Company: San Diego Gas & Electric Company (U902M)
Proceeding: 2016 General Rate Case
Application: A.14-11-003
Exhibit: SDG&E-204

SDG&E

REBUTTAL TESTIMONY OF FRANK B. AYALA

(GAS DISTRIBUTION)

June 2015

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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SDG&E REBUTTAL TESTIMONY OF FRANK B. AYALA
(GAS DISTRIBUTION)

I. SUMMARY OF DIFFERENCES

TOTAL O&M - Constant 2013 ($000)			
	Base Year 2013	**Test Year 2016**	**Change**
SDG&E	18,383	21,692	3,309
ORA	18,383	20,028	1,645

TOTAL CAPITAL - Constant 2013 ($000)			
	2014	**2015**	**2016**
SDG&E	32,378	37,363	40,971
ORA	32,821	37,363	40,971

A. ORA

Office of Ratepayer Advocates (ORA) issued its report on Results of Operations for San Diego Gas & Electric Company – Gas Distribution, Transmission, Engineering and Pipeline Integrity on April 24, 2015.[1]

- ORA recommends the Commission adopt $20,028,000 for gas Distribution non-shared O&M expenses for TY 2016, rather than SDG&E's request of $21,692,000.
- ORA recommends that the Commission adopt the 2014 recorded capital expenditure of $32,821,000 in place of SDG&E's forecast expenditure of $32,378,000 and also accept SDG&E's 2015 and 2016 forecasts unchanged ($37,363,000 in 2015 and $40,971,000 in TY2016).

B. CCUE

Coalition of California Utility Employees (CCUE) submitted testimony on May 15, 2015.[2] This testimony did not specifically and fully address in detail the costs presented by Gas Distribution's direct case. However, CCUE makes statements about the proposed level of investment in leak repairs that need to be clarified.

[1] Exhibit ORA-9, (G. Ezekwo), Report on Gas Distribution (full title truncated) (ORA-9).
[2] Prepared Testimony of David Marcus on Behalf of CCUE (full title truncated) (CCUE/Marcus).

C. EDF

Environmental Defense Fund (EDF) submitted testimony on May 15, 2015.[3] As with CCUE's testimony, EDF does not provide a detailed analysis of Gas Distribution's cost forecasts. However, EDF makes statements about leak mapping that need to be clarified.

II. REBUTTAL TO ORA'S O&M PROPOSALS

SUMMARY - NON-SHARED O&M - Constant 2013 ($000)			
	Base Year 2013	**Test Year 2016**	**Change**
SDG&E	18,383	21,692	3,309
ORA	18,383	20,028	1,645

SDG&E's Gas Distribution O&M is all non-shared. ORA proposes reductions to seven areas as shown in the chart below.

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		**Difference Between Party and SDG&E**
	SDG&E	**ORA**	**(ORA - SDG&E)**
Field O&M – Other Services	88	88	0
Field O&M – Leak Survey	1,250	1,250	0
Field O&M – Locate and Mark	2,505	2,505	0
Field O&M – Main Maintenance	1,977	1,977	0
Field O&M – Service Maintenance	1,244	1,183	(61)
Field O&M – Tools, Fittings and Materials	467	422	(45)
Field O&M – Electric Support	737	724	(13)
Field O&M – Supervision and Training	2,841	2,193	(648)
Field O&M – Measurement and Regulation	3,464	3,125	(339)
Field O&M – Cathodic Protection	1,867	1,867	0
Asset Management	1,849	1,612	(237)
Operations Management & Training	3,404	3,082	(322)
Total Non-Shared Services O&M	**21,693**	**20,028**	**(1,665)**

[3] Opening Testimony of Environmental Defense Fund (EDF/O'Connor).

1. Field Operation and Maintenance – Service Maintenance

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		Difference Between Party and SDG&E
	SDG&E	**ORA**	**(ORA - SDG&E)**
Field O&M – Service Maintenance			
Base Forecast (5 Year Average)	1,187	1,183	(4)
Riser Excav. For Separately Protected Service line Project	32	--[1]	(32)
Core-hole for Separately Protected Service Line Project	25	--[1]	(25)
Subtotal	**1,244**	**1,183**	**(61)**

NOTES:
1/ Incrementals not addressed. ORA uses 2013 Adj. Rec. Base

Recorded to this workgroup are the labor and non-labor costs associated with investigating and repairing leaks in distribution services. Service maintenance work is generally corrective in nature and is required to keep the natural gas system operating safely and reliably. The work in this workgroup is designed to meet federal (49 CFR 192) and General Order (G.O.) 112-E pipeline safety regulations, extend the life of the distribution service pipeline system, and mitigate risks associated with hazards to public safety. This includes excavating to determine the exact source of a leak, changing service valves, checking the condition of coating at the MSA, testing service pipe for leaks, inspecting and testing service pipe after repairs have been made, and installing, maintaining, and removing temporary feeds such as "by-passes" or temporary supply sources.

In addition, expenses associated with the repair of service risers—the portion of the pipeline segment located above ground just below the meter and connected to the service pipe—are recorded to this service maintenance workgroup. Repairs to the riser are often required due to atmospheric corrosion of the piping system.

Service Maintenance includes costs for moving, lowering, and raising shorter sections of distribution services, vaults, and related structures. Changing the location of an existing service may be required due to alterations in buildings or grounds, and municipal improvements, such as street widening or sewer or water system work. These activities typically involve excavation in

paved or landscaped areas, for which there must be a corresponding restoration effort as part of completing the work.

Given the general variation in the drivers and the influence these have on the overall cost basis in this workgroup, a five-year average for the period 2009 through 2013 was used to forecast the base level of funding needed for TY2016. Added to this 2009 through 2013 average derived base expenditure level are incremental work elements necessary to adequately fund the operations for the forecast years 2014 through 2016. In total, SDG&E requested $1,244,000 in TY2016 for this area.

ORA takes issue with the Test Year O&M forecast for Field Operation and Maintenance – Service Maintenance. ORA proposes a reduction of $61,000 in TY2016, by recommending only SDG&E's 2013 base year expense of $1,183,000 for this area instead of SDG&E's proposed five-year average spend for the period 2009 through 2013.[4]

SDG&E disagrees with ORA. By only selecting the 2013 base expense for Service Maintenance, ORA does not recognize the incremental funding necessary to adequately cover costs driven by changes in Service Maintenance that SDG&E has identified. The additional work, the Separately-Protected Service Riser Project, is a new work requirement to meet federal and state pipeline safety regulations and to protect the integrity of the pipeline system through activities that extend its life. Pipeline Hazardous Material and Safety Administration (PHMSA) enforcement guidance published in January 2013 clarifies PHMSA's interpretation of CFR 192.465 regarding the cathodic protection survey cycle for isolated steel risers interconnected by tracer wire and protected by either a common magnesium anode or a series of magnesium anodes.

Interconnected risers were installed on new polyethylene main and service systems between 1971 and the early 1980s resulting in what SDG&E now estimates to be 45,000 steel risers impacted by the PHMSA interpretation. To reach alignment with the adopted interpretation, SDG&E will conduct annual surveys on this group until such time as the steel risers are either independently cathodically protected and can be returned to the once every ten years cathodic protection survey program, pursuant to CFR 192.465, or are replaced with anodeless risers, eliminating the need to survey for adequate cathodic protection. Initial efforts will focus on independent protection, as the most efficient and least-costly means of aligning

[4] ORA-9, page 10, lines 3-4.

with the interpretation. Survey data sorts the 45,000 risers into one of three categories: cathodic protection tracer wire exposed (above grade) in soil/grass/vegetation; tracer wire exposed (above grade) in concrete or asphalt; tracer wire not exposed (below grade). Cathodic protection electricians will require additional assistance from Service Maintenance crews where the tracer wire is in concrete/asphalt or is below grade.[5] This additional incremental work was fully justified and discussed in more detail in my direct testimony,[6] and discussed below:

- **Riser Excavation for the Separately Protected Service Line Project**
  SDG&E estimates 20% of steel risers will require excavation through dirt to expose the cathodic protection tracer wires and install one-pound magnesium anodes. Incremental costs for a Gas Crew and non-labor costs are estimated to be $200,000 in 2015, $32,000 in 2016 and thereafter. The incremental funding needed over the base forecast for this upward pressure is $32,000 for TY2016.[7]
- **Core-hole at Riser for the Separately Protected Service Line Project**
  SDG&E projects 30% of steel risers will require excavation through concrete or asphalt to expose tracer wires and install one-pound magnesium anodes. Incremental labor and non-labor costs for a Street Repair crew to perform this repair work are estimated to be $223,000 in 2015, and $25,000 in 2016 and thereafter. The incremental funding required over the base forecast for this upward pressure is $25,000 for TY2016.[8]

When factoring the information provided, and absent an explanation on how this information was weighed by ORA, SDG&E maintains that consideration of this information supports test year forecast as reasonable, and that ORA's $1,183,000 forecast is too low. SDG&E's forecast of $1,244,000 is appropriate and was developed using a sound forecast methodology and the upmost concern for public safety and pipeline reliability.

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[5] Ex. SDG&E-04, page FBA-25, lines 7-8.
[6] Ex. SDG&E-04, page FBA-24 to 25and FBA-39 to 42.
[7] Ex. SDG&E-04, page FBA-25 lines 9-15.
[8] Ex. SDG&E-04, page FBA-25 lines 16-22.

2. Field Operation and Maintenance – Tools, Fittings, and Materials

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		Difference Between Party and SDG&E
	SDG&E	**ORA**	**(ORA - SDG&E)**
Field O&M – Tools, Fittings and Materials			
Base Forecast (5 Year Average)	467	422[1]	(45)
Subtotal	**467**	**422**	**(45)**

NOTES:
1/ ORA uses most recent 5 year average (2010-2014)

Recorded to this workgroup is the purchase of small tools, small pipe fittings, miscellaneous pipeline materials, and miscellaneous installation materials used during construction and maintenance activities and those held in inventory as vehicle truck stock.

The tools, fittings and materials purchased under this workgroup are necessary to obtain complete and safe work results. Included within each category of materials are items, such as:

- Small tools, including screw drivers and wrenches;
- Pipe materials used in maintenance and construction activities, such as service alterations, service leak repairs, riser repairs and replacements, and maintenance of meter and regulator facilities on distribution services;
- Miscellaneous installation and pipeline materials, such as pipe wrap, gaskets, washers, bolts, stakes, and pipe straps used by field employees to complete pipeline maintenance and replacement activities; and
- Pipe fittings, two-inch pipe size and smaller, commonly used during construction and maintenance work; and coveralls, uniforms, and charges for rental and laundering of these garments.

The forecast method developed for this cost category is a five-year average for the period 2009 through 2013. This method is most appropriate because this is a grouping of expenses that can fluctuate from year to year, depending on the level of construction and maintenance activities. In total, SDG&E requested $467,000 in TY2016 for this area.

ORA uses a 2010-2014 average to produce a TY2016 forecast of $422,000 which is $45,000 below SDG&E's forecast of $467,000. ORA's forecast incorporation of 2014

expenditures does not provide the best indication of our anticipated spend in this area for 2016, and does not reflect adequate funding required for small tools and materials. When factoring in the above, ORA's $422,000 forecast is too low. SDG&E forecast of $467,000 is appropriate and was developed using a sound forecast methodology and the upmost concern for public safety and pipeline reliability.

3. Field Operation and Maintenance – Electric Support

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		Difference Between Party and SDG&E
	SDG&E	**ORA**	**(ORA - SDG&E)**
Field O&M – Electric Support			
Base Forecast (5 Year Average)	737	724[1]	(13)
Subtotal	**737**	**724**	**(13)**

NOTES:
1/ ORA uses most recent 5 year average (2010-2014)

Recorded to this workgroup is the labor and non-labor expense incurred by Gas Distribution crews that have been specially trained to provide traffic control services for Electric Distribution crews during inspections under the Corrective Maintenance Program.

In preparing the forecast for this workgroup, SDG&E reviewed 2009 through 2013 historical spending levels for gas crews assisting Electric Distribution with traffic control. The forecast method developed for this cost category is a five-year average for the period 2009 through 2013. This method is most appropriate because the level of activity in this workgroup can fluctuate from year to year, depending on the level of Corrective Maintenance Program work. In total, SDG&E requested $737,000 in TY2016 for this area.

ORA uses a 2010-2014 average to produce a TY2016 forecast of $724,000 which is $13,000 below SDG&E's forecast of $737,000. ORA's use of 2014 adjusted-recorded data results in a forecast that is too low to support this activity. SDG&E is unable to adjust its forecasts impacted by 2014 Electric Support Traffic Control workgroup restructuring, which resulted in lower than normal spend during the department's reorganization phase. This lower level of spend will not continue in 2015 and 2016. ORA's incorporation of 2014 recorded costs

does not reflect adequate funding for traffic control services required to support the electric Corrective Maintenance Program.

When factoring in the above considerations, ORA's $724,000 forecast is too low. SDG&E forecast of $737,000 is appropriate and was developed using a sound forecast methodology and the upmost concern for public safety and pipeline reliability.

4. Field Operation and Maintenance – Supervision and Training

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		Difference Between Party and SDG&E
	SDG&E	**ORA**	**(ORA - SDG&E)**
Field O&M – Supervision and Training			
Base Forecast (2013 Adj. Recorded)	2,498	2,193[1]	(305)
Oper. Qualification and Skills Training	343	--[1]	(343)
Subtotal	**2,841**	**2,193**	**(648)**

NOTES:
1/ Incrementals not addressed. ORA uses most recent 5 year average (2010-2014)

Recorded to the Supervision and Training workgroup are labor and non-labor expenses for employee field skills training, field supervision and management, and miscellaneous expenses related to SDG&E's gas operations.

Field skills training for SDG&E's Gas Distribution personnel accounts for the majority of the 2013 adjusted-recorded base spending in this workgroup. Gas construction employees attend training because they are new to their job, require operator qualification, need refresher training, are promoted to a position requiring additional technical skills, or need additional training due to the deployment of new equipment with new technology or changes in regulations. These field expenses include general training costs for SDG&E District Operating Centers and Gas Technical Services personnel.

An additional significant source of expenditure in this workgroup is in the area of field supervision. Field supervisors have one of the most challenging and critical positions at SDG&E. They are responsible for the supervision and inspection of field construction and maintenance work performed by both SDG&E crews and by contractor crews. They are in a position of influence with front-line employees and are responsible for coaching and mentoring

these employees to work safely, follow Company procedures, and meet regulatory compliance maintenance schedules and build a safe and reliable natural gas delivery system.

The final area of expense contribution for this workgroup is comprised of miscellaneous operating expenses. These non-labor expenses include office supplies, telephone expenses, mileage expenses, and professional dues.

An increase in skills development and operator qualifications training began in 2013. This expansion will better align with industry leading practices, which generally follows the American Society of Mechanical Engineers (ASME) B31Q standard.[9] The B31Q standard is also referenced on the website of the U.S. Department of Transportation PHMSA, in its instructions on operator qualification enforcement guidance.[10] This material is given to the students who are trained by PHMSA to be auditors. For this reason, 2013 adjusted recorded was selected as the base level of expense. In the forecast years, additional training activity associated with Operator Qualification, including the increase in the number of tasks and the frequency of qualifications will cause costs in this group to increase above this base level of expense. Added to this base expenditure level are incremental additions necessary to adequately fund the activities in this workgroup in TY2016. In total, SDG&E requested $2,841,000 in TY2016 for Supervision and Training

ORA uses a 2010 – 2014 average to produce a TY2016 forecast of $2,193,000 which is $648,000 below SDG&E's forecast of $2,841,000. ORA's analysis did not address the incremental activities I detailed in my direct testimony[11] and workpapers.[12] Specifically, I discussed the required increase for operator qualification and skills training resulting from the increase of as many as 125 additional operator qualification tasks and moving to the best practice three-year re-evaluation schedule. The incremental operator qualification tasks were spread so that approximately one-third of the tasks would be completed in each year 2015 – 2017, so as to balance the workload. The incremental increases in re-evaluations are approximately equally shared each year. 2014 was a ramp-up year with fewer tasks than the years 2015 – 2017. This incremental activity accounts for $343,000 on top of my 2013 base year request.

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[9] ASME B31Q Edition 10 (September 30, 2010).
[10] http://phmsa.dot.gov/foia/e-reading-room, Section III. Staff Manuals and Instructions, "OQ Enforcement Guidance (6 24 2014)".
[11] Ex. SDG&E-04, page FBA-30, line 4-18.
[12] Ex. SDG&E-04-WP, page 56.

The 2014 recorded level of expenditures was impacted by a lower level of operator qualification and training costs while Gas Distribution focused on growing the operator qualification and training program, establishing new qualification tasks and frequencies beginning to take effect in 2015, coupled with higher than usual levels of vacancies. In 2014, six out of 15 field supervisor positions were filled with temporary assignments, which Gas Distribution determines as an arrangement that cannot be sustained. ORA's forecast incorporation of 2014 expenditures does not provide the best indication of SDG&E's anticipated spend in this area for 2016, and does not reflect adequate funding for developing the workforce.

In addition to the base forecast, SDG&E requests an incremental increase for Operator Qualification and Skills Training.[13] An integral component of overall workforce proficiency is the Operator Qualification program. SDG&E is expanding its Operator Qualification program to better align with recommendations by CPUC auditors, and increase the level of employee qualification. This includes adding new qualification elements, adding new tasks within the new and existing qualification elements, developing qualification materials, establishing an electronic record-keeping process, and conducting training and qualification of impacted employees. In addition, the frequency for subsequent qualification will be increased, in alignment with emerging industry leading practices.

The Operator Qualification program requirements are further discussed in the Operations Management and Training Section later in this rebuttal testimony. The expanded Operator Qualification program in this workgroup for District field employees and Leak Survey personnel will add approximately 7,200 incremental mandated training hours required to qualify these Field employees in the new Operator Qualification elements and new tasks. The safety related, mandated incremental increase over the base forecast associated with this upward pressure is $343,000 in TY2016.

When factoring the information provided, and absent an explanation on how this information was weighed by ORA, SDG&E maintains that consideration of this information supports the test year forecast as reasonable, and that ORA's $2,193,000 forecast is too low. SDG&E's forecast of $2,841,000 is appropriate and was developed using a sound forecast methodology and the upmost concern for public safety and pipeline reliability.

[13] Ex. SDG&E-04, page FBA-30, lines 4-18.

5. Measurement and Regulation

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		Difference Between Party and SDG&E
	SDG&E	**ORA**	**(ORA - SDG&E)**
Field O&M – Measurement and Regulation			
Base Forecast (2013 Adj. Recorded)	3,058	3,125[1]	67
Tapping Equipment Factory Maintenance	7	--[1]	(7)
Borrego LNG Facility - Security	21	--[1]	(21)
EPM Communication Network Conversion	--[2]	--[1]	0
Electronic Corrector Replacement	40	--[1]	(40)
Enhanced Valve Maintenance	149	--[1]	(149)
Regulator Station Internal Parts	32	--[1]	(32)
Operator Qualification and Skills Training	67	--[1]	(67)
Small Tools for Pressure Control Truck	--[2]	--[1]	0
Pipeline Operations Supervisor	90	--[1]	(90)
Subtotal	**3,464**	**3,125**	**(339)**

NOTES:

1/ Incrementals not addressed. ORA uses most recent 2 year average (2013-2014)

2/ One year only Incremental expense in 2014 or 2015

Recorded to the Measurement and Regulation workgroup are labor and non-labor expenses for inspection and maintenance of distribution regulator stations, valve maintenance, meter set inspections, electronic instrumentation maintenance, and meter removals for accuracy checks to maintain compliance with General Order 58-A.

Regulator stations reduce the pressure of gas entering the distribution system from high pressure supply pipelines to the lower pressures used in the distribution pipeline network. SDG&E has approximately 485 regulator stations. Federal pipeline safety regulation 49 CFR 192.739(a) requires periodic inspections and maintenance of all regulator stations, including both underground vaults and above-ground regulator station enclosures. Pressure checks are made to verify that the station is operating as intended and that the station's over- and under- pressure protection devices perform as designed. If a station does not perform properly, internal maintenance and inspections are performed, consisting of disassembling the regulator devices and inspecting the internal components for worn or damaged parts. Any faulty parts are replaced and the regulator is cleaned and inspected for corrosion. Activities for repairing damage to

regulator station vaults caused by general deterioration or long-term exposure to heavy traffic, and rebuilding pressure regulators and pressure relief valves, are additionally charged within this workgroup. Also included are expenses for the inspection and calibration of electronic pressure monitors used to measure and record distribution system pressures, gas volume correctors used to record gas consumption, and ten-year rotary meter changes or calibrations to comply with General Order 58-A for large customers.

In 2013, SDG&E started to develop additional Operator Qualification tasks, training modules for employee development, and implemented a regulator station internal parts replacement program. This level of activity is expected to continue in the forecast years. For this reason, 2013 adjusted recorded was selected as the base. Added to this base expenditure level are incremental additions necessary to adequately fund the operation in TY2016. SDG&E requested $3,464,000 in TY2016 for Measurement and Regulation expenses.

ORA takes issue with the Test Year O&M forecast for Measurement and Regulation. ORA proposes a reduction of $339,000 in TY2016, based on using the most recent recorded two year (2013-2014) average for this area. ORA does not provide the rationale for why selecting the most recent two year average produces a better forecast of 2016 anticipated costs, and does not address the incremental additions that would not be fully funded and that are an integral part of SDG&E's forecast for this area.

ORA's methodology yields an additional increase in SDG&E's forecast base expense by only 17% of the total expenses required to fund all the important incremental additions. Factory maintenance for existing tapping equipment, additional Operator Qualification and Skills training, and funds for regulator station internal parts replacement all are important additions without which safety and reliability could be compromised. This important safety work was fully described in my direct testimony.[14] A description of these incremental additions is provided below:

- Tapping Equipment Factory Maintenance[15]

Pipeline tapping and plugging machines are used to perform maintenance and construction operations safely and cost effectively on active gas mains. These devices allow

[14] Ex. SDG&E-04, page FBA-31 to 38.
[15] Ex. SDG&E-04, page FBA-32, line 19 to page FBA-33, line 2.

uninterrupted service to be preserved while the gas infrastructure is being maintained, relocated or expanded.

Maintenance of all equipment, especially steel cutting (tapping) and plugging equipment, is critical to the safe operation and functionality of the tool. Manufacturers periodically update equipment specifications to enhance operation or to provide additional safety measures. Even though SDG&E has been performing periodic maintenance on this equipment, to enhance the tools' inspection process, SDG&E is continuing its effort to systematically return the equipment to the factory for refurbishment, product updates and any warranty repairs. On an annual basis, SDG&E will send two out of its seven tapping and plugging machines to the manufacturer for required servicing. An incremental increase of $7,000 to the base forecast in TY2016 is required for maintenance of this equipment. This maintenance is critical to extending the useful life of this equipment.

- Borrego LNG Facility - Security Monitoring[16]

SDG&E owns and operates a small Liquefied Natural Gas (LNG) facility at the Road Runner Mobile Home Park in Borrego Springs, California. This area is isolated from any gas distribution pipelines and approximately two hours travel time from the responsible maintenance group. LNG is vaporized and distributed for residential use at the Roadrunner Mobile Home Park serving approximately 300 mobile homes. The facility is located on the grounds of the mobile home park. It is unmanned, considered remote, approximately one acre in size, and secured by a locked fence and monitored 24/7 by a security system. Currently, the Borrego LNG Facility is protected by a security system consisting of fence-line intrepid alarms, interior motion detection, a stereo camera system, and facility wide lighting. The security system is monitored 24/7/365 by SDG&E's Mission Security Operations department. In 2014, the security system will be upgraded to include a new improved communications network with Mission Security Operations who will monitor this critical facility. An incremental increase of $21,000 above the base forecast in TY2016 is required for the annual security monitoring communication fees for this enhanced safety system that secures this unmanned liquefied natural gas facility.

[16] Ex. SDG&E-04, page FBA-33, lines 3-16.

- Electronic Pressure Monitor Communication Network Conversions[17]

Electronic pressure monitors are used by SDG&E to remotely monitor distribution pipeline pressures in support of gas system capacity analysis and as a warning system to communicate system pressures outside of normal limits. The primary purpose of the EPM network is system safety and compliance with 49 CFR 192.741. Currently SDG&E has 165 wireless units that operate on the Verizon Wireless communications network. The associated communications arrangement with Verizon is a voice line plan. At the end of 2014, Verizon Wireless will require this type of equipment operate on an Internet Protocol plan similar to other data streaming devices such as tablets and mobile broadband cards. In 2014, SDG&E will incur a one-time expense of $23,000 to perform the on-site communications conversion from the voice plan to the Internet Protocol plan by reprogramming at 165 electronic pressure monitor locations.

- Electronic Corrector Replacement[18]

Electronic volume correction devices are installed on higher-than-standard pressure (0.5 psig and higher) meters for large volume customers to correct measured gas volumes for temperature and pressure. Correcting devices are only used after all other options have been exhausted for accurate customer billing to comply with General Order 58-A and SDG&E Gas Tariff Rule 2.[19] Replacement parts for electronic volume correctors are in short supply and, in many cases, obsolete and unavailable. Mercury Instruments, the manufacturer of the correctors, no longer supports the corrector models that are older than ten years. SDG&E currently has 70 units that fit this age criteria. SDG&E must replace these units with updated technology in order to maintain accurate billing to its customers. Therefore, an incremental increase of $40,000 is required to the base forecast in TY2016 to replace these 70 outdated electronic volume correction devices that are over 10 years old.

- Enhanced Valve Maintenance[20]

In Rulemaking 11-02-019 (the Pipeline Safety Rulemaking), SoCalGas and SDG&E requested approval and recovery of the revenue requirements resulting from capital and O&M forecasts for the PSEP for years 2011 through 2015, to coincide with SoCalGas and SDG&E's anticipated next General Rate Case cycles. The PSEP included a valve enhancement plan. The

[17] Ex. SDG&E-04, page FBA-33, lines 17-28.
[18] Ex. SDG&E-04, page FBA-33, line 29 to FBA-34, line 8.
[19] SDG&E Tariff Rule 2, Advice letter 1863-G.
[20] Ex. SDG&E-04, page FBA-34 line 9 to FBA-35 line 5.

expense forecasts for the valve enhancement plan included incremental O&M costs to support the operation and maintenance of the enhanced valves and related infrastructure to be installed as part of the PSEP through 2015. It was contemplated that in subsequent years (2016 and beyond) O&M costs associated with facilities and equipment previously-installed as part of PSEP would be recovered in the utilities' TY2016 funding requests as part of their overall operation and maintenance of their gas infrastructure. Consistent with this approach, my testimony includes the TY2016 costs of operating and maintaining the enhanced valves and related infrastructure installed through 2015 as part of PSEP[21] but where maintenance is no longer funded by PSEP.

For the Meter and Regulator and Instrument Shop departments, these costs are associated with the incremental maintenance for: valve, actuators and related distribution system control components added under the PSEP Valve Plan to isolate and depressurize critical pipelines in the event of a rupture; maintenance of enhanced flow measurement and telemetry equipment at new pipeline locations; and new check valves and other enhancements to prevent the back-flow of gas into major pipeline isolation sections to be depressurized. The cost of maintaining radio system enhancements to support the PSEP valves, meter and other asset operation and monitoring are also included. This incremental safety requirement represents a TY2016 increase of $149,000 over the forecast base.

- Regulator Station Internal Parts Replacement[22]

As a prudent operator, SDG&E takes action to proactively address potential safety, integrity or reliability issues. Beginning in 2013, SDG&E adopted a regulator internal parts replacement program. The purpose of this program is to proactively enhance the reliability of district regulator stations by scheduling parts replacement at pre-defined intervals.

Regulator and serviceable parts useful lifespan was analyzed at SoCalGas, and recommended parts replacement schedules were developed to optimize the life of the regulator minimizing the risk of potential failures. Similarly, SDG&E has evaluated its regulators currently in service and set up an internal parts replacement program based on replacement criteria, including regulator type, age, service history, and serviceable parts projected lifespan.

[21] 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.

[22] Ex. SDG&E-04, page FBA-35 lines 5-16.

To fund this program, an incremental increase of $32,000 is required over the base forecast for TY2016 for the internal parts replacement program.

- Operator Qualification and Skills Training[23]

An integral component of overall workforce proficiency is the Operator Qualification program. SDG&E is expanding its Operator Qualification program to better align with industry standards and feedback from the CPUC. This includes adding new qualification elements, adding new tasks within the new and existing qualification elements, developing qualification materials, establishing an electronic record keeping process, and conducting training and qualification of impacted employees. In addition, the frequency for subsequent qualification will be increased in alignment with emerging industry leading practices.

Operator Qualification program requirements are discussed further in Section 7 "Operations Management and Training" of this rebuttal testimony. The expanded Operator Qualification program in this workgroup for Pipeline Operations and Instrument Shop field employees will add approximately 1,320 incremental training hours required to qualify these field employees in the new Operator Qualification elements and new tasks. The incremental increase over the base forecast associated with 1,320 training hours for this forecast area is $67,000 in TY2016.

- Small Tools for Mueller Pressure Control Truck[24]

As discussed above in the Tapping Equipment Factory Maintenance section, pipeline tapping and plugging (pressure control) machines are used to perform maintenance and construction operations safely and cost effectively on active gas mains. These devices allow uninterrupted service to be preserved while the gas infrastructure is being maintained, relocated or expanded. The tapping and plugging machines and associated miscellaneous equipment are transported in a specialized heavy duty vehicle based on the International 4,400 chassis featuring a hydraulic crane, air compressor, and storage cabinets.

The pressure control truck is utilized for tapping and plugging operations on three-inch and larger steel gas mains. Currently SDG&E operates one of these specialized vehicles and is limited in the number of tapping and pressure control work performed in a single day. As with any vehicle, there are routine maintenance requirements and occasional breakdowns of the

[23] Ex. SDG&E-04, page FBA-35 lines 17-31.
[24] Ex. SDG&E-04, page FBA-36, lines 1-24.

vehicle itself or specialized equipment on board, such as the hydraulic crane or air compressor. When the vehicle is not in working condition, SDG&E is limited in its ability to safety perform tapping and pressure control operations for routine and emergency work, having to temporarily transfer critical equipment to a smaller vehicle, a labor- and time-intensive undertaking, potentially delaying emergency response. SDG&E will therefore outfit a second International 4400 pressure control vehicle to allow for more than one pressure control job to be scheduled in a given day and to augment emergency response capabilities which may require this equipment. In addition to the vehicle and pressure control equipment, small tools such as screw drivers, pliers, hoses, clamps, pressure gauges are required to outfit the vehicle. A one-time expense of $20,000 will occur in 2015 over the forecast base to outfit the vehicle with necessary tools.

- Pipeline Operations Supervisor[25]

Based on the nature and volume of work challenging the Gas Distribution organization, increases in safety and compliance responsibilities responding to new safety laws and regulations, an additional Pipeline Operations Supervisor is required. Most notably, is the need to have a supervisor in the field on a regular basis to lead, train and reinforce operational safety and compliance with Gas Standards.

The Pipeline Operations group has increased its workforce by more than 10% since 2010 in order to meet the safety-sensitive requirements of a growing system and new regulations. Large projects resulting from new customer demands, large high-pressure gas pipeline construction activities associated with relocations, renewals and system growth, and inspection activities have placed increasing pressure on Gas Distribution Pipeline Operations supervisors to manage and maintain accountability for their workforce.

Given the highly technical and safety-sensitive nature of its work, Distribution Pipeline Operations, more than any other SDG&E Gas Distribution work group, has a large volume of annual safety training, Gas Standard reviews and Operator Qualification training requirements that have a significant impact on supervisor time. Additionally, Pipeline Operations is deploying a regulator change and internal parts replacement program to mirror the longstanding processes used by SoCalGas to address device reliability and mitigate risk. Daily trouble orders associated with gas leaks, pressure issues and customer service require crews to be dispatched in a timely

[25] Ex. SDG&E-04, page FBA-36 line 25 to FBA-37 line 16.

manner with supervisory backup that can be called upon to support gas emergencies throughout the SDG&E service territory.

Considering these ongoing administrative and employee oversight pressures on supervisors and the need to have a supervisor in the field on a regular basis, the requirements listed above demonstrate the need for an additional supervisor. The total incremental funding for the addition of this supervisor is $90,000 above the base forecast for TY2016. ORA's averaging approach to recommend future funding does not consider the individual merits of these important new activities. Based on the above discussion, the Commission should disregard ORA's proposal which utilizes a most recent two year average without consideration of the incremental additions and instead adopt SDG&E's TY2016 request.

6. Asset Management

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		Difference Between Party and SDG&E
	SDG&E	**ORA**	**(ORA - SDG&E)**
Asset Management			
Base Forecast (5 Year Average)	1,657	1,612[1]	(45)
Mapping and GIS Group Restructuring	75	--[1]	(75)
Region Engineering Development Program	52	--[1]	(52)
FUS MDTs: Tablet Mounts	--[2]	--[1]	0
FUS MDTs: Wireless Fees	10	--[1]	(10)
Addition of Field Utility Specialists (FUS)	31	--[1]	(31)
HP Pipeline Documentation: QC Manager	15	--[1]	(15)
HP Pipeline Documentation: QC Material Expeditor	9	--[1]	(9)
Subtotal	**1,849**	**1,612**	**(237)**

NOTES:
1/ Incrementals not addressed. ORA uses most recent 5 year average (2010-2014)
2/ One year only Incremental expense in 2014

Asset Management includes activities and associated O&M expenses incurred in the evaluation of the condition of the distribution system. This includes maintaining asset records,

identifying corrective maintenance solutions, and coordinating with field personnel on completion and recording of O&M activities.

Recorded to this workgroup are labor and non-labor expenses for pipeline maintenance technical planning office personnel, regional engineering, pipeline mapping personnel, various analytical and administrative support positions, and associated supervision. SDG&E's Technical Planning Office provides many of the technical and administrative services needed for the successful and timely completion of the O&M activities.

The Technical Planning office also coordinates the regions' emergency response efforts by managing the Gas Emergency Center, which is located at the region's headquarter facility. The Gas Emergency Center is the regional command center that is activated during a significant event (e.g., fire, earthquake, pipeline damage, customer outage) to support field operations with engineering, pipeline planning, mapping, logistics, and office resources that are vital in sustaining customer safety and returning SDG&E's facilities back to normal operations.

This workgroup additionally includes expenses to map the pipeline facilities. As gas system construction projects are completed throughout SDG&E's service territory, accurate maps must be created and records kept for the life of the pipeline, consistent with General Order 58-A. Projects requiring mapping and records work include all new business activity, pipeline relocations, main extensions, pressure betterment projects, pipeline replacements, and various other operational activities that change the gas system configuration. The recent transition to a Geographic Information System (GIS) based mapping system adds the capability to capture pipeline attribute data, and this data is added to the facilities when mapped in GIS.

In developing the TY2016 forecast, historical expenditures for 2009 through 2013 were evaluated. To factor in periods of high operations work, as well as years with lower levels of activity, SDG&E chose a five-year (2009 - 2013) average spending method to forecast the base level of spending for TY2016. This approach allows SDG&E to capture historical spending under a variety of conditions that reflect the historical fluctuation in labor and non-labor expenditures associated with this workgroup. Added are incremental work elements not reflected in this base average necessary to fund the Asset Management – Pipeline O&M Planning activities in TY2016. In total, SDG&E requested $1,848,000 in TY2016 for Asset Management.

ORA uses a 2010-2014 average to produce a TY2016 forecast of $1,612,000 which is $236,000 below SDG&E's forecast of $1,848,000. ORA's analysis did not address the

incremental activities I detailed in my direct testimony[26] and workpapers.[27] Specifically, I discussed safety related critical activities like mapping and GIS group restructuring, region engineering development program, wireless fees for field utility specialist vehicles, addition of Field Utility Specialists required for processing construction conflict checks, High Pressure Pipeline Quality Manager, and High Pressure Pipeline Material Handler. These incremental activities account for $192,000 in addition to the 5 year average.

ORA's forecast incorporation of 2014 expenditures does not provide the best indication of our anticipated base level spend in this area for 2016, and does not reflect adequate funding for critical incremental activities outlined below.

- Mapping and GIS Group Restructuring:[28]

Projects requiring mapping and records work include all new business activity, pipeline relocations, main extensions, pressure betterment projects, pipeline replacements, and various other operational activities that change the gas system configuration. Historically this work required creating a graphic representation of the facilities and collecting of pipe footage, material, design, and field paperwork into a hardcopy work order folder.

A recent change to the mapping organization involves the implementation of GIS and the retirement of the legacy mapping system. GIS is the system of record for Gas Distribution facilities, containing a graphical representation of the facility location and facility attributes. Up to 30 attributes are captured and catalogued into a GIS database for each mapped facility. Examples of recorded attributes include pipe diameter, material, installation year, installation work order, and maximum allowable operating pressure. As the GIS system is populated with key attributes, there is tremendous potential for quickly identifying facilities given an identified set of captured attributes, which greatly improves the ability to respond to emergencies. The employee skillset and education level required for maintaining, updating, and data mining the GIS database requires the restructuring of the workgroup into a workload management, GIS maintenance, and GIS analysis branches. Although no additional headcount is required, there is a labor cost differential associated with staffing qualified GIS specialists, technicians, and analysts that have the increased capabilities to respond to these increased demands. The total incremental funding needed for this workgroup is $75,000 over the forecast base for TY2016.

[26] Ex. SDG&E-04, page FBA-47 to FBA-51.
[27] Exhibit SDG&E-04-WP, page 83.
[28] Exhibit SDG&E-04, page FBA-47, lines 4-22.

- Region Engineering Development Program:[29]

SDG&E operates a complex natural gas distribution system. To manage this system, SDG&E requires competent, knowledgeable engineers capable of handling many types of work such as network capacity analysis, pipeline facility design, construction inspection, and system master planning. The learning curve is steep because new engineers entering into the field must become adept at applying their engineering discipline. They must also be knowledgeable about the ever-increasing regulations that govern the natural gas industry, and they must know the Company's own internal policies and standards. Historically, these entry-level engineers in Gas Distribution have been hired into specific positions where they learn one functional area on the job with some formal training. They stay in the position several years until opportunities become available in other areas of SDG&E. These new engineers are expected to make decisions about design criteria, work processes for different systems and functions within SDG&E, while only having limited experience and background in operations.

Normally, entry-level engineers are hired after a position has been vacated and the incumbent has moved to a new position, retired, or left SDG&E. This practice does not allow the parting experienced engineer to provide training and mentoring to the incoming engineer, causing the learning curve for the new engineer to be significant. To better prepare new engineers, SDG&E Gas Distribution plans to introduce an Engineering Development Program to move these new recruits through different parts of Gas Distribution, and provide them mentoring and a broader portfolio of engineering skills, thus accelerating their knowledge and understanding of operations. These individuals will be better prepared to make the safety-sensitive decisions that are required of them, which increases the value they bring to SDG&E, customers and the public.

In order to create this learning opportunity, two new part time engineering intern positions will be added. These intern positions will allow SDG&E to identify and develop talented individuals for the entry level positions as they become available. As interns complete the development program, the individuals will fill behind engineers moving into higher-level internal positions, leaving SDG&E Gas Distribution to seek other opportunities, or retiring. To implement this development and mentoring program, SDG&E forecasts an incremental increase of $52,000 over the base forecast in TY2016.

[29] Ex. SDG&E-04, page FBA-47 line 23 to FBA-48 line 22.

- Wireless Fees and Mounts for Mobile Tablets for Field Utility Specialists:[30]

Field Utility Specialists will be equipped with Microsoft Windows-based tablet computers that can be utilized in the field environment to complete critical safety related work. The tablet provides the Field Utility Specialists access to the GIS mapping system on the jobsite. This allows more efficient utility conflict checking, lessens the possibility of damages to the pipeline, as well as provides improvements in field mapping support for emergency gas pipeline incidents. In order to utilize the full capability that the tablet has to offer, it must be able to be in constant communication with the company network. This will be accomplished through existing wireless networks in the service territory. Funding is required for vehicle mounts and wireless fees paid to commercial wireless retailers to provide service for tablets to remain on line. Remaining online allows the Field Utility Specialist access to the Company's GIS gas mapping system. GIS is the system of record for pipeline location and attribute information necessary during construction to perform conflict checks, allow initial project planning and design research, and support field construction and customer service crews during emergency repairs and restoration.

  - Tablet Mounts for Field Utility Specialist Vehicles[31]

A total of eighteen Field Utility Specialist vehicles will be equipped with wireless capable tablet computers. In 2014, a one-time cost of $32,000 will be incurred to install vehicle tablet mounts.

  - Wireless Fees for Field Utility Specialist Tablets[32]

The annual funding requirement for wireless service fees for the eighteen tablet computers mounted in Field Utility Specialist vehicles represents an increase of $10,000 above the base forecast in TY2016.

- Addition of Field Utility Specialists:[33]

The Field Utility Specialists perform a wide variety of tasks in the planning office. This job is part survey specialist, part construction manager and part capital project designer. Aside from the design for Gas Distribution capital projects, the Field Utility Specialists will perform a survey to check for gas and electric infrastructure conflicts with municipal capital projects. If a

[30] Ex. SDG&E-04, page FBA-48 line 23 to FBA-49 line 12.
[31] Ex. SDG&E-04, page FBA-49, lines 5-8.
[32] Ex. SDG&E-04, page FBA-49, lines 9-12.
[33] Ex. SDG&E-04, page FBA-49 line 13 to FBA-50 line 4.

conflict is found, the Field Utility Specialists will either negotiate a new alignment with the Municipality or will design a project to relocate the gas infrastructure. The Field Utility Specialists in this work group will perform conflict checks for both gas and electric distribution infrastructure. If there is a conflict with the electric infrastructure, this information will be passed to the appropriate organization in the Company's Electric organization.

As the economy recovers,[34] the number of municipal infrastructure projects requiring a gas and electric infrastructure conflict check has steadily increased from 312 in 2009 to a forecast of 612 in 2014. This means that SDG&E expects to see an increase of 25% over the 2013 count of conflict checks of 484. In order to meet this increasing demand and the associated design relocation projects, the addition of two Field Utility Specialists is required.

Although the majority of the labor for the Field Utility Specialist is capitalized, a portion is O&M expense. The total O&M labor and non-labor expense for this increased staffing represents an increase over the base forecast of $31,000 in TY2016.

- <u>High Pressure Pipeline Documentation Quality Control Added Positions</u>[35]

The Federal Register states that inaccurate pipeline records on a failed piece of pipe played a role in the San Bruno pipeline rupture.[36] This lead PHMSA and the National Transportation Safety Board (NTSB) to issue an Advisory Bulletin (AG-11-01) recommending that operators of gas pipelines verify that the records used to calculate maximum allowable operating pressure or maximum operating pressure for their pipelines are reliable and directing that these records "…should be traceable, verifiable and complete."[37]

SDG&E embarked on a new high pressure pipeline documentation system, which included but was not limited to verifying the material records for all high pressure pipeline materials installed, documenting the location of each component installed, verifying that the strength test parameters meet design specifications, and linking all this pipeline information to a pipeline document management system to ensure the establishment of a complete set of high pressure pipeline material and test records.

[34] IHS Global Insight is used as a directional indicator for general economic conditions and potential economic growth.
[35] Exhibit SDG&E-04, page FBA-50 line 5 to FBA-51 line 23
[36] *See* Federal Register Vol. 76, No.6.
[37] *See* NTSB Advisory Bulletin ADB-11-01.

The increased record requirements for high pressure pipeline, pipelines that operate above 60 psig but do not operate at transmission levels (greater than 20% specified minimum yield strength) is significant. More than forty different documents or record types can be generated in order to pedigree the material to meet the "traceable, verifiable and complete" criteria. The documentation requirement in turn creates a significant increase in resource requirements. In order to accomplish this task, it was necessary to employ additional personnel specifically dedicated to the documentation effort who could develop a quality control system to manage this effort. A quality control effort dedicated to material control, construction inspection, and documentation minimizes the risk of utilizing incorrect construction procedures or the installation of unapproved materials in the gas pipeline system which could impact the integrity of the infrastructure and public safety. The additional staff requirements are a Quality Control Manager and a Material Expeditor.

- <u>High Pressure Pipeline Quality Control Manager</u>[38]

The Quality Control Manager is responsible for the implementation and control of all quality-related documents associated with High Pressure Construction Projects. The Quality Control Manager verifies that all project related inspection activities have been thoroughly documented in accordance with the SDG&E Quality Control Manual and applicable Gas Standards. The Quality Control Manager is the central collection point for all High Pressure project related documents. The Quality Control Manager is responsible for creating the final project documentation package and assembles the documents for pipeline document management system electronic filing. Though the majority of the work performed by the Quality Control Manager will be capitalized, a portion is O&M costs. This represents an increase of $15,000 above the base forecast in TY2016.

- <u>High Pressure Pipeline Material Expeditor</u>[39]

The Material Expeditor is responsible for the functional execution of receiving, inspection, acceptance and issuance of material to the various high pressure pipeline jobs. The Material Expeditor is to perform these functions in accordance with SDG&E's applicable Gas Standards. In order to safeguard that the specified material ordered for each unique high-pressure job is not co-mingled with non-pedigreed material, it was necessary to establish a High

[38] Ex. SDG&E-04, page FBA-51, lines 1-11.
[39] Ex. SDG&E-04, page FBA-51, lines 12-23.

Pressure Material Storage Yard. The Material Expeditor is responsible for the transfer, storage, and distribution of high pressure pipeline material and components and is the primary custodian of the High Pressure Material Storage Yard. Though the majority of the work performed by the Material Expeditor will be capitalized, a portion is O&M costs. This represents an increase of $9,000 above the base forecast in TY2016.

When factoring the information provided, and absent an explanation on how this information was weighed by ORA, SDG&E maintains that consideration of this information supports the test year forecast as reasonable, and that ORA's $1,612,000 forecast is too low. SDG&E forecast of $1,848,000 is appropriate and was developed using a sound forecast methodology and the upmost concern for public safety and pipeline reliability.

7. Operations Management and Training

Gas Distribution O&M Test Year 2016 Estimates
(Thousands of Constant 2013 Dollars)

	Position of Party		Difference Between Party and SDG&E
	SDG&E	**ORA**	**(ORA - SDG&E)**
Operations Management & Training			
Base Forecast (2013 Adj. Recorded)	2,238	1,916[1]	(322)
OpQual Expansion: Pipeline Inspection and Evaluation	300	300	0
OpQual Expansion: Program Design and Training	473	473	0
Annual Welding Training	138	138	0
Leak Survey and CP QA Specialist	100	100	0
Compliance Assurance Tech. Advisor	100	100	0
Technical Services Assistant	55	55	0
Subtotal	**3,404**	**3,082**	**(322)**

NOTES:
1/ ORA accepts all Incrementals adds but uses most recent 5 year average (2010-2014) for base.

Operations Management and Training includes activities representing leadership and operations support providing vision and guidance to the organization responsible for gas distribution. Within this workgroup are labor and non-labor expenses associated with: developing and maintaining distribution construction standards; evaluating new field technologies; assisting with field training; training distribution welders; providing code required

welder testing; providing welding inspection; managing the Operator Qualification program, and managing the Welding School. Costs also include Gas Technical Services Miramar management and administrative and support positions.

In projecting the future expense requirements for these functions, SDG&E reviewed the 2009 through 2013 historical spending for this entire workgroup. In general, operations leadership, field management, operations support, and personnel training increase as levels of work and workforce increase; as new programs, processes and technologies are implemented, and as regulatory or compliance requirements change.

The review of the historical costs in this work category shows a generally upward trend. In addition, significant incremental increases are anticipated for this workgroup as described below. Therefore, as a foundational forecast, SDG&E used the 2013 adjusted recorded expense, which represents the base level of leadership, management, support, training personnel, and associated non-labor necessary to maintain current operations. Added to this base expenditure level are incremental additions necessary to adequately fund the critical activities in this workgroup in TY2016. SDG&E requested $3,404,000 in TY2016 for total Operations Management and Training expenses.

ORA uses a 2010-2014 average plus incremental additions to produce a TY2016 forecast of $3,082,000 which is $322,000 below SDG&E's forecast of $3,404,000. As described in my direct testimony[40] and workpapers,[41] SDG&E selected a 2013 historical base plus incremental additions methodology, where the 2013 base is representative of the level of leadership, management, support, training personnel, and associated non-labor necessary to maintain current operations. ORA did not provide an explanation how this information was weighed by ORA when selecting a 2010-2014 average for the base portion of the forecast instead of a 2013 adjusted recorded. SDG&E acknowledges ORA's recognition of the importance of the incremental additions by including them in its forecast; however, ORA's use of the 2010-2014 average for the base forecast in effect greatly reduces the cost allocations to fund these incremental additions. A description of these incremental additions is provided below:

[40] Ex. SDG&E-04, page FBA-52 to FBA-53.
[41] Ex. SDG&E-04-WP, page 88.

- Expansion of the Operator Qualification Program[42]

The Operator Qualification program at SDG&E will require an expansion of the existing program managed by SDG&E's centralized Gas Operations Training department. This expansion will better align with industry leading practices, which generally follow the ASME B31Q standard.[43] The ASME standard is also referenced on the website of the U.S. Department of Transportation's PHMSA, in its instructions on operator qualification enforcement guidance.[44] This material is given to the students who are trained by PHMSA to be auditors. This expansion includes:

- ✓ The addition of qualification elements and additional tasks within those elements - Currently there are 55 covered tasks, and each covered tasks consists of a written and a performance test (55 tasks X 2 tests = 110 tests). The Operator Qualification rule requires that the individual's knowledge, skills and abilities are demonstrated and tested for each task. The new program will expand from 55 to 125 tasks. This will require a consequent expansion in qualification training, test and evaluation administration and documentation for this significant increase in the number of tasks.[45]
- ✓ An increase in the frequency for subsequent qualification in alignment with emerging industry leading practices - The subsequent qualification cycle is currently done every five years per employee. The industry standard is to be done every three years. Therefore, SDG&E is moving to a three-year cycle. A significant increase in the number of subsequent qualification tests and evaluations will result.[46]
- ✓ Increased recordkeeping to record and track the program – The more than doubling of the number of tasks (from 55 to 125) will require a significant increase in employee qualification documentation and record keeping. An electronic record-keeping process will be implemented to bring the existing and expanded program from a

[42] Ex. SDG&E-04, page FBA-53 line 8 to FBA-55 line 8.
[43] ASME B31Q Edition 10 (September 30, 2010).
[44] http://phmsa.dot.gov/foia/e-reading-room, Section III. Staff Manuals and Instructions, "OQ Enforcement Guidance (6 24 2014)."
[45] Ex. SDG&E-04, page FBA-53 line 12-18.
[46] Ex. SDG&E-04, page FBA-53 line 19-23.

manual record-keeping system to a fully electronic system in order to store, review and retrieve all the Operator Qualification records.[47]

- ✓ Additional instructional designers, instructors, and qualification evaluators to support program expansion – The increase in number of tasks and increase in the frequency of subsequent qualification, as described above, will require the addition of instructional designers to design the training modules, instructors to perform qualification training, and evaluators to verify through testing that the skills and knowledge of employees are acceptable and that they are qualified for specific tasks.[48]

The following two items describe the required incremental activities:

- o Pipeline Inspection and Operator Qualification Evaluation Personnel Additions[49]

To enhance pipeline safety, SDG&E embarked on a new high pressure pipeline documentation system that included, but was not limited to, verifying the material records for all high pressure pipeline materials installed, documenting the location of each component installed, and verifying that the strength test parameters meet design specifications. This represents an increase in the resources that were dedicated to pipeline documentation in the past. A portion of this resource impact, the initial resources required to develop the new documentation program, including the engineering, design, and material procurement and verification phase, is already included in the 2013 base. Continuing with this safety enhancement requires the field documentation quality and control, field material and pipeline as-built drawing development, and field welding and installation inspection portion as an incremental addition for the forecast years, and which will require the addition of three Welding Inspectors—one charging to O&M and the other two charging to capital beginning in 2016.

Also included in this workgroup is incremental labor and non-labor expense for two Operator Qualification Evaluators. As explained in the discussion above, the additional Operator Qualification evaluators are required for expanded employee testing to verify that the skills and knowledge of employees are acceptable and that they are qualified for specific tasks as recommended by the American Society of Mechanical Engineers B31Q Operator Qualification standard.

[47] Ex. SDG&E-04, page FBA-53 line 24-29.
[48] Ex. SDG&E-04, page FBA-53 line 30 to FBA-54 line 4.
[49] Ex. SDG&E-04, page FBA-54 line 6-28.

The total incremental funding required for the additional Welding Inspector (charged to O&M) and the two Operator Qualification Evaluators in this workgroup is $300,000 over the forecast base for TY2016.

- Operator Qualification Program Design and Training Personnel Additions[50]

As described above for the expansion of the Operator Qualification program, the increase in the number of tasks and in the frequency of subsequent qualification will require the addition of three Instructional Designers to design the task training modules and two Operations Instructors to perform the expanded qualification training.

The total labor and non-labor incremental funding needed for this workgroup is $473,000 over the forecast base for TY2016.

- Annual Welding Training[51]

Additional annual welding training and qualification will begin in 2014 and carry forward to train Company pipeline welders on a new welding process, which consists of a low-hydrogen welding procedure required to comply with recommended practices set forth in API 1104 Appendix B for in-service welding. Prior to 2013, this process was accomplished using only a small number of specialized welders from the pipeline welding Pre-Fabrication Shop. In order to increase the Company's flexibility in utilizing its welder workforce, to accommodate increased workload, to maintain pipeline reliability, and to maintain a highly skilled welding workforce, the SDG&E is taking action to qualify all the Company welders in this process. This will require that all SDG&E pipeline welders attend a six-week initial training class, plus a subsequent semi-annual requalification. A program including a total of six welders from a Company pool of 18 welders will be trained and/or re-tested on an annual basis. This annual training and testing will result in a $138,000 increase in expense reported to this workgroup over the base forecast for TY2016.

- Leak Survey and CP Quality Assurance Specialist[52]

As governmental audits are becoming more stringent and as a retiring workforce is replaced with a less experienced workforce, SDG&E has found the need to collaborate with SoCalGas to implement a centralized Quality Assurance program. This program will perform audits for Leak Survey, Cathodic Protection, Pipeline Patrol, Bridge and Span inspections. The

[50] Ex. SDG&E-04, page FBA-55 line 1-8.
[51] Ex. SDG&E-04, page FBA-55 line 9-21.
[52] Ex. SDG&E-04, page FBA-55 line 22 to FBA-56 line 7.

expanded audit workforce will allow the required field audits to be performed by this dedicated, centralized group.

This approach provides the benefit of having the same core group of specialists performing all District audits. These Quality Assurance Specialists will bring consistency across the companies with respect to how these audits are performed, the elements that are being examined, and the follow-up corrective action that must be completed, documented, and verified. Additionally, a Centralized Audit function such as this is better equipped to identify trends, provide direct employee training, and determine the effectiveness, and adequacy of the procedures used in normal operation and maintenance. This team will also be able to make recommendations to modify or enhance the policies and procedures when deficiencies are found. The Specialist will be able to perform the suite of audits mentioned above over a one-week period. This approach will enable Quality Assurance Audits to be completed bi-monthly at each District system-wide. This upward pressure results in a $100,000 increase in expense reported to this workgroup over the base forecast in TY2016.

- Compliance Assurance Technical Advisor[53]

Over the last few years, SDG&E has implemented new field technologies to support operations processes. After the implementation of SAP as the work management tool, and Click as the work scheduling and order completion tool, SDG&E is now faced with the opportunity and challenge of analyzing recorded inspection and repair data to verify accuracy and completeness of compliance data. Formerly, the information related to inspection and leak repair orders was documented on paper and mostly reviewed prior to entry into the legacy systems. With the implementation of SAP and Click, data is recorded automatically. Therefore the critical task of data validation must occur once the information is already in the system of record.

An incremental Technical Advisor will be needed to extract information from SAP and create comprehensive data validation tools to identify missing or incorrect maintenance record information. This position will work directly with region personnel to retrieve the correct information and make the necessary changes in SAP. As trends are discovered with specific data issues, additional validation mechanisms will be implemented in Click to help reduce the number of errors discovered. This advisor will also assist in the preparation of reports for the annual

[53] Ex. SDG&E-04, page FBA-56 line 8-27.

CPUC audits and will support region management during audits and in responding to data requests.

This position has proven to be very successful, will cease to be funded by the Distribution Integrity Management Program starting in 2016, and will become part of routine operations in the future. The addition of this position will result in an increase of $100,000 in expense reported to this workgroup over the base forecast in TY2016.

- Technical Services Assistant[54]

As records of compliance work shift to a digital format, results from field inspections are able to be collected and analyzed at a more granular level. Consequently, the skills required of the staff that processes and maintains these records has shifted from primarily clerical to heavily technical with an increasing demand on their ability to move through volumes of data. While the use of SAP-PM as the system-of-record allows for efficient query and follow-up by an experienced user, the time required to train an employee to fill this role has increased significantly.

Currently, SDG&E employs five Technical Service Assistants to cover each of the five Gas Operations desks, namely, Cathodic Protection, Meters and Regulators, Pipeline Operations, Leakage Mitigation, and the Gas Instrument Shop. Each Technical Service Assistant is sufficiently trained in his or her area, but does not possess adequate skills to fully cover another desk. Nor are Technical Service Assistants able to cover the most basic tasks of two desks for any length of time without incurring overtime and potentially backlogging their own critical work. An additional lead Technical Service Assistant position is required to maintain a trained and available backup to cover an average of 27 weeks of vacation and sick time, as well as jury duty or other absences. A lead Technical Service Assistant is also required to provide additional support when non-routine tasks occur across all five desks such as annual CPUC and internal audits, by providing records and reports, and to serve as a subject matter expert.

In addition, the lead Technical Service Assistant will provide quality control for routine tasks, such as monitoring the status of work orders, verifying the completion of jobs, issuing follow-up notices for work to be done by personnel in and outside the department, and notifying supervisors of gas equipment or system emergency conditions where required. This approach will provide SDG&E with a viable option for maintaining continuity of compliance activities and

[54] Ex. SDG&E-04, page FBA-56 line 28 to FBA-57 line 23.

record-keeping when any of the five impacted desks are temporarily or permanently vacated. The addition of the lead Technical Service Assistant will result in a $55,000 increase in expense reported to this workgroup over the base forecast for TY2016.

When factoring the information provided, and absent an explanation on how this information was weighed by ORA, SDG&E maintains that consideration of this information supports the test year forecast as reasonable, and that ORA's $3,082,000 forecast is too low. SDG&E's forecast of $3,404,000 is appropriate, was developed using a sound forecast methodology, and the upmost concern for public safety and pipeline reliability.

III. REBUTTAL TO ORA'S CAPITAL PROPOSALS

ORA recommends that the Commission adopt the 2014 recorded capital expenditure of $32,821,000 in place of SDG&E's forecast expenditure of $32,378,000 and also accepts SDG&E's full 2015 and 2016 capital forecasts.[55] SDG&E does not oppose ORA's 2014 forecasts, and acknowledges ORA's acceptance of the forecast expenditures for 2015 and 2016.

IV. REBUTTAL TO OTHER PARTIES' PROPOSALS

A. CCUE

CCUE's testimony primarily focuses on SDG&E beginning to quantify and eliminate greenhouse gas methane leakage from the gas distribution system in compliance with SB 1371 and currently open Rulemaking (R.) 15-01-008.[56] Environmental Services addresses the recommendations raised by CCUE (see Ex. SDG&E-218).

However, Gas Distribution needs to clarify the following CCUE assertion: "SDG&E's GRC filing calls for a total expenditure of only $1.25 million per year, unchanged from the past, for leak detection. That represents well under 1% of SDG&E total projected gas O&M expenses in 2016 of $178 million. SDG&E is apparently making no effort to implement advanced leak detection technologies such as the Picarro technology."[57] CCUE's calculated ratio compares forecasted costs for leak survey to SDG&E's total revenue requirement being requested in this GRC. When compared to the more relevant cost, which is Gas Distribution's total 2016 O&M request, SDG&E Gas Distribution's request for costs pertaining to leak survey is actually 6%, instead of "well under 1%." Furthermore, SDG&E's commitment to thoroughly evaluate and

[55] ORA-9, page 20, line 11-12.
[56] CCUE/Marcus, page 34, section III.
[57] CCUE/ Marcus, page 35, line 16-18, page 36, line 1-2, section III

apply emerging leak detection technologies was demonstrated in 2013 by the replacement of the primary leak survey instrument. The older generation flame ionization (FI) handheld leak detectors were replaced with new state of the art Detecto Pak-Infrared (DP-IR) units. SDG&E completed this upgrade prior to the 2016 GRC and therefore not a part of the current capital funding request.

Further, CCUE states: "SDG&E should be required to develop and implement a plan to repair its backlog of known Grade 3 leaks during this GRC cycle. Since the number and location of such leaks is already known, SDG&E should be able to develop a cost estimate for doing so."[58] SDG&E does not have a leak backlog for the distribution gas system mains and services. At year end of 2013, SDG&E had a total of 30 leaks pending and scheduled for repair[59] within the required repair intervals. Notwithstanding, SDG&E meets or exceeds the minimum standards for the safe design, construction, installation, operation and maintenance of gas distribution facilities prescribed by federal regulations issued by the DOT in Title 49 Part 192 and the Commission's General Order 112-E.

B. EDF

Environmental Services addresses EDF's recommendations (see Ex. SDG&E-218). Gas Distribution disagrees with EDF's assertion that, "SDG&E has not yet mapped its leaks, and EDF is not aware that they are in the process of finding and mapping leaks."[60] In a response to a data request, SDG&E explained how it meets and in many cases exceeds the leak survey requirements of DOT CFR 49 Title 192 and G.O. 112-E.[61] The response details how SDG&E through required periodic leak surveys "finds" above and below grade leaks if present.

When leaks are located they are coded for response priority and scheduled for repair based on this priority. Leak repair details are mapped in SDG&E's Enterprise Gas GIS system providing comprehensive gas system leak history. In addition, SDG&E has recently launched a public methane emissions interactive web based map providing active non-hazardous leak information by zip code.[62]

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[58] CCUE/ Marcus, page 41, line 9-12, section III.
[59] DOT 2013 Annual Report SDG&E Gas Distribution Form F7100-1-1.pdf , page 2, Section C. See Appendix A.
[60] EDF/O'Connor, page 19, line 16-18.
[61] Response to EDF-SDG&E-DR-01, Q3. See Appendix B.
[62] http://www.sdge.com/methane-gas/sdge-system-methane-emission-map

V. CONCLUSION

On whole, and except where noted in this testimony, SDG&E maintains that its forecasts are reasonable and adequately supported. The reductions proposed by ORA do not sufficiently weigh the challenges affecting both the physical operation of the pipeline system and cost management aspects of its business that we expect in this GRC cycle. These challenges include:

- System Expansion – SDG&E's pipeline system continues to expand as new construction adds to the customer base and the necessary pipeline infrastructure.
- Aging Infrastructure – SDG&E's long history in the delivery of natural gas also means that a significant portion of the pipeline infrastructure has been in service for over 50 years.
- Economic Conditions – As a utility, SDG&E has an obligation to provide customers within its service territory natural gas services in accordance with tariff rules. As the customer base grows and expands, new demands are placed on the existing infrastructure.
- Trained and Qualified Workforce – Maintaining a skilled and qualified workforce is critical to success. It is through the efforts of the employees themselves and attention to expanding and improving skills training and validating skills through Operator Qualification that SDG&E is able to continue to deliver valued service to its customers and maintain its pipeline infrastructure.
- Agency Requirements – The construction, operation, and maintenance of SDG&E's pipeline system require interaction and compliance with numerous agencies. These agencies continue to impose new and often more stringent administrative, planning, and field construction operating conditions that can result in increased cost pressures to install and maintain the gas distribution system.
- Environmental and Pipeline Regulatory Compliance – In addition to the many environmental and pipeline regulations that SDG&E must comply with in its daily field operations, new and pending laws and regulations are anticipated to impact SDG&E during this and future rate case cycles.

- Integration of Technology – SDG&E is continuing to enhance and implement new technologies and technology-based systems and processes to improve operations and provide more tools and information for supervisors and employees.

SDG&E's TY2016 forecast is a reasonable estimate of future requirements to meet these challenges, and should therefore be adopted by the Commission.

This concludes my prepared rebuttal testimony.

APPENDIX A

DOT 2013 Annual Report SDG&E Gas Distribution Form F7100-1-1, page 2

MATERIAL	UNKNOWN	1" OR LESS	OVER 1" THRU 2"	OVER 2" THRU 4"	OVER 4" THRU 8"	OVER 8"	TOTAL
STEEL	0	269,456	3,660	67	1	0	273,184
DUCTILE IRON	0	0	0	0	0	0	0
COPPER	0	2	0	0	0	0	2
CAST/WROUGHT IRON	0	0	0	0	0	0	0
PLASTIC 1 PVC	0	0	0	0	0	0	0
2 PE	0	344,253	15,113	99	5	0	359,470
3 ABS	0	0	0	0	0	0	0
4 OTHER PLASTIC	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0
SYSTEM TOTALS	0	613,711	18,773	166	6	0	632,656

4 MILES OF MAIN AND NUMBER OF SERVICES BY DECADE OF INSTALLATION

	UN-KNOWN	PRE-1940	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019	TOTAL
MILES OF MAIN	0	204	286	1161	1117	1531	1517	1051	1022	108	7997
NUMBER OF SERVICES	0	15,481	21,788	88,135	84,767	116,601	115,313	80,104	89,296	21,171	632,656

PART C - TOTAL LEAKS AND HAZARDOUS LEAKS ELIMINATED/REPAIRED DURING YEAR

CAUSE OF LEAK	Mains		Services	
	Total	Hazardous	Total	Hazardous
CORROSION	52	28	300	254
NATURAL FORCES	11	10	44	42
EXCAVATION DAMAGE	54	54	255	254
OTHER OUTSIDE FORCE DAMAGE	0	0	15	15
MATERIAL OR WELDS	30	19	95	81
EQUIPMENT	0	0	2	2
INCORRECT OPERATIONS	34	29	34	30
OTHER	21	18	33	28

NUMBER OF KNOWN SYSTEM LEAKS AT END OF YEAR SCHEDULED FOR REPAIR **30**

PART D – EXCAVATION DAMAGE	PART E – EXCESS FLOW VALVE (EFV) DATA
Number of Excavation Damages **382** Number of Excavation Tickets: **81,497**	Total Number Of EFVs on Single-family Residential Services Installed During Year: **1,037** Estimated Number of EFVs In System At End Of Year **6,495**

APPENDIX B

RESPONSE TO EDF-SDG&E-DR-01, Question 3

EDF DATA REQUEST
EDF-SDG&E-DR-01
SDG&E 2016 GRC – A.14-11-003
SDG&E RESPONSE
DATE RECEIVED: APRIL 23, 2015
DATE RESPONDED: MAY 7, 2015

3. Referring to page 18 of Frank Ayala's testimony, please provide an explanation and appropriate documentation as to how leak surveys are currently monitored and on how frequently they are done.

SDG&E Response:

SDG&E meets and in many cases exceeds the leak survey requirements of DOT CFR 49 Title 192 and Commission's General Order 112-E by the following periodic leak surveys:

Above grade surveys:

- Survey of above ground piping exposed to the atmosphere (which includes all customer meter set assemblies and all above ground distribution facilities such as gas regulator stations and district gate stations) on a three-year interval.
- Survey of pipelines in bridges and pipeline spans across ravines to inspect for atmospheric corrosion, pipeline wrap damage and proper pipeline warning signage on an annual interval.

Below grade surveys:

- Survey of the entire plastic pipe and cathodically protected distribution pipeline system on a five-year interval. This is the primary gas distribution system (mains and services) serving our residential and commercial customers.
- Survey of the principal business areas in a community where large numbers of people congregate regularly on an annual interval.
- Survey of buried gas facilities in areas that have been designated as unstable earth (known slide areas) on a bi-monthly interval.
- Survey of high pressure (greater than 60psig) pipelines on a quarterly interval.
- Survey of pipelines crossing under railways on a bi-monthly interval
- Spot or special surveys (no periodic interval) to meet operational requirements (leak surveys following the uprating of the operating pressure of a pipeline), selected areas following a significant earthquake event.
- A follow-up leak investigation (when called) following a visit to a customer's premise by a Customer Service representative who was unable to find a leak reported by the customer.
- Survey of all Transmission Pipelines on a semi-annual interval.

SoCalGas Response to Question 3, Continued:

The above listed fixed interval leak surveys are monitored (scheduled, recorded, and reported) using the SAP Work Management System. Leak survey plans for all the above listed surveys are developed on a quarterly basis by the SAP system then turned over to the ClickMobile dispatching system following review of the plans by Leak Survey supervision. The ClickMobile Dispatching system provides efficient routing and fixed schedule performance.

ClickMobile dispatches the fixed interval survey work on a weekly basis in accordance with the developed survey plans. The ClickMobile system also combines the unscheduled or spot leak surveys (from leak investigation orders) together with the planned surveys to make up the weekly work schedule.