient to fully support all of the O&M activities
7 associated with Gas Transmission facilities upgraded or installed as part of PSEP through 2015.
8 Accordingly, in the following category, additional incremental O&M cost forecasts are included
9 for TY2016.

10 **n. Pipeline Valve and Infrastructure Compliance Maintenance**

11 As explained above, valves, actuators, and related transmission system control
12 components newly-installed or retrofitted as part of the approved PSEP must be maintained by
13 Gas Transmission as part of SoCalGas' ongoing O&M activities. Through 2015, the incremental
14 O&M costs necessary to maintain newly-installed or retrofitted equipment approved and
15 installed as part of PSEP are included within the scope of PSEP. Beginning in 2016, the
16 incremental costs for maintaining these enhanced facilities will no longer be recovered through
17 the PSEP and instead, will be addressed under SoCalGas' General Rate Case. Based on my
18 review of the initial cost forecasts submitted back in 2011 in support of the PSEP, I have
19 concluded that the incremental costs necessary to maintain compliance with applicable laws,
20 regulations and internal policies are likely to be higher than what was contemplated at that time.
21 Accordingly, this cost category reflects incremental labor costs of \$454,000 in labor and
22 \$155,000 in non-labor expense to maintain these new or enhanced systems beginning in 2016.

23 This cost estimate was developed under a zero-based estimate formula for valve work at a
24 complex station providing remote control valve/automatic shut-off valve and overpressure
25 protection with dual communications and pressure reads. The cost estimating formula captures
26 expenses associated with the performance of annual calibrations, vault inspections, valve
27 maintenance (operations and lubrication), testing and allowance for troubleshooting and
28 unscheduled maintenance.

29 Five incremental work vehicles are required for this work, and are reflected in the
30 testimony of Carmen Herrera, Exhibit SCG-15.

1 An expansion of the SoCalGas SCADA system was also approved under the PSEP
2 decision, and those costs are reflected separately in Section III.C of my testimony.

3 **B. Compressor Stations**

4 **1. Description of Costs and Underlying Activities**

5 The Gas Compression Operations function is responsible for the safe day-to-day
6 operation and maintenance of SoCalGas' eleven compressor station facilities and related
7 infrastructure. This responsibility includes operating and maintaining 41 main compressor
8 engines and ancillary equipment, all associated monitoring, metering, and control facilities,
9 odorization equipment, filtration vessels, cooling equipment, and real-time operating data
10 telemetry communications between compression facilities and the Gas Control and SCADA
11 Operations department. Additional responsibilities include:

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

25 Applicable Regulatory requirements cover a broad array of topics, including: air quality;
26 asbestos; lead; polychlorinated biphenyls; natural resources; ground water; storm water; process
27 waste water; hazardous waste and materials; and above- and below-ground tanks. In order to
28 uphold compliance with applicable regulations and permitting and reporting requirements, Gas
29 Transmission continually tracks and analyzes changes in regulatory requirements and adjusts
30 operations accordingly.¹¹ Regulatory changes require enhanced monitoring, record-recording
31 and reporting practices. These include Reciprocating Internal Combustion Engines / National

¹¹ See Ex. SDG&E-17, Direct Testimony of Jill Tracy, Environmental Services.

1 Emissions Standards for Hazardous Air Pollutants (Reciprocating Internal Combustion Engines
2 National Emissions Standards for Hazardous Air Pollutants) Subpart ZZZZ, Greenhouse Gas
3 mitigation at the state and federal level, and local Air Quality Management District rules that
4 require additional data to be recorded and available for verification of compliance.

5 **2. Forecast Method**

6 The TY2016 forecast was determined through the use of a three-year (2011 through
7 2013) annual average method, unless otherwise indicated in the Cost Drivers section below.
8 This methodology was selected because the more recent historical period better reflects the
9 expenses and activities anticipated for Gas Transmission operations in the near term. Future year
10 incremental cost estimates were then added to the three-year annual average adjusted-recorded
11 results. The results of these calculations establish my TY2016 forecast.

12 For costs identified as subject to non-standard escalation in the Cost Drivers discussion
13 below, the TY2016 forecast was determined based on applying a zero-based (base year 2013)
14 approach, and, depending on the nature of the specific item of expense, were then adjusted
15 annually, based either on applicable multi-year averaging or other specific (state or federal)
16 future year inflation indexes. Specific forecast assumptions on these expenses are described in
17 detail in each individual category of cost in my workpapers, Exhibit SCG-05-WP.

18 **3. Cost Drivers**

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

- 22 • Transmission Environmental Monitoring System Administration;
- 23 • Operator Qualification – Training Increase;
- 24 • State Water Board Permit Fees;
- 25 • Knowledge Management/Succession Staffing;
- 26 • Compressor Stations Workload Increase;
- 27 • Specialized Skill-Set Training;
- 28 • Ventura Station Compression Upgrade – Maintenance Staffing; and
- 29 • Critical Facility – Security Upgrades.

1 **a. Transmission Environmental Monitoring System**
2 **Administration**

3 Gas Transmission has installed Continuous Parameter Monitoring Systems at seven Gas
4 Transmission Compressor Stations in response to federal and state mandated regulations.¹² The
5 system, the Transmission Environmental Monitoring System, addresses the monitoring and data
6 collection requirements for the regulatory changes noted above. Previously, and presently at
7 other locations, these requirements are being met manually by utilizing various station logs, and
8 data down loads to spreadsheets. The regulations do not allow or otherwise provide for any
9 acceptance in data gaps. Because of these prescriptive requirements, data accuracy, consistency
10 and reliability of the system are essential to meet and sustain compliance. The result of
11 achieving this level of compliance is the unavoidable increase in overtime occurrences for which
12 incremental labor funding of \$90,000, and the annual contractual expense of \$41,000 in non-
13 labor associated with maintaining the Transmission Environmental Monitoring System, is
14 required.

15 **b. Operator Qualification Increased Employee Qualifications**

16 Maintaining a skilled, qualified and dedicated workforce is critical to SoCalGas' success.
17 It is through the efforts of employees, that SoCalGas is able to continue to deliver safe and
18 reliable service to its customers and maintain its pipeline infrastructure. An integral component
19 of overall workforce proficiency is the Operator Qualification program. Operator Qualification
20 compliance is closely monitored and employees are trained, either formally or informally,
21 whenever significant changes occur in a work task or as required under SoCalGas' Gas
22 Standards, CPUC General Order 112-E, and 49 CFR 192.

23 SoCalGas is expanding its Operator Qualification program in order to better align the
24 program with broader gas industry leading practices (which primarily adhere to the American
25 Society of Mechanical Engineers (ASME) B31Q standards) and to increase the level and subject
26 matter discipline range of employee qualifications. Additionally, this expansion of the Operator
27 Qualification program is responsive feedback from the CPUC auditors at SDG&E's CPUC
28 operations audit on July 16, 2013.¹³

¹² See, e.g., 40 CFR 63, Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines).

¹³ SDG&E Operations Audit by CPUC Safety and Enforcement Division (July 16, 2013).

1 With SoCalGas increasing the overall number of Operator Qualification-covered tasks for
2 pipeline employees by 74 new tasks, impacted employees will be required to demonstrate
3 proficiency in each of the new covered task activities and will be subject to decreased intervals
4 between re-evaluations. The current program requires all tasks to be re-evaluated once every
5 five years. Under the expanded program, these same re-evaluations, along with the 74 additional
6 new tasks, will now be re-evaluated on a three-year cycle. Incremental funding of an additional
7 \$236,000 for overtime labor is required to implement this expansion of the Operator
8 Qualification program.

9 **c. State Water Board Permit Fees (Non Standard Escalation)**

10 The California State Water Resources Control Board publishes a fee schedule applicable
11 to the assessment of annual fees for wastewater permitting and water quality certifications issued
12 by the agency and Regional Water Quality Control Boards. A revised fee schedule is normally
13 adopted by the agency each September, with the revised fees becoming effective from the
14 previous July 1 to the following June 30. Fee schedules are published in the California Code of
15 Regulations.¹⁴ A TY2016 fee forecast of \$77,000 was developed based on a five-year (2009
16 through 2013) average methodology, resulting in an annual fee increase equal to 14.8%
17 throughout the forecast period. The TY2016 fee forecast was developed based on a five-year
18 (2009 through 2013) trend methodology, resulting in an annual fee increase equal to 14.8%
19 throughout the forecast period.

20 **d. Knowledge Management Succession Staffing**

21 Knowledge Management consists of driving a culture of ongoing transference of
22 historical operational knowledge through use of innovative processes and technologies. Gas
23 Transmission has been working with the Human Resources organization to develop a broad
24 organization-wide strategy to embed knowledge management into the culture. The objective is
25 for effective knowledge management to become “the way we do our work,” in anticipation of the
26 turnover of key personnel. This strategy identifies the critical skills and attributes that must be
27 transitioned to new employees prior to the departure of critical work unit staffing, and aids in the
28 mitigation of risk associated with not having experienced personnel in place and fully prepared
29 to take on the daily operating responsibilities of key operational positions. Funding of an
30 additional \$55,000 for labor and \$5,000 for non-labor is required to enable a less-experienced

¹⁴ See 23 Cal. Code Reg. 9, Div. 3, Art. 1.

1 employee to shadow a retiring employee in a critical operations position within the Compressor
2 Stations department for six months prior to the departure of the more-experienced employee.

3 **e. Compressor Stations Workload Increase**

4 Two additional Station Technician positions are required to address increased work
5 activity and maintenance on compressor station main engine and compressor units. The
6 incremental work is the result of a combination of new emissions and other environmental
7 regulations, as well as aging legacy engines and compressors.

8 Regulatory changes require enhanced monitoring, record-recording and reporting
9 requirements. These include Reciprocating Internal Combustion Engines/National Emission
10 Standards for Hazardous Air Pollutants Subpart ZZZZ, greenhouse gas mitigation at the state and
11 federal level, and local Air Quality Management District rules. The regulations also require
12 more rigorous engine operations record-keeping, which results in incremental engine and
13 equipment maintenance in order to achieve full permit compliance. In addition, main units and
14 compressors are required to operate at optimum efficiency and require immediate emission
15 performance maintenance and repairs in order to operate in compliance with the stricter
16 compliance parameters. Portable emissions analyzer testing, engine power cylinder balancing
17 on-line monitoring, ignition system integrity daily inspections, increased engine analyzer testing,
18 and increased labor to replace catalysts are some examples of this incremental work.

19 A majority of compression within the stations is carried out by legacy engines and
20 compressor units. Many of these units have been in-service in excess of fifty years. Life
21 extension research and development has been conducted on these units in the past to verify that
22 their utilization has been maximized to the extent possible, without sacrificing availability and
23 reliability. This has resulted in an increase in labor associated with replacing parts due to end-of-
24 life (wear and tear plus mechanical and thermal cycling). In addition, legacy equipment requires
25 significant knowledge transfer and training at the local compressor station level such that the
26 critical skills and attributes associated with this equipment must be transitioned to new
27 employees prior to the departure of key critical work unit staffing. Incremental labor forecasts of
28 \$136,000 are required to fund this activity.

29 **f. Specialized Training**

30 As explained above, maintaining a skilled, qualified and dedicated workforce is critical to
31 SoCalGas' success. It is through the efforts of employees, that SoCalGas is able to continue to

1 deliver safe and reliable service to its customers and maintain its pipeline infrastructure. In an
2 effort to further support development and expertise of employees' skillsets and to enhance safety,
3 Gas Transmission has implemented a program to provide specialized third-party training of
4 critical and non-technical safety-related skills. This additional training will cover the following
5 topics: compressor electronics' processes; new technology emission control systems; and
6 operation of construction and other non-routine mobile equipment. This training is being
7 implemented in recognition of operational safety changes associated with the operation of
8 construction and other non-routine mobile equipment, and technical developmental changes that
9 impact design, construction and servicing procedures applicable to a wide range of measurement
10 and cathodic protection equipment. The incremental non-labor forecast for this additional
11 training is \$25,000.

12 **g. Ventura Compressor Station - Compression Upgrade**

13 The Ventura Compressor Station is a 3,300 horsepower station that is utilized to provide
14 increased suction pressure to the La Goleta Storage Field and has been operated mainly based on
15 gas injection activity at the La Goleta storage field. Future utilization of this station to meet
16 summer full injection capacity at La Goleta and also meet the summer load requirements on the
17 coastal system impacted by a reduction in producer gas delivery into the gas transmission system
18 by Pacific Offshore Pipeline Company will require an estimated 15,000 horsepower capability at
19 the Ventura station. This maximum horsepower estimate is based on total horsepower, and
20 includes the current 3,300 horsepower of existing compression. To address this requirement,
21 four additional compression maintenance staffing positions at a forecast labor cost of \$182,000
22 and non-labor cost of \$3,000 are required to support the additional installed 12,700 horsepower
23 and associated auxiliary equipment.

24 An additional two work vehicles are required for these positions, and are reflected in the
25 testimony of Carmen Herrera, Exhibit SCG-15.

26 **h. Critical Facility - Security Upgrades**

27 In accordance with pipeline security guidelines issued in April 2011 by the Department
28 of Homeland Security/Transportation Security Administration's Pipeline Security Division,
29 within what is now the Office of Transportation Sector Network Management, new rules
30 requiring pipeline operators to implement improvements in the safety and security of critical
31 identified pipeline operational facilities are required to be implemented.

1 In executing its responsibility for national pipeline security, the Office of Transportation
2 Sector Network Management has utilized the Pipeline Security Information Circular, issued on
3 September 5, 2002, by the Department of Transportation's Office of Pipeline Safety as the
4 primary federal guideline for industry security. Complementing this document, and also adopted
5 by the Transportation Security Administration, is the DOT-issued Pipeline Security Contingency
6 Planning Guidance of June 2002. In order to comply with these new requirements, SoCalGas
7 has implemented 24-hour, seven day-a-week guard patrol service at three specific compressor
8 station facility locations, at a forecasted non-labor cost of \$383,000.

9 **C. Field Engineering and Technical Support**

10 **1. Description of Costs and Underlying Activities**

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

14 Responsibilities include: right-of-way maintenance, providing on-site technical expertise
15 to Pipeline and Compression Operations field personnel, and troubleshooting technical issues for
16 both capital and O&M projects. Capital expenses in support of SoCalGas' transmission
17 operations are addressed in the Direct Testimony of Raymond Stanford, Exhibit SCG-07.
18 Technical Services also provides environmental support services to the Pipeline and
19 Compression Operations groups, which is necessary to support their day-to-day operations.
20 Specifically, Technical Services provides services that address each of the regulatory disciplines
21 (air, water, asbestos, lead, polychlorinated biphenyls, natural resources, etc.) as previously
22 described for those Operating groups.

23 **2. Forecast Method**

24 The TY2016 forecast was determined through the use of a three-year (2011 through
25 2013) annual average method, unless otherwise indicated in the Cost Drivers section below.
26 This methodology was selected because the more recent historical period better reflects the
27 expenses and activities anticipated for Gas Transmission operations in the near term. Future year
28 incremental cost estimates were then added to the three-year annual average adjusted-recorded
29 results. The results of these calculations establish my TY2016 forecast.

30 For costs identified as subject to non-standard escalation in the Cost Drivers discussion
31 below, the TY2016 forecast was determined based on applying a zero-based (base year 2013)

1 approach, and, depending on the nature of the specific item of expense, were then adjusted
2 annually, based either on applicable multi-year averaging or other specific (state or federal)
3 future year inflation indexes. Specific forecast assumptions on these expenses are described in
4 detail in each individual category of cost in my workpapers (Exhibit SCG-05-WP).

5 **3. Cost Drivers**

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

- 9 • Right-of-Way Land Management;
- 10 • Knowledge Management/Succession Staffing;
- 11 • First Responder Technical Advisor Staffing ;
- 12 • Operator Qualification Field Specialist Staffing;
- 13 • Construction Advisor Staffing; and
- 14 • Document Management Administrator Staffing.

15 **a. Right-of-Way Land Management (Non Standard Escalation)**

16 Gas Transmission forecasts a TY2016 incremental non-labor cost increase of \$2,400,000
17 for Right-of-Way Land Management activities. Gas Transmission prioritizes right-of-way
18 projects into three different categories high, medium and low, based on their level of importance.
19 Projects categorized as having a high priority are defined as those projects in which employee
20 and public safety are at risk, projects driven by a specific DOT/CPUC compliance requirement
21 and those projects in which the Company is required to remove previously-abandon pipe.
22 Projects categorized as having a medium priority are those projects which, at the moment, do not
23 pose any risk to employee or public safety, but which, over a period of time, can become a high
24 priority project, resolving pipeline exposures, repair of pipeline/station access roads and
25 horticultural trimming for access to various pipeline attributes as inspections dates become
26 closer. Projects categorized as having a low priority are those driven simply to improve the
27 appearance of a Gas Transmission and System Operations asset, without adding any structural
28 value or improvement. In addition to these three categories, projects are prioritized within their
29 categories based on the urgency of safety and compliance and can move up or down in priority
30 designation based on a broad range of non-controllable external forces.

1 This activity consists of vegetation removal, storm damage mitigation, access roadway
2 resurfacing, right-of-access and pipeline placement signage repairs and replacement, and
3 exposed pipeline rust mitigation. Right-of-way maintenance keeps patrol roads in useable
4 condition for safe access and travel, prevents overgrowth, and conforms to right-of-access
5 obligations imposed by landowners. Storm damage repair is performed on pipeline exposures,
6 road washouts, and landslides affecting facilities. Painting is performed on pipeline spans due to
7 wind, water and fire damage, and general atmospheric-generated deterioration. Vegetation
8 management is a highly-regulated requirement of State and Federal Land Management
9 authorities, and local City/County fire agency ordinances. This vegetation requirement has
10 become more critical in recent years due to potential risk of wild land fire on or around these
11 areas and the potential for heavy machinery to come in contact with a pipeline.

12 The cost of this maintenance is increasing due to stricter habitat preservation guidelines
13 and restrictions. The regulations protect against the disturbance of nesting habitats of various
14 endangered wildlife species (desert tortoises, burrowing owls, eagles, foxes, etc.) that make their
15 homes along the routes of the pipeline. In addition, changes in Company policy will require
16 instrumented leak survey in Class 1 and 2 areas, which will require greater accessibility to utilize
17 instruments to perform leakage survey. Additional funding is also requested to actively
18 implement a project for determining the depth of pipelines crossing farmland at risk of being
19 struck by farm equipment (rippers). These pipelines, when installed, were placed at a minimum
20 depth of 36-inches. Over the period of many years, ongoing farming operations and atmospheric
21 influences have resulted in the erosion of the ground cover over these lines, which must now be
22 addressed expeditiously. SoCalGas has implemented a program to proactively identify those
23 lines for which the minimum cover requirement has been compromised, and to initiate actions to
24 effectively lower or relocate the pipeline, as appropriate, to further maintain their safe operation
25 and the safety of the surrounding communities.

26 Every land maintenance project is incurring increased cost associated with requirements
27 for deploying certified environmental protection inspectors, in addition to requiring all personnel
28 deployed on the project to have proper training in the identification of potential restricted
29 disturbance areas, the recent presence of protected species, and approved methods for protecting
30 against encroachment or disturbance.

1 **b. Knowledge Management/Succession Staffing**

2 Knowledge Management consists of driving a culture of ongoing transference of
3 historical operational knowledge through use of innovative processes and technologies. Gas
4 Transmission has been working with the Human Resources organization to develop a broad
5 organization-wide strategy to embed knowledge management into the culture. The objective is
6 for effective knowledge management to become “the way we do our work,” in anticipation of the
7 turnover of key personnel. This strategy identifies the critical skills and attributes that must be
8 transitioned to new employees prior to the departure of critical work unit staffing, and aids in the
9 mitigation of risk associated with not having experienced personnel in place and fully prepared
10 to take on the daily operating responsibilities of key operational positions. Funding of an
11 additional \$55,000 for labor and \$5,000 for non-labor is required to enable a less-experienced
12 employee to shadow a retiring employee in a critical operations position within the Field
13 Engineering and Technical Support group for six months prior to the departure of the more-
14 experienced employee.

15 **c. First Responder Coordinator Staffing**

16 With increased outreach to be conducted with fire, law enforcement and other public
17 officials to comply with recently-added regulatory requirements (see the discussion in Section
18 II.A.3.f above), Gas Transmission is adding a position to coordinate and manage the associated
19 documentation requirements at a TY2016 forecasted labor cost of \$90,000 and non-labor cost of
20 \$10,000. This position will also assist in development of written emergency response scenario
21 procedures and coordinating with Field Operations, Emergency Services and Public Affairs
22 organizations to address required annual communications and meetings. One additional vehicle
23 is also required for this position, and is reflected in the testimony of Carmen Herrera, Exhibit
24 SCG-15.

25 **d. Operator Qualification Coordinator Staffing**

26 Maintaining a skilled, qualified and dedicated workforce is critical to SoCalGas’ success.
27 It is through the efforts of employees, that SoCalGas is able to continue to deliver safe and
28 reliable service to its customers and maintain its pipeline infrastructure. An integral component
29 of overall workforce proficiency is the Operator Qualification program. Operator Qualification
30 compliance is closely monitored and employees are trained, either formally or informally,

1 whenever significant changes occur in a work task or as required under SoCalGas' Gas
2 Standards, CPUC General Order 112-E, and 49 CFR 192.

3 SoCalGas is expanding its Operator Qualification program in order to better align the
4 program with broader gas industry leading practices (which primarily adhere to the American
5 Society of Mechanical Engineers (ASME) B31Q standards) and to increase the level and subject
6 matter discipline range of employee qualifications. Additionally, this expansion of the Operator
7 Qualification program is responsive feedback from the CPUC auditors at SDG&E's CPUC
8 operations audit on July 16, 2013.¹⁵

9 With SoCalGas increasing the overall number of Operator Qualification-covered tasks for
10 pipeline employees by 74 new tasks, impacted employees will be required to demonstrate
11 proficiency in each of the new covered task activities and will be subject to decreased intervals
12 between re-evaluations. The current program requires all tasks to be re-evaluated once every
13 five years. Under the expanded program, these same re-evaluations, along with the 74 additional
14 new tasks, will now be re-evaluated on a three-year cycle. Incremental funding of an additional
15 \$90,000 for labor and \$10,000 for non-labor is required to implement this expansion of the
16 Operator Qualification program.

17 **e. Construction Advisor Staffing**

18 This position is required in order to better provide direct construction inspection support
19 from within the Gas Transmission Technical Services organization. The position will work
20 directly with the pipeline operating districts to monitor and communicate construction progress,
21 assist in the mitigation of pipeline operating and maintenance scheduling issues, and directly
22 manage job site safety enforcement and adherence with applicable construction policies. The
23 position will also work with and direct other job site inspectors and contract administrators to
24 better achieve consistency in documentation and records control. Incremental labor costs of
25 \$20,000 and non-labor costs of \$5,000 are forecasted for this additional activity. One additional
26 vehicle is also required for this position, and is reflected in the testimony of Carmen Herrera,
27 Exhibit SCG-15.

28 **f. Document Management Administrator**

29 One additional FTE, at an incremental forecasted labor cost of \$68,000 for TY 2016, is
30 required to support project reconciliations, confirm that records are verifiable, traceable, and

¹⁵ SDG&E Operations Audit by CPUC Safety and Enforcement Division (July 16, 2013).

1 complete, in both hard-copy form and within the Company's various document management
 2 control systems, including the High Pressure Pipeline Database record management system.
 3 This position's focus will be to physically manage and oversee the assembly of complete record
 4 files and the security of their inventory storage. The position will also manage the uploading of
 5 these documents onto the company's various electronic database server systems.

6 **III. SHARED OPERATIONS AND MAINTENANCE COSTS**

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

- 9 • Director Gas Transmission;
- 10 • Gas Transmission Manager;
- 11 • Gas Transmission Technical Services Manager; and
- 12 • Gas Control and SCADA Operations Group.

13 I am sponsoring the forecasts on a total incurred basis, as well as the shared services
 14 allocation percentages related to those costs. Those percentages are presented in my shared
 15 services workpapers, Exhibit SCG-05-WP, along with a description explaining the activities
 16 being allocated.

17 The dollar amounts allocated to affiliates are presented in the Shared Services and Shared
 18 Assets Billing Policies and Process testimony of Mark A. Diancin, Exhibit SCG-25.

19 Table JLD-3 summarizes the total shared O&M forecasts for the Shared Services
 20 functional groups.

21 **Table JLD-3**
 22 **Southern California Gas Company**
 23 **Total Shared O&M Services**

GAS TRANSMISSION			
Shown in Thousands of 2013 Dollars	2013 Adjusted-Recorded	TY2016 Estimated	Change
Total Shared Services (Incurred)	3,624	5,292	1,668
Total (Incurred)	3,624	5,292	1,668

24 The purpose of the Shared Services section of my testimony is to demonstrate that the
 25 following SoCalGas and SDG&E Shared Services, O&M forecast expenditures are reasonable
 26 and should be adopted by the California Public Utilities Commission (CPUC). Forecast
 27 expenditures are to support management of operations, maintenance, engineering support, and

1 Gas Control and SCADA services related to gas transmission operations at both SoCalGas and
2 SDG&E.

3 SDG&E Gas Transmission operations are managed and supported, in part, by SoCalGas
4 management personnel. This section addresses material changes in shared services expenses in
5 TY2016 compared to 2013 base year adjusted incurred expenses. These expenses support
6 overall Gas Transmission and System Operations Administrative Management, Pipeline and Gas
7 Compression Operations, Field Engineering and Technical Support Administration, and Gas
8 System and SCADA Operations.

9 Forecast expenditures are consistent with SoCalGas and SDG&E's overarching objective
10 to sustain operational excellence in the safe and reliable receipt, transportation and delivery of
11 natural gas to customers at the lowest reasonable cost to ratepayers.

12 In total, SoCalGas requests the Commission adopt the TY2016 forecast of \$5,292,000 for
13 Gas Transmission Shared Services. SDG&E does not provide any Gas Transmission-related
14 shared services to SoCalGas.

15 Total TY2016 forecast funding requirements for SoCalGas Gas Transmission Shared
16 Services, by Gas Transmission and System Operations, Shared Service Functional Group,
17 covered under this testimony, are shown in Table JLD-4.

18 **Table JLD-4**
19 **Southern California Gas Company**
20 **Total O&M Shared Services**

GAS TRANSMISSION			
Shown in Thousands of 2013 Dollars	2013 Adjusted-Recorded	TY2016 Estimated	Change
A. Director Gas Transmission	317	344	27
B. Gas Transmission Manager	488	413	-75
C. Technical Services Manager	443	949	506
D. Gas Control and SCADA	2,376	3,586	1,210
Total	3,624	5,292	1,668

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

- 23 • Director-of Gas Transmission;
- 24 • Gas Transmission Manager;

- Gas Transmission Technical Services Manager; and
- Gas Control and SCADA.

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 center organizations, and charged as a direct expenditure of cost 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 amount of incurred cost that is allocated out to SDG&E varies by individual cost center, as the allocations are based on applicable cost center-specific cost allocation methodologies. Individual cost center cost allocation methodologies are described below.

A. Director Gas Transmission – Cost Center 2200-0253

1. Description of Costs and Underlying Activities

The Director of 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, an Administrative Associate, and an Administrative 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	31
Number SoCalGas employees	250
Total Gas Transmission Employees	281 ¹⁶
Calculation:	31/281 = 11.03% (SDG&E)
	250 / 281 = 88.97% (SoCalGas)

¹⁶ Employee assignment data, as recorded December 17, 2013, in Human Resources Department Organizational Charts.

1 **2. Forecast Method**

2 SoCalGas forecasts a \$27,000 increase in TY2016 funding, compared to 2013 base year
3 adjusted recorded spend. The TY2016 forecast was determined through the use of a three-year
4 (2011 through 2013) annual average method, unless otherwise indicated in the Cost Drivers
5 section below. This methodology was selected because the more recent historical period better
6 reflects the expenses and activities anticipated for Gas Transmission operations in the near term.
7 Future year incremental cost estimates were then added to the three-year annual average
8 adjusted-recorded results. The results of these calculations establish my TY2016 forecast. By
9 comparison, differences between the three-year annual averaging method and the four and five-
10 year annual averaging methods would have resulted in \$3,000 and \$8,000, respectively, lesser
11 increases over the 2013 base year adjusted recorded amount.

12 **3. Cost Drivers**

13 Incremental cost increases in this category are primarily driven by labor market forces
14 and the need to hire and retain a skilled and qualified workforce.

15 **B. Gas Transmission Manager – Cost Center 2200-0265**

16 **1. Description of Costs and Underlying Activities**

17 The Gas Transmission Manager organization is responsible for departmental operational
18 leadership, staffing management, operation and maintenance performance, regulatory
19 compliance, financial and work measurement performance and reporting for Gas Transmission
20 pipeline and compressor station operations within both utilities. The scope of responsibility for
21 operation and maintenance management includes SDG&E’s 171.13 miles of Gas Transmission-
22 operated pipeline assets, and the Moreno and Rainbow compressor stations. Compressor station
23 operation and maintenance activities for these assets are performed by SDG&E employees, with
24 managerial responsibilities administered by the SoCalGas Gas Transmission Manager, Field
25 Operations Manager, Technical Specialist, Administrative Clerk positions, and the SDG&E
26 District Operation Manager, Compressor Station Maintenance Supervisor, and Technical
27 Specialist managerial personnel.

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

1	Number of SDG&E employees	29
2	Number SoCalGas employees	83
3	Total Gas Transmission Employees	112 ¹⁷

4 Calculation: 29/112 = 25.89% (SDG&E)
5 83/112 = 74.11% (SoCalGas)

6 **2. Forecast Method**

7 SoCalGas forecasts a \$75,000 reduction in TY2016 funding, compared to 2013 base year
8 adjusted recorded spend. The TY2016 forecast was determined through the use of a three-year
9 (2011 through 2013) annual average method, unless otherwise indicated in the Cost Drivers
10 section below. This methodology was selected because the more recent historical period better
11 reflects the expenses and activities anticipated for Gas Transmission operations in the near term.
12 Future year incremental cost estimates were then added to the three-year annual average
13 adjusted-recorded results. The results of these calculations establish my TY2016 forecast.

14 The reduction is the result of the selected three-year annual averaging forecasting
15 methodology. By comparison, differences between the three-year annual averaging method and
16 the four and five-year annual averaging methods would have resulted in \$21,000 and \$31,000,
17 respectively, greater reductions compared to the 2013 base year adjusted recorded amount.

18 **3. Cost Drivers**

19 Incremental cost increases in this category are primarily driven by labor market forces
20 and the need to hire and retain a skilled and qualified workforce.

21 **C. Technical Services Manager – Cost Center 2200-2172**

22 **1. Description of Costs and Underlying Activities**

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

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

¹⁷ Employee assignment data, as recorded December 17, 2013, in Human Resources Department Organizational Charts.

1	Number of SDG&E employees	2
2	Number SoCalGas employees	26
3	Total Gas Transmission Employees	28 ¹⁸

4 Calculation: $2/28 = 7.14\%$ (SDG&E)
5 $26/28 = 92.86\%$ (SoCalGas)

6 **2. Forecast Method**

7 SoCalGas forecasts a \$506,000 increase in TY2016 funding compared to 2013 base year
8 adjusted recorded spend. \$16,000 of this increase is attributable to SoCalGas’ selection of the
9 three-year annual averaging forecasting methodology. By comparison, differences between the
10 three-year annual averaging method and the four and five year annual averaging methods would
11 have resulted in \$29,000 and \$51,000, respectively, greater level of increases compared to the
12 2013 base year adjusted recorded amount.

13 **3. Cost Drivers**

14 The cost represented for the Technical Services Manager support achievement of the key
15 objectives of Gas Transmission to operate safely, provide reliable service, and meet all regulatory agency
16 compliance obligations. Specifically, the Technical Services Manager group provides services that
17 address each of the regulatory disciplines (air, water, asbestos, lead, polychlorinated biphenyls,
18 natural resources, etc.) that Gas Transmission assets are continuously subject to being in
19 compliance with. In support of SoCalGas and SDG&E’s continued achievement of these key
20 objectives, SoCalGas forecasts an incremental TY2016 costing increase, attributable to the need
21 for additional Transmission Environmental Monitoring System Staffing and Field Safety,
22 Compliance and Quality Assurance Staffing, and the Gas Control and SCADA group.

23 **a. Transmission Environmental Monitoring System and Staffing**

24 The Transmission Environmental Monitoring System is a Gas Transmission –
25 Compression Operations system-wide program designed to provide consistent compliance
26 protocols and reporting within each of the eleven compressor stations. SoCalGas has identified a
27 requirement to add a Transmission Environmental Monitoring System Administrator and a
28 Transmission Environmental Monitoring System Technical Advisor/Trouble-Shooter position at
29 a forecast labor cost of \$180,000 and non-labor cost of \$110,000. These two positions will serve

¹⁸ Employee assignment data, as recorded December 17, 2013, in Human Resources Department Organizational Charts.

1 these needs at all eleven stations and work in conjunction to support the administration,
2 reporting, and Quality Assurance/Quality Control data analysis produced by the Transmission
3 Environmental Monitoring System database, and to work directly with Gas Compression
4 operations and maintenance personnel on issues relating to Programmable Logic Controllers,
5 proper maintenance of other applicable physical equipment, and will serve to also provide
6 Reciprocating Internal Combustion Engines National Emission Standards for Hazardous Air
7 Pollutants/1160 coordination, compliance and operational oversight.¹⁹

8 The reporting and monitoring requirements associated with Transmission Environmental
9 Monitoring System address various Air Emissions Rules, including Reciprocating Internal
10 Combustion Engines/National Emission Standards for Hazardous Air Pollutants/Maximum
11 Achievable Control Technology for various air quality districts (Mojave Desert Air Quality
12 Management District, South Coast Air Quality Management District, Ventura Air Pollution
13 Control District, San Joaquin Valley Air Pollution Control District),²⁰ which require maintaining
14 compliance with onerous data collection, record-keeping and reporting requirements. Examples
15 of these reporting requirements include fifteen-minute catalyst temperature, pressure
16 differentials, and horsepower deviations recordings, and annotating these and other engine
17 alarms, and documenting corrective measures taken including alarm/correction times.

18 **b. Field Safety, Compliance and Quality Assurance Staffing**

19 SoCalGas has identified a requirement to add two Safety, Compliance and Quality
20 Assurance positions at a forecast labor cost of \$180,000 and non-labor cost of \$20,000. The
21 positions will be responsible for development and implementation of new programs and support
22 refurbishment of existing related target programs. Included within the scope of these programs
23 is SoCalGas' self-audit program. The self-audits are to help drive continuous improvement and
24 risk mitigation in each of the areas of focus described above.

25 **D. Gas Control and SCADA Operations Group (Cost Center 2200-2289)**

26 **1. Description of Costs and Underlying Activities**

27 The Gas Transmission and SCADA Operations Group is responsible for real-time
28 operation and control of gas flows through the pipeline system.

¹⁹ See Ex. SCG-17, Direct Testimony of Jill Tracy.

²⁰ See Ex. SCG-17, Direct Testimony of Jill Tracy.

1 The Gas Control units' responsibilities consist of 24/7 staffing for control room
2 monitoring and the remote control of pipeline and compression facilities on the Transmission
3 system. Control room functions include ensuring pipeline safety parameters as established by
4 Federal and State agencies, analyzing and responding to abnormal and/or emergency situations
5 on the pipeline system, coordinating necessary pipeline shutdowns for maintenance and/or
6 emergency measures, and serving as a communication center between various departments
7 conducting maintenance on the Transmission pipeline system.

8 The SCADA Operations unit manages the planning, operation and maintenance of the
9 SCADA system that provides for remote monitoring and operation of valves, compressors,
10 pressure regulation equipment, and gas flow across the system.

11 The scope of responsibilities the collective organization is responsible for includes
12 compliance with federal Control Room Management regulations²¹ regarding alarm management,
13 system change management, fatigue mitigation, system operating experience, and personnel
14 training requirements.

15 The costs represented for this department support all of the Control Room and SCADA
16 Operations functions as described above.

17 Expenses are allocated to SDG&E based on the percentage of SDG&E customer meters,
18 as compared to the combined total of joint utility (SDG&E and SoCalGas) customer meters, as
19 follows:

20	Number of SDG&E meters	867,123
21	Number SoCalGas meters	5,849,110
22	Total customer meters	6,716,233 ²²
23	Calculation:	$867,123/6,716,233 = 12.91\%$ (SDG&E)
24		$5,849,110/6,716,233 = 87.09\%$ (SoCalGas)

25 2. Forecast Method

26 The TY2016 forecast was determined through the use of a three-year (2011 through
27 2013) annual average method, unless otherwise indicated in the Cost Drivers section below.
28 This methodology was selected because the more recent historical period better reflects the

²¹ 49 CFR 192.631 (Control Room management).

²² Employee assignment data, as recorded December 17, 2013, in Human Resources Department Organizational Charts.

1 expenses and activities anticipated for Gas Transmission operations in the near term. Future year
2 incremental cost estimates were then added to the three-year annual average adjusted-recorded
3 results. The results of these calculations establish my TY2016 forecast.

4 **3. Cost Drivers**

5 SoCalGas is forecasting a \$1,210,000 increase in TY2016 funding for the cost center.
6 The funding increase is attributable to staffing increases related to the following cost drivers:

- 7 • SCADA Cyber Security Safeguard Enhancements;
- 8 • Supervisor and Support Staffing;
- 9 • Post PSEP Incremental O&M;
- 10 • SCADA System Infrastructure Maintenance; and
- 11 • Knowledge Management/Succession Staffing.

12 **a. SCADA Cyber Security Safeguard Enhancements**

13 Pending legislation, along with current leading practices,²³ drive a requirement to
14 increase staffing by one FTE SCADA position at a TY2016 forecast labor cost of \$90,000 and
15 non-labor cost of \$3,000. Intrusions upon SCADA networks have been increasing from both
16 domestic and foreign sources. To successfully mitigate the risks associated with cyber safety
17 threats, multiple layers of protection are required in order to secure telemetry data and prevent
18 the data from being compromised. While the overall mitigative measures being implemented by
19 SoCalGas include improvements being managed by SoCalGas' Information Technology and
20 Protection department, additional leading practices are required, including, but not limited to:

- 21 • Setting security baselines for SCADA network devices;
- 22 • Monitoring and reviewing system logs on a daily basis;
- 23 • Configuring and updating firewalls within the SCADA network,

²³ See Executive Order 13366, *Improving Infrastructure Cybersecurity* (instructing Department of Homeland Security to expand its Enhanced Cybersecurity Services and instructing the Secretary of Commerce to have the National Institutes of Standards and Technology create a Cybersecurity Framework that will “include a set of standards, methodologies, procedures, and processes that align policy, business, and technological approaches to address cyber risks”); Presidential Policy Directive 21, *Critical Infrastructure Security and Resilience* (Feb 2013) (advancing a national effort to strengthen and maintain secure, functioning, and resilient critical infrastructure); Cyber Security Act of 2013 (“A bill to provide for an ongoing, voluntary public-private partnership to improve cybersecurity, and to strengthen cybersecurity research and development, workforce development and education, and public awareness and preparedness, and for other purposes”).

- 1 • Maintaining anti-virus protections and frequently scanning the network for
- 2 vulnerabilities;
- 3 • Testing penetration and vulnerability of the Gas Transmission SCADA network on an
- 4 annual basis;
- 5 • Documenting security policies and standards; and
- 6 • Training employees on leading SCADA cyber security practices.

7 **b. Supervisor and Support Staffing**

8 SoCalGas has identified a requirement for an increase of one Gas Control Supervisor
9 position and one Control room staff position for TY2016, at a forecast labor cost of \$180,000
10 and non-labor cost of \$10,000, to manage the forecasted increase in Control Room-related
11 workload due to increases in federal regulatory²⁴ and post-PSEP implementation requirements.

12 **c. Post-PSEP Incremental O&M**

13 The addition of one Gas Controller position per shift for TY2016 results in a requirement
14 to increase staffing in this classification by a total of five controllers. This requirement is driven
15 by the increase in additional real-time operating data-telemetry communication sites installed
16 under PSEP. This additional telemetry enhances flow measurement and telemetry monitoring
17 used to determine major pipeline isolation sections that would need to be depressurized in any
18 catastrophic pipeline rupture event.

19 There is also a requirement for an increase of one FTE SCADA position for TY2016 to
20 manage the forecasted increase in SCADA-related workload. This work will increase the
21 number and associated work activity resulting from the increase in telemetric sites and telemetry
22 data associated with automatic shut off and remote controlled valves installed or upgraded as part
23 of PSEP.

24 Collectively, the additional FTEs drive a forecasted labor cost increase of \$496,000. The
25 non-labor forecast costs of \$176,000 are to support the incremental operating expenses
26 associated with annual tele-communications operating costs.

27 **d. SCADA System Infrastructure Maintenance**

28 Additional non-labor funding of \$185,000 is required to support annual operating cost
29 associated with the ongoing addition of real-time operating data-telemetry communication sites
30 throughout the pipeline system. The funding is specific to SoCalGas' planned addition of sixty

²⁴ See 49 CFR §§ 192 and 195; Pipeline Safety: Control Room Management/Human Factors, Docket No. PHMSA – 2007-27954), Amendment Nos. 192-117 and 195-97.

1 (60) monitoring sites applicable to Gas Distribution operated DOT-defined pipelines that are
2 operated at or above 20% Specified Minimum Yield Stress, and the addition of twenty-five (25)
3 new Gas Transmission pipeline monitoring sites.

4 **e. Knowledge Management/Succession Staffing**

5 Knowledge Management consists of driving a culture of ongoing transference of
6 historical operational knowledge through use of innovative processes and technologies. Gas
7 Transmission has been working with the Human Resources organization to develop a broad
8 organization-wide strategy to embed knowledge management into the culture. The objective is
9 for effective knowledge management to become “the way we do our work,” in anticipation of the
10 turnover of key personnel. This strategy identifies the critical skills and attributes that must be
11 transitioned to new employees prior to the departure of critical work unit staffing, and aids in the
12 mitigation of risk associated with not having experienced personnel in place and fully prepared
13 to take on the daily operating responsibilities of key operational positions. Funding of an
14 additional \$50,000 for labor and \$3,000 for non-labor is required to enable a less-experienced
15 employee to shadow a retiring employee in a critical operations position within the Gas Control
16 and SCADA Operations group for six months prior to the departure of the more-experienced
17 employee.

18 **IV. CONCLUSION**

19 The forecast of the TY 2016 costs associated with the operation and maintenance of the
20 SoCalGas gas transmission system as presented in this testimony are reasonable and should be
21 adopted by the Commission. The TY 2016 forecast of \$35,757,000 for Non-Shared operating
22 expenses, and \$5,292,000 (SoCalGas’ Book Expense) for Shared Services Operating and
23 Maintenance expenses reflects SoCalGas’ commitment toward sustaining safe and reliable
24 service to our customers while also striving to control operating expenses without compromising
25 safety or regulatory compliance.

26 This concludes my prepared direct testimony.

1 **V. WITNESS QUALIFICATIONS**

2 My name is John L. Dagg. I presently hold the position of Director Gas Transmission
3 and System Operations for SoCalGas and SDG&E. I hold a Bachelors of Science degree in
4 Mechanical Engineering from California State University, Northridge.

5 I have a broad background in engineering and natural gas pipeline operations with over
6 30 years of experience with SoCalGas. I have held a number of technical and managerial
7 positions with increasing responsibility in the Gas Engineering, Gas Operations, Gas
8 Distribution, and Gas Transmission Departments. In these positions, I have been responsible for
9 gas system control operations, field operations, technical services, and engineering design and
10 construction. I have held my current position as the Director of (Gas) Transmission and System
11 Operations since April 2009.

12 I have testified previously before the Commission.

Appendix A
Glossary of Acronyms

Bcf	Billion cubic feet
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission / Commission
DOT	United States Department of Transportation
FTE	Full Time Equivalent
O&M	Operations and Maintenance
PHMSA	Pipeline and Hazardous Materials Safety Administration
PSEP	Pipeline Safety Enhancement Program
SCADA	Supervisory Control and Data Acquisition