

Application of SOUTHERN CALIFORNIA GAS )  
COMPANY for authority to update its gas revenue )  
requirement and base rates )  
effective January 1, 2019 (U 904-G) )

Application No. 17-10-008

Exhibit No.: (SCG-09-WP-R)

REVISED WORKPAPERS TO  
PREPARED DIRECT TESTIMONY  
OF DEANNA R. HAINES  
ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

DECEMBER 2017



**2019 General Rate Case - REVISED  
INDEX OF WORKPAPERS**

**Exhibit SCG-09-WP-R - GAS ENGINEERING**

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**Overall Summary For Exhibit No. SCG-09-WP-R**

<b>Area:</b>	<b>GAS ENGINEERING</b>
<b>Witness:</b>	<b>Deanna R. Haines</b>

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
<b>Non-Shared Services</b>	7,786	9,580	10,060	12,226
<b>Shared Services</b>	9,437	11,383	11,753	14,403
<b>Total</b>	<b>17,223</b>	<b>20,963</b>	<b>21,813</b>	<b>26,629</b>

*Note: Totals may include rounding differences.*

Southern California Gas Company  
 2019 GRC - REVISED  
 Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines

**Summary of Non-Shared Services Workpapers:**

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
A. GAS ENGINEERING	5,680	6,875	6,950	8,600
B. LAND SERVICES & RIGHT OF WAY	2,106	2,705	3,110	3,626
<b>Total</b>	<b>7,786</b>	<b>9,580</b>	<b>10,060</b>	<b>12,226</b>

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: A. GAS ENGINEERING  
Workpaper: VARIOUS

**Summary for Category: A. GAS ENGINEERING**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	3,742	4,224	4,259	4,574
Non-Labor	1,939	2,651	2,691	4,026
NSE	0	0	0	0
<b>Total</b>	<b>5,681</b>	<b>6,875</b>	<b>6,950</b>	<b>8,600</b>
FTE	37.3	43.5	43.5	47.7

**Workpapers belonging to this Category:**

**2EN000.000 GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANC**

Labor	3,710	4,127	4,162	4,292
Non-Labor	1,829	1,741	1,781	1,791
NSE	0	0	0	0
<b>Total</b>	<b>5,539</b>	<b>5,868</b>	<b>5,943</b>	<b>6,083</b>
FTE	37.0	42.2	42.2	44.2

**2EN002.000 CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING**

Labor	32	97	97	282
Non-Labor	110	910	910	2,235
NSE	0	0	0	0
<b>Total</b>	<b>142</b>	<b>1,007</b>	<b>1,007</b>	<b>2,517</b>
FTE	0.3	1.3	1.3	3.5

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**

**2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD  
MAINTFNANCE**

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 1. EAC, NGV, AND ELECTRICAL FIELD MAINTENANCE  
 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANCE

**Activity Description:**

This activity consolidates three non-shared services in Gas Engineering: The Engineering Analysis Center (EAC), Natural Gas Vehicle (NGV) Maintenance, and Electrical Field Maintenance. The EAC performs many core engineering activities to maintain safe and reliable operation and provide support to various organizations at SoCalGas. EAC activities in this area pertain to material and equipment, air quality and compressor services, and applied technologies. The NGV group is responsible for providing field support and maintaining the safe and reliable operations at SoCalGas' NGV fueling stations. The Electrical Field Maintenance expenditures include field support and maintenance of SoCalGas' electrical equipment.

**Forecast Explanations:**

**Labor - 5-YR Average**

As the foundation for future labor expense requirements, the 5 year average was chosen. The nature of work performed by the Gas Engineering department has proven to be the best indicator of work. This forecasting methodology serves to more accurately even out the work variations that occur. However, new and enhanced regulations are emerging and thus requiring additional staffing and resources to comply. These incremental costs have been identified and added to the 5 year average. This forecast in this workpaper is shown as a non-shared because historically the activities performed in this workgroup have been non-shared. New activities and programs have been identified to support both SoCalGas and SDG&E, thus requiring this workgroup to perform utility shared services. The forecast impacted will be updated at the earliest opportunity.

**Non-Labor - 5-YR Average**

As the foundation for future non labor expense requirements, the 5 year average was chosen. The nature of work performed by the Gas Engineering department has proven to be relatively stable over time. The 5 year average best represents the work group's funding requirements. However, new and enhanced regulations are emerging and thus requiring additional staffing and resources to comply. These incremental costs have been identified and added to the 5 year average. This forecast in this workpaper is shown as a non-shared because historically the activities performed in this workgroup have been non-shared. New activities and programs have been identified to support both SoCalGas and SDG&E, thus requiring this workgroup to perform utility shared services. The forecast impacted will be updated at the earliest opportunity.

**NSE - 5-YR Average**

There are no Non Standard escalation expenses in this work group

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		3,315	3,405	3,424	3,555	3,710	4,126	4,161	4,291	
Non-Labor		1,240	1,234	1,626	1,603	1,829	1,741	1,781	1,791	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>4,555</b>	<b>4,639</b>	<b>5,050</b>	<b>5,159</b>	<b>5,538</b>	<b>5,867</b>	<b>5,942</b>	<b>6,082</b>	
FTE		34.1	34.8	34.5	35.6	37.0	42.1	42.1	44.1	

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 1. EAC, NGV, AND ELECTRICAL FIELD MAINTENANCE  
 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANCE

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	3,482	3,482	3,482	645	680	810	4,127	4,162	4,292
Non-Labor	5-YR Average	1,506	1,506	1,506	235	275	285	1,741	1,781	1,791
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>4,988</b>	<b>4,988</b>	<b>4,988</b>	<b>880</b>	<b>955</b>	<b>1,095</b>	<b>5,868</b>	<b>5,943</b>	<b>6,083</b>
FTE	5-YR Average	35.2	35.2	35.2	7.0	7.0	9.0	42.2	42.2	44.2

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161201104421147	
<b>Explanation:</b>		Upward pressure adjustment to hire two employees in 2017 in cost center 2200-1179: Non destructive testing Quality Program - Compliance; Implementation of oversight inspection program for Non Destructive testing as a correcting action from CPUC audit, to improve compliance with inspection requirements and qualification and oversight of contractors, incremental tasks. Non Labor: certifications, employee expenses, calibrations, inspection equipment spare parts and accessories, repairs.							
2017	RnwblGas-Other	0	100	0	100	0.0	1-Sided Adj	MGONZALX20161201105039897	
<b>Explanation:</b>		Cost Center 2200-1179 adjustment: Biogas testing of low action levels - Compliance; Testing and consulting expenses to substantiate definition of lower action levels for constituents of concern for pipeline integrity.							
2017	Other	90	10	0	100	1.0	1-Sided Adj	MGONZALX20161201105209443	
<b>Explanation:</b>		Upward pressure adjustment in Cost Center 2200-1179: Measurement, regulation and control device evaluation; Evaluation of regulator and metering devices for failure analysis and integrity, testing and recommendations. Non labor: weathering and other testing equipment spare parts and repairs, consumable laboratory materials.							
2017	Other	100	25	0	125	1.0	1-Sided Adj	MGONZALX20161201105313797	
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1179: Coating Inspector and Applicator Qualification program - Compliance; Implementation of new program for coating inspectors and contractor coating applicators, qualification via practical test, hands on training for inspectors, incremental tasks. Non labor: tool calibration, coating equipment spare parts and replacement, consumables for practice tests (coating and paint material, sanblasting material and others), certifications.							
2017	Other	45	50	0	95	0.5	1-Sided Adj	MGONZALX20161201105513843	

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 1. EAC, NGV, AND ELECTRICAL FIELD MAINTENANCE  
 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANCE

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1180: Source Testing - Compliance; New biogas producers will increase Rule 30 acceptance testing and will require additional trace constituents method developments, equipment, and monitoring. Non-Labor-Employee Expense, Calibration Gases, Reagents, Solvents. Capital-Siloxane Monitor, Vinyl Chloride Monitor etc., employee expenses.						
2017	Other	45	15	0	60	0.5	1-Sided Adj	MGONZALX20161201105721650
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1180: Engine Analysis and Condition Monitoring - Compliance.						
2017	Other	65	5	0	70	1.0	1-Sided Adj	MGONZALX20161201151703580
<b>Explanation:</b>		Upward pressure adjustment of one union employee in the Natural Gas Vehicle group (Cost Center 2200-2265) to support the increase in number of fueling stations in the SoCalGas territory.						
2017	Other	100	10	0	110	1.0	1-Sided Adj	MGONZALX20161201151854373
<b>Explanation:</b>		Upward pressure adjustment of one Supervisor in the Natural Gas Vehicle group (Cost Center 2200-2265) to support the increase in number of fueling stations in the SoCalGas territory.						
<b>2017 Total</b>		<b>645</b>	<b>235</b>	<b>0</b>	<b>880</b>	<b>7.0</b>		
2018	Other	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161201104435493
<b>Explanation:</b>		Upward pressure adjustment to hire two employees in 2017 in cost center 2200-1179: Non destructive testing Quality Program - Compliance; Implementation of oversight inspection program for Non Destructive testing as a correcting action from CPUC audit, to improve compliance with inspection requirements and qualification and oversight of contractors, incremental tasks. Non Labor: certifications, employee expenses, calibrations, inspection equipment spare parts and accessories, repairs.						
2018	Other	100	20	0	120	1.0	1-Sided Adj	MGONZALX20161201104614197
<b>Explanation:</b>		Upward pressure adjustment to hire one employee in 2018 in cost center 2200-1179: Non destructive testing Quality Program - Compliance; Implementation of oversight inspection program for Non Destructive testing as a correcting action from CPUC audit, to improve compliance with inspection requirements and qualification and oversight of contractors, incremental tasks. Non Labor: certifications, employee expenses, calibrations, inspection equipment spare parts and accessories, repairs.						
2018	RnwblGas-Other	0	100	0	100	0.0	1-Sided Adj	MGONZALX20161201105049330
<b>Explanation:</b>		Cost Center 2200-1179 adjustment: Biogas testing of low action levels - Compliance; Testing and consulting expenses to substantiate definition of lower action levels for constituents of concern for pipeline integrity.						

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
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 Category: A. GAS ENGINEERING  
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 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANC

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>	
2018	Other	90	10	0	100	1.0	1-Sided Adj	MGONZALX20161201105221600	
<b>Explanation:</b>		Upward pressure adjustment in Cost Center 2200-1179: Measurement, regulation and control device evaluation; Evaluation of regulator and metering devices for failure analysis and integrity, testing and recommendations. Non labor: weathering and other testing equipment spare parts and repairs, consumable laboratory materials.							
2018	Other	100	25	0	125	1.0	1-Sided Adj	MGONZALX20161201105410343	
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1179: Coating Inspector and Applicator Qualification program - Compliance; Implementation of new program for coating inspectors and contractor coating applicators, qualification via practical test, hands on training for inspectors, incremental tasks. Non labor: tool calibration, coating equipment spare parts and replacement, consumables for practice tests (coating and paint material, sanblasting material and others), certifications.							
2018	Other	45	75	0	120	0.5	1-Sided Adj	MGONZALX20161201105539893	
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1180: Source Testing - Compliance; New biogas producers will increase Rule 30 acceptance testing and will require additional trace constituents method developments, equipment, and monitoring. Non-Labor-Employee Expense, Calibration Gases, Reagents, Solvents. Capital-Siloxane Monitor, Vinyl Chloride Monitor etc., employee expenses.							
2018	Other	45	15	0	60	0.5	1-Sided Adj	MGONZALX20161201105735373	
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1180: Engine Analysis and Condition Monitoring - Compliance.							
2018	Other	100	10	0	110	1.0	1-Sided Adj	MGONZALX20161201151916807	
<b>Explanation:</b>		Upward pressure adjustment of one Supervisor in 2017 in the Natural Gas Vehicle group (Cost Center 2200-2265) to support the increase in number of fueling stations in the SoCalGas territory.							
<b>2018 Total</b>		<b>680</b>	<b>275</b>	<b>0</b>	<b>955</b>	<b>7.0</b>			
2019	Other	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161201104449087	
<b>Explanation:</b>		Upward pressure adjustment to hire two employees in 2017 in cost center 2200-1179: Non destructive testing Quality Program - Compliance; Implementation of oversight inspection program for Non Destructive testing as a correcting action from CPUC audit, to improve compliance with inspection requirements and qualification and oversight of contractors, incremental tasks. Non Labor: certifications, employee expenses, calibrations, inspection equipment spare parts and accessories, repairs.							
2019	Other	100	20	0	120	1.0	1-Sided Adj	MGONZALX20161201104851887	

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
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 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANC

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
<b>Explanation:</b>		Upward pressure adjustment to account for the hire of one employee in 2018 in cost center 2200-1179: Non destructive testing Quality Program - Compliance; Implementation of oversight inspection program for Non Destructive testing as a correcting action from CPUC audit, to improve compliace with inspection requirements and qualification and oversight of contractors, incremental tasks. Non Labor: certifications, employee expenses, calibrations, inspection equipment spare parts and accessories, repairs.						
2019	RnwblGas-Other	0	100	0	100	0.0	1-Sided Adj	MGONZALX20161201105058547
<b>Explanation:</b>		Cost Center 2200-1178 adjustment: Biogas testing of low action levels - Compliance; Testing and consulting expenses to substantiate definition of lower action levels for constituents of concern for pipeline integrity.						
2019	Other	90	10	0	100	1.0	1-Sided Adj	MGONZALX20161201105231990
<b>Explanation:</b>		Upward pressure adjustment in Cost Center 2200-1179: Measurement, regulation and control device evaluation; Evaluation of regulator and metering devices for failure analysis and integrity, testing and recommendations. Non labor: weathering and other testing equipment spare parts and repairs, consumable laboratory materials.						
2019	Other	100	25	0	125	1.0	1-Sided Adj	MGONZALX20161201105420810
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1179: Coating Inspector and Applicator Qualification program - Compliance; Implementation of new program for coating inspectors and contractor coating applicators, qualification via practical test, hands on training for inspectors, incremental tasks. Non labor: tool calibration, coating equipment spare parts and replacement, consumables for practice tests (coating and paint material, sandblasting material and others), certifications.						
2019	Other	45	75	0	120	0.5	1-Sided Adj	MGONZALX20161201105635333
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1180: Source Testing - Compliance; New biogas producers will increase Rule 30 acceptance testing and will require additional trace constituents method developments, equipment, and monitoring. Non-Labor-Employee Expense, Calibration Gases, Reagents, Solvents. Capital-Siloxane Monitor, Vinyl Chloride Monitor etc., employee expenses.						
2019	Other	45	15	0	60	0.5	1-Sided Adj	MGONZALX20161201105747327
<b>Explanation:</b>		Upward pressure adjustment in cost center 2200-1180: Engine Analysis and Condition Monitoring - Compliance.						
2019	Other	130	10	0	140	2.0	1-Sided Adj	MGONZALX20161201151817000
<b>Explanation:</b>		Upward pressure adjustment of one union employee added in 2017 and one additional employee anticipated in 2019 in the Natural Gas Vehicle group (Cost Center 2200-2265) to support the increase in number of fueling stations in the SoCalGas territory.						
2019	Other	100	10	0	110	1.0	1-Sided Adj	MGONZALX20161201151939550
<b>Explanation:</b>		Upward pressure adjustment of one Supervisor in 2017 in the Natural Gas Vehicle group (Cost Center 2200-2265) to support the increase in number of fueling stations in the SoCalGas territory.						

Note: Totals may include rounding differences.

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 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANC

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
<b>2019 Total</b>		<b>810</b>	<b>285</b>	<b>0</b>	<b>1,095</b>	<b>9.0</b>		

*Note: Totals may include rounding differences.*

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**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	3,697	3,428	3,460	3,436	3,800
Non-Labor	1,416	1,424	1,860	1,711	1,955
NSE	0	0	0	0	0
<b>Total</b>	<b>5,113</b>	<b>4,852</b>	<b>5,320</b>	<b>5,147</b>	<b>5,755</b>
FTE	43.4	38.2	36.8	35.1	37.6
<b>Adjustments (Nominal \$) **</b>					
Labor	-1,095	-705	-653	-449	-614
Non-Labor	-211	-205	-228	-112	-127
NSE	0	0	0	0	0
<b>Total</b>	<b>-1,306</b>	<b>-910</b>	<b>-882</b>	<b>-561</b>	<b>-741</b>
FTE	-14.1	-8.5	-7.3	-4.7	-6.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	2,602	2,723	2,807	2,987	3,185
Non-Labor	1,205	1,219	1,632	1,599	1,829
NSE	0	0	0	0	0
<b>Total</b>	<b>3,807</b>	<b>3,942</b>	<b>4,439</b>	<b>4,586</b>	<b>5,014</b>
FTE	29.3	29.7	29.5	30.4	31.6
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	417	453	458	483	525
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>417</b>	<b>453</b>	<b>458</b>	<b>483</b>	<b>525</b>
FTE	4.9	5.0	5.0	5.1	5.4
<b>Escalation to 2016\$</b>					
Labor	296	229	159	85	0
Non-Labor	35	15	-5	4	0
NSE	0	0	0	0	0
<b>Total</b>	<b>331</b>	<b>245</b>	<b>154</b>	<b>89</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	3,315	3,405	3,424	3,555	3,710
Non-Labor	1,240	1,234	1,626	1,603	1,829
NSE	0	0	0	0	0
<b>Total</b>	<b>4,555</b>	<b>4,639</b>	<b>5,050</b>	<b>5,159</b>	<b>5,538</b>
FTE	34.2	34.7	34.5	35.5	37.0

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	-1,095	-705	-653	-449	-614
Non-Labor	-211	-205	-228	-112	-127
NSE	0	0	0	0	0
<b>Total</b>	<b>-1,306</b>	<b>-910</b>	<b>-882</b>	<b>-561</b>	<b>-741</b>
FTE	-14.1	-8.5	-7.3	-4.7	-6.0

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	0	0	0	0.0	CCTR Transf From 2200-7211.000	MGONZALX20170511110552850
<b>Explanation:</b> Adjustment to fix a transfer error. The error was the transfer the historical expenditures in cost center 2200-2317 from the Gas Engineering witness area to proxy cost center 2200-7211 of non labor expense of \$724,858. However, the correct amount is \$724,828.							
2012	Other	-392	-4	0	-5.0	CCTR Transf To 2200-0308.000	JJBUNTIN20161103132607593
<b>Explanation:</b> This adjustment was made because the Web & Database Management responsibilities were moved to shared cost center 2200-0308 during a reorganization in 2014.							
2012	Other	0	-3	0	0.0	CCTR Transf To 2200-2376.000	JJBUNTIN20161103132931397
<b>Explanation:</b> This adjustment was made to transfer historical expenditures from cost center 2200-0314 to cost center 2200-2376 because the GIS responsibilities were moved to shared cost center 2200-2376 during a reorganization in 2014.							
2012	Other	-322	-3	0	-4.9	CCTR Transf To 2200-0225.000	JJBUNTIN20161103134503767
<b>Explanation:</b> This adjustment was made because the VP of System Integrity and Asset management responsibilities were moved to shared cost center 2200-0225 during a reorganization in 2014.							
2012	Other	47	1	0	0.9	CCTR Transf From 2200-2322.000	MGONZALX20161202151424060
<b>Explanation:</b> Adjustment to transfer the ESS Governance (2200-2322) to Gas Engineering witness area cost center 2200-0307.							
2012	Other	792	725	0	8.9	CCTR Transf From 2200-2317.000	MGONZALX20161202152356240
<b>Explanation:</b> Adjustment to transfer the ESS Field Force(2200-2317) to Gas Engineering witness area cost center 2200-0307.							
2012	Other	72	15	0	0.7	CCTR Transf From 2200-2323.000	MGONZALX20161202153751333
<b>Explanation:</b> Adjustment to transfer the ESS Implementation Support (2200-2323) to Gas Engineering witness area cost center 2200-0307.							

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2012	Other	241	26	0	3.4	CCTR Transf From 2200-2324.000	MGONZALX20161202153911397
<b>Explanation:</b> Adjustment to transfer the ESS Mobile App (2200-2324) to Gas Engineering witness area cost center 2200-0307.							
2012	Other	293	81	0	3.5	CCTR Transf From 2200-2375.000	MGONZALX20161202161930607
<b>Explanation:</b> Adjustment to transfer the ESS Mobile (2200-2375) to Gas Engineering witness area cost center 2200-0307.							
2012	Other	0	0	0	0.0	CCTR Transf To 2200-0306.000	MGONZALX20161109144023103
<b>Explanation:</b> This adjustment is to transfer the historical cost from cost center 2200-0304 to cost center 2200-0306 because the activities and functions of these two cost centers have merged.							
2012	Other	-259	-83	0	-2.7	CCTR Transf To 2200-0318.000	MGONZALX20161201143055433
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2012	Other	-123	-119	0	-1.5	CCTR Transf To 2200-0318.000	MGONZALX20161201143946183
<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2012	Other	0	0	0	0.0	CCTR Transf To 2200-0320.001	MGONZALX20170308171735260
<b>Explanation:</b> Adjustment to transfer to a shared service cost center 2200-0320.001							
2012	Other	-47	-1	0	-0.9	CCTR Transf To 2200-7212.000	MGONZALX20170511104402627
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2322 from the Gas Engineering witness area to proxy cost center 2200-7212 that will represent cost center 2200-2322 within the System Integrity witness area.							
2012	Other	-792	-725	0	-8.9	CCTR Transf To 2200-7211.000	MGONZALX20170511104606570
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2317 from the Gas Engineering witness area to proxy cost center 2200-7211 that will represent cost center 2200-2317 within the System Integrity witness area.							
2012	Other	-72	-15	0	-0.7	CCTR Transf To 2200-7213.000	MGONZALX20170511104741567
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2323 from the Gas Engineering witness area to proxy cost center 2200-7213 that will represent cost center 2200-2323 within the System Integrity witness area.							
2012	Other	-241	-26	0	-3.4	CCTR Transf To 2200-7214.000	MGONZALX20170511105108097

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<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2324 from the Gas Engineering witness area to proxy cost center 2200-7214 that will represent cost center 2200-2324 within the System Integrity witness area.							
2012	Other	-293	-81	0	-3.5	CCTR Transf To 2200-7215.000	MGONZALX20170511105351093
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2375 from the Gas Engineering witness area to proxy cost center 2200-7215 that will represent cost center 2200-2375 within the System Integrity witness area.							
<b>2012 Total</b>		<b>-1,095</b>	<b>-211</b>	<b>0</b>	<b>-14.1</b>		
2013	Other	14	0	0	0.2	CCTR Transf To 2200-0308.000	JJBUNTIN20161103132728813
<b>Explanation:</b> This adjustment was made because the Web & Database Management responsibilities were moved to shared cost center 2200-0308 during a reorganization in 2014.							
2013	Other	-1	0	0	0.0	CCTR Transf To 2200-2376.000	JJBUNTIN20161103133024407
<b>Explanation:</b> This adjustment was made because the GIS responsibilities were moved to shared cost center 2200-2376 during a reorganization in 2014.							
2013	Other	-278	-5	0	-4.2	CCTR Transf To 2200-0225.000	JJBUNTIN20161103134334393
<b>Explanation:</b> This adjustment was made because the VP of System Integrity and Asset management responsibilities were moved to shared cost center 2200-0225 during a reorganization in 2014.							
2013	Other	225	11	0	2.8	CCTR Transf From 2200-2375.000	MGONZALX20161202145617130
<b>Explanation:</b> Adjustment to transfer the historical expenditures in the ESS Mobile group (Cost Center 2200-2375) to the Gas Engineering witness group cost center 2200-0307. The ESS Mobile group will be sponsored by the Gas Engineering witness area because the work associated with this group is best represented as an enterprise group supporting different operations groups.							
2013	Other	47	0	0	0.8	CCTR Transf From 2200-2322.000	MGONZALX20161202151519500
<b>Explanation:</b> Adjustment to transfer the ESS Governance (2200-2322) to Gas Engineering witness area cost center 2200-0307.							
2013	Other	1,057	271	0	11.7	CCTR Transf From 2200-2317.000	MGONZALX20161202152451347
<b>Explanation:</b> Adjustment to transfer the ESS Field Force(2200-2317) to Gas Engineering witness area cost center 2200-0307.							
2013	Other	324	24	0	4.3	CCTR Transf From 2200-2324.000	MGONZALX20161202154104053
<b>Explanation:</b> Adjustment to transfer the ESS Mobile App Support (2200-2324) to Gas Engineering witness area cost center 2200-0307.							
2013	Other	120	17	0	1.2	CCTR Transf From 2200-2323.000	MGONZALX20161203073535510

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<b>Explanation:</b> Adjustment to transfer the ESS Implementation team from cost center 2200-2323 in the Gas Distribution witness area to cost center 2200-0307 to the Gas Engineering witness area.							
2013	Other	0	-2	0	0.0	1-Sided Adj	MGONZALX20161109145650367
<b>Explanation:</b> This adjustment was made to exclude the Compression Service Tariff (CST) costs related to the evaluation of CST facility installation site. Pursuant to CPUC decision D.12-12-037, all CST activities must be excluded from base rates.							
2013	Other	-41	-25	0	0.0	1-Sided Adj	MGONZALX20161130110137040
<b>Explanation:</b> This adjustment is to remove the new environmental emissions reporting historical costs from Gas Engineering cost center 2200-1180. These expenditures are related to NERBA Subpart W costs.							
2013	Other	-188	-107	0	-1.7	CCTR Transf To 2200-0318.000	MGONZALX20161201143153193
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2013	Other	-212	-65	0	-2.8	CCTR Transf To 2200-0318.000	MGONZALX20161201143856680
<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2013	Other	-225	-11	0	-2.8	CCTR Transf To 2200-7215.000	MGONZALX20170511112002120
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2375 from the Gas Engineering witness area to proxy cost center 2200-7215. This proxy cost center will represent cost center 2200-2375 within the System Integrity witness area.							
2013	Other	-1,057	-271	0	11.7	CCTR Transf To 2200-7211.000	MGONZALX20170511112122527
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2317 from the Gas Engineering witness area to proxy cost center 2200-7211. This proxy cost center will represent cost center 2200-2317 within the System Integrity witness area.							
2013	Other	-47	0	0	-0.8	CCTR Transf To 2200-7212.000	MGONZALX20170511112230000
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2322 from the Gas Engineering witness area to proxy cost center 2200-7212. This proxy cost center will represent cost center 2200-2322 within the System Integrity witness area.							
2013	Other	-324	-24	0	-4.3	CCTR Transf To 2200-7214.000	MGONZALX20170511112441613
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2324 from the Gas Engineering witness area to proxy cost center 2200-7214. This proxy cost center will represent cost center 2200-2324 within the System Integrity witness area.							

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2013	Other	-120	-17	0	-1.2	CCTR Transf To 2200-7213.000	MGONZALX20170511112646960
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2323 from the Gas Engineering witness area to proxy cost center 2200-7213. This proxy cost center will represent cost center 2200-2323 within the System Integrity witness area.							
<b>2013 Total</b>		<b>-705</b>	<b>-205</b>	<b>0</b>	<b>-8.5</b>		
2014	Other	16	-1	0	0.2	CCTR Transf To 2200-0225.000	JJBUNTIN20161103134133940
<b>Explanation:</b> This adjustment was made because the VP of System Integrity and Asset management responsibilities were moved to shared cost center 2200-0225 during a reorganization in 2014.							
2014	Other	-1	0	0	0.0	CCTR Transf To 2200-0306.000	MGONZALX20161109144232370
<b>Explanation:</b> This adjustment is to transfer the historical cost from cost center 2200-0304 to cost center 2200-0306 because the activities and functions of these two cost centers have merged.							
2014	Other	-245	-184	0	-2.6	CCTR Transf To 2200-0318.000	MGONZALX20161201143233307
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2014	Other	337	15	0	4.0	CCTR Transf From 2200-2375.000	MGONZALX20161202145710430
<b>Explanation:</b> Adjustment to transfer the historical expenditures in the ESS Mobile group (Cost Center 2200-2375) to the Gas Engineering witness group cost center 2200-0307. The ESS Mobile group will be sponsored by the Gas Engineering witness area because the work associated with this group is best represented as an enterprise group supporting different operations groups.							
2014	Other	50	1	0	0.9	CCTR Transf From 2200-2322.000	MGONZALX20161202151632880
<b>Explanation:</b> Adjustment to transfer the ESS Governance (2200-2322) to Gas Engineering witness area cost center 2200-0307.							
2014	Other	498	18	0	6.0	CCTR Transf From 2200-2323.000	MGONZALX20161202153606380
<b>Explanation:</b> Adjustment to transfer the ESS Implementation Support (2200-2323) to Gas Engineering witness area cost center 2200-0307.							
2014	Other	338	33	0	4.4	CCTR Transf From 2200-2324.000	MGONZALX20161202154208927
<b>Explanation:</b> Adjustment to transfer the ESS Mobile App Support (2200-2324) to Gas Engineering witness area cost center 2200-0307.							
2014	Other	-237	-43	0	-3.0	CCTR Transf To 2200-0318.000	MGONZALX20161201143755930

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<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2014	Other	-187	-1	0	-1.9	CCTR Transf To 2200-0320.001	MGONZALX20161201144411283
<b>Explanation:</b> Adjustment to transfer the Non-Shared Materials & Quality group (2200-2300) historical expenditure to Utility Shared Service (USS) cost center 2200-0320 (Materials & Quality). The Materials & Quality group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2014	Other	-498	-18	0	-6.0	CCTR Transf To 2200-7213.000	MGONZALX20170511113302040
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2323 from the Gas Engineering witness area to proxy cost center 2200-7213. This proxy cost center will represent cost center 2200-2323 within the System Integrity witness area.							
2014	Other	-338	-33	0	-4.4	CCTR Transf To 2200-7214.000	MGONZALX20170511113406437
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2324 from the Gas Engineering witness area to proxy cost center 2200-7214. This proxy cost center will represent cost center 2200-2324 within the System Integrity witness area.							
2014	Other	-337	-15	0	-4.0	CCTR Transf To 2200-7215.000	MGONZALX20170511114121820
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2375 from the Gas Engineering witness area to proxy cost center 2200-7215. This proxy cost center will represent cost center 2200-2375 within the System Integrity witness area.							
2014	Other	-50	-1	0	-0.9	CCTR Transf To 2200-7212.000	MGONZALX20170511114232607
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2322 from the Gas Engineering witness area to proxy cost center 2200-7212. This proxy cost center will represent cost center 2200-2322 within the System Integrity witness area.							
<b>2014 Total</b>		<b>-653</b>	<b>-228</b>	<b>0</b>	<b>-7.3</b>		
2015	Aliso	-1	0	0	0.0	1-Sided Adj	JJBUNTIN20161103132032030
<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.							
2015	Aliso	-2	0	0	0.0	1-Sided Adj	JJBUNTIN20161103133538420
<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.							
2015	Aliso	-2	0	0	0.0	1-Sided Adj	JJBUNTIN20161103133719520

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<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.							
2015	Other	379	13	0	4.3	CCTR Transf From 2200-2375.000	MGONZALX20161202145820250
<b>Explanation:</b> Adjustment to transfer the historical expenditures in the ESS Mobile group (Cost Center 2200-2375) to the Gas Engineering witness group cost center 2200-0307. The ESS Mobile group will be sponsored by the Gas Engineering witness area because the work associated with this group is best represented as an enterprise group supporting different operations groups.							
2015	Other	54	0	0	0.9	CCTR Transf From 2200-2322.000	MGONZALX20161202151734727
<b>Explanation:</b> Adjustment to transfer the ESS Governance (2200-2322) to Gas Engineering witness area cost center 2200-0307.							
2015	Other	87	17	0	0.8	CCTR Transf From 2200-2317.000	MGONZALX20161202152749347
<b>Explanation:</b> Adjustment to transfer the ESS Field Force(2200-2317) to Gas Engineering witness area cost center 2200-0307.							
2015	Other	700	14	0	8.0	CCTR Transf From 2200-2323.000	MGONZALX20161202153452100
<b>Explanation:</b> Adjustment to transfer the ESS Field Force(2200-2317) to Gas Engineering witness area cost center 2200-0307.							
2015	Other	348	144	0	4.3	CCTR Transf From 2200-2324.000	MGONZALX20161202154305720
<b>Explanation:</b> Adjustment to transfer the ESS Mobile App Support (2200-2324) to Gas Engineering witness area cost center 2200-0307.							
2015	Other	0	-1	0	0.0	CCTR Transf To 2200-0225.000	JJBUNTIN20161103133956190
<b>Explanation:</b> This adjustment was made because the VP of System Integrity and Asset management responsibilities were moved to shared cost center 2200-0225 during a reorganization in 2014.							
2015	Other	-159	-57	0	-1.5	CCTR Transf To 2200-0318.000	MGONZALX20161201143316980
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2015	Other	-154	-49	0	-1.9	CCTR Transf To 2200-0318.000	MGONZALX20161201143703217
<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2015	Other	-131	-6	0	-1.3	CCTR Transf To 2200-0320.001	MGONZALX20161201144546387

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<b>Explanation:</b> Adjustment to transfer the Non-Shared Materials & Quality group (2200-2300) historical expenditure to Utility Shared Service (USS) cost center 2200-0320 (Materials & Quality). The Materials & Quality group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2015	Other	-700	-14	0	-8.0	CCTR Transf To 2200-7213.000	MGONZALX20170511121131027
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2323 from the Gas Engineering witness area to proxy cost center 2200-7213. This proxy cost center will represent cost center 2200-2323 within the System Integrity witness area.							
2015	Other	-348	-144	0	-4.3	CCTR Transf To 2200-7214.000	MGONZALX20170511121300230
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2324 from the Gas Engineering witness area to proxy cost center 2200-7214. This proxy cost center will represent cost center 2200-2324 within the System Integrity witness area.							
2015	Other	-379	-13	0	-4.3	CCTR Transf To 2200-7215.000	MGONZALX20170511121413113
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2375 from the Gas Engineering witness area to proxy cost center 2200-7215. This proxy cost center will represent cost center 2200-2375 within the System Integrity witness area.							
2015	Other	-54	0	0	-0.9	CCTR Transf To 2200-7212.000	MGONZALX20170511121809240
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2322 from the Gas Engineering witness area to proxy cost center 2200-7212. This proxy cost center will represent cost center 2200-2322 within the System Integrity witness area.							
2015	Other	-87	-17	0	-0.8	CCTR Transf To 2200-7211.000	MGONZALX20170511121909317
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2317 from the Gas Engineering witness area to proxy cost center 2200-7211. This proxy cost center will represent cost center 2200-2317 within the System Integrity witness area.							
<b>2015 Total</b>		<b>-449</b>	<b>-112</b>	<b>0</b>	<b>-4.7</b>		
2016	Aliso	-3	0	0	-0.1	1-Sided Adj	JJBUNTIN20170224121415633
<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.							
2016	Aliso	-1	0	0	-0.1	1-Sided Adj	JJBUNTIN20170224121601930
<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.							
2016	Aliso	-70	-4	0	-0.7	1-Sided Adj	JJBUNTIN20170224121717963
<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.							

Note: Totals may include rounding differences.

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 1. EAC, NGV, AND ELECTRICAL FIELD MAINTENANCE  
 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANCE

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2016	Other	1,510	328	0	17.6	CCTR Transf From 2200-0302.000	MGONZALX20170307094419010
<b>Explanation:</b> Adjustment to transfer the Non Shared expenditures to Non Shared cost center 2200 - 0307. These expenditures in cost centers (2200 - 2375, 2322, 2317, 2323, 2324, and 2584) were incorrectly transferred to Shared Services cost center 2200 - 0302. This adjustment is to correct the error.							
2016	Other	-163	-79	0	-1.2	CCTR Transf To 2200-0318.000	MGONZALX20170307090759347
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2016	Other	-126	-35	0	-1.4	CCTR Transf To 2200-0318.000	MGONZALX20170307091246760
<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2016	Other	-231	-8	0	-2.2	CCTR Transf To 2200-0320.001	MGONZALX20170308171956010
<b>Explanation:</b> Adjustment to transfer the Non-Shared Materials & Quality group (2200-2300) historical expenditure to Utility Shared Service (USS) cost center 2200-0320.001 (Materials & Quality). The Materials & Quality group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2016	Other	-281	-3	0	-3.2	CCTR Transf To 2200-7220.000	MGONZALX20170511122854927
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2584 from the Gas Engineering witness area to proxy cost center 2200-7220. This proxy cost center will represent cost center 2200-2584 within the System Integrity witness area.							
2016	Other	-125	-7	0	-1.5	CCTR Transf To 2200-7211.000	MGONZALX20170511123013500
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2317 from the Gas Engineering witness area to proxy cost center 2200-7211. This proxy cost center will represent cost center 2200-2317 within the System Integrity witness area.							
2016	Other	-438	-14	0	-4.7	CCTR Transf To 2200-7213.000	MGONZALX20170511123123643
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2323 from the Gas Engineering witness area to proxy cost center 2200-7213. This proxy cost center will represent cost center 2200-2323 within the System Integrity witness area.							
2016	Other	-334	-289	0	-4.0	CCTR Transf To 2200-7214.000	MGONZALX20170511123220997
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2324 from the Gas Engineering witness area to proxy cost center 2200-7214. This proxy cost center will represent cost center 2200-2324 within the System Integrity witness area.							

Note: Totals may include rounding differences.

Southern California Gas Company  
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Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 1. EAC, NGV, AND ELECTRICAL FIELD MAINTENANCE  
 Workpaper: 2EN000.000 - GAS ENGINEERING ANALYSIS CENTER NGV and ELECTRICAL FIELD MAINTENANCE

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2016	Other	-278	-14	0	-3.3	CCTR Transf To 2200-7215.000	MGONZALX20170511123330147
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2375 from the Gas Engineering witness area to proxy cost center 2200-7215. This proxy cost center will represent cost center 2200-2375 within the System Integrity witness area.							
2016	Other	-53	0	0	-0.9	CCTR Transf To 2200-7212.000	MGONZALX20170511123430320
<b>Explanation:</b> Adjustment to manually transfer the historical expenditures in cost center 2200-2322 from the Gas Engineering witness area to proxy cost center 2200-7212. This proxy cost center will represent cost center 2200-2322 within the System Integrity witness area.							
2016	Aliso	-2	-1	0	-0.1	1-Sided Adj	JJBUNTIN20170307070141397
<b>Explanation:</b> This adjustment was made because this work (internal order number 300777009) was related to the Aliso Canyon Incident.							
2016	Aliso	-18	0	0	-0.1	1-Sided Adj	JJBUNTIN20170307070351630
<b>Explanation:</b> This adjustment was made because this work (internal order number 300777009) was related to the Aliso Canyon Incident.							
2016	Aliso	-1	0	0	-0.1	1-Sided Adj	JJBUNTIN20170307070625817
<b>Explanation:</b> This adjustment was made because this work (internal order number 300777009) was related to the Aliso Canyon Incident.							
<b>2016 Total</b>		<b>-614</b>	<b>-127</b>	<b>0</b>	<b>-6.0</b>		

Note: Totals may include rounding differences.

**Beginning of Workpaper**  
**2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING**

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 2. CIVIL, STRUCTURAL & HAZARD MITIGATION ENGINEERING  
 Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

**Activity Description:**

This work paper group has been assigned to incorporate the Operation and Maintenance expenses in Civil/Structural group in Gas Engineering. In addition to the O&M expenses, this work paper also includes activities associated with the geological hazard mitigation engineering that were part of the Risk Assessment Mitigation Phase (RAMP) Climate Change Adaptation Chapter.

**Forecast Explanations:**

**Labor - Base YR Rec**

As the foundation for future labor expense requirements, base year was chosen because the historical costs included other activities that did not represent the anticipated expense requirements. In addition, incremental adjustments to the base year were included to represent the expense requirements anticipated in test year 2019 related to RAMP. This forecast in this workpaper is shown as a non-shared because historically the activities performed in this workgroup have been non-shared. New activities and programs such as the Geological Hazard Mitigation program have been identified to support both SoCalGas and SDG&E, thus requiring this workgroup to perform utility shared services. The forecast impacted will be updated at the earliest opportunity.

**Non-Labor - Base YR Rec**

As the foundation for future labor expense requirements, base year was chosen because the historical costs included other activities that did not represent the anticipated expense requirements. In addition, incremental adjustments to the base year were included to represent the expense requirements anticipated in test year 2019 related to RAMP. This forecast in this workpaper is shown as a non-shared because historically the activities performed in this workgroup have been non-shared. New activities and programs such as the Geological Hazard Mitigation program have been identified to support both SoCalGas and SDG&E, thus requiring this workgroup to perform utility shared services. The forecast impacted will be updated at the earliest opportunity.

**NSE - Base YR Rec**

There are no Non Standard escalation expenses in this work group.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years	2012	2013	2014	2015	2016	2017	2018	2019		
Labor	94	98	110	43	32	96	96	281		
Non-Labor	17	17	82	7	110	910	910	2,235		
NSE	0	0	0	0	0	0	0	0		
<b>Total</b>	<b>111</b>	<b>115</b>	<b>192</b>	<b>50</b>	<b>142</b>	<b>1,006</b>	<b>1,006</b>	<b>2,516</b>		
FTE	0.7	0.7	0.9	0.6	0.3	1.3	1.3	3.5		

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 2. CIVIL, STRUCTURAL & HAZARD MITIGATION ENGINEERING  
 Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Base YR Rec	32	32	32	65	65	250	97	97	282
Non-Labor	Base YR Rec	110	110	110	800	800	2,125	910	910	2,235
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>142</b>	<b>142</b>	<b>142</b>	<b>865</b>	<b>865</b>	<b>2,375</b>	<b>1,007</b>	<b>1,007</b>	<b>2,517</b>
FTE	Base YR Rec	0.3	0.3	0.3	1.0	1.0	3.2	1.3	1.3	3.5

**Forecast Adjustment Details:**

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2017	RAMP Incremental	65	800	0	865	1.0	1-Sided Adj	MGONZALX20161201113552433

**Explanation:** Adjustment for Geological Hazard and Satellite Monitoring program included the climate change adaptation chapter 9 filed in November 2016, SoCalGas - I16-10-016 - RISK ASSESSMENT AND MITIGATION PHASE REPORT OF SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY. The labor request is based on 1 FTE = \$65K per year. The non labor encompasses the cost for Satellite Monitoring of identified transmission lines as described in the RAMP Climate Change Adaptation chapter.

<b>2017 Total</b>		<b>65</b>	<b>800</b>	<b>0</b>	<b>865</b>	<b>1.0</b>		
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2018	RAMP Incremental	65	800	0	865	1.0	1-Sided Adj	MGONZALX20161201113601627
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**Explanation:** Adjustment for Geological Hazard and Satellite Monitoring program included the climate change adaptation chapter 9 filed in November 2016, SoCalGas - I16-10-016 - RISK ASSESSMENT AND MITIGATION PHASE REPORT OF SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY. The labor request is based on 1 FTE = \$65K per year. The non labor encompasses the cost for Satellite Monitoring of identified transmission lines as described in the RAMP Climate Change Adaptation chapter.

<b>2018 Total</b>		<b>65</b>	<b>800</b>	<b>0</b>	<b>865</b>	<b>1.0</b>		
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2019	RAMP Incremental	65	800	0	865	1.0	1-Sided Adj	MGONZALX20161201113610143
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**Explanation:** Adjustment for Geological Hazard and Satellite Monitoring program included the climate change adaptation chapter 9 filed in November 2016, SoCalGas - I16-10-016 - RISK ASSESSMENT AND MITIGATION PHASE REPORT OF SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY. The labor request is based on 1 FTE = \$65K per year. The non labor encompasses the cost for Satellite Monitoring of identified transmission lines as described in the RAMP Climate Change Adaptation chapter.

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
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Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 2. CIVIL, STRUCTURAL & HAZARD MITIGATION ENGINEERING  
 Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
2019	RAMP Incremental	25	300	0	325	0.2	1-Sided Adj	MGONZALX20161201114014627
<b>Explanation:</b>		Adjustment for Vulnerability and Resilience Report in support of the Geological Hazard and Satellite Monitoring program included in climate change chapter 9 filed in November 2016, SoCalGas - I16-10-016 - RISK ASSESSMENT AND MITIGATION PHASE REPORT OF SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY.						
2019	RAMP Incremental	75	25	0	100	1.0	1-Sided Adj	MGONZALX20170309134732143
<b>Explanation:</b>		Upward pressure FTE (\$75K per year and \$25 in non labor expenditures) to manage the ongoing monitoring of the Strain Gauge Installation Projects related to RAMP chapter on Climate Change Adaptation.						
2019	Other	85	1,000	0	1,085	1.0	1-Sided Adj	MGONZALX20170309141755937
<b>Explanation:</b>		Incremental FTE (\$85K per year) to enhance the seismic program in the hazard mitigation engineering department. This will also include an initial non-labor cost for the contractor to conduct an initial seismic study on SoCalGas and SDG&E facilities.						
<b>2019 Total</b>		<b>250</b>	<b>2,125</b>	<b>0</b>	<b>2,375</b>	<b>3.2</b>		

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 2. CIVIL, STRUCTURAL & HAZARD MITIGATION ENGINEERING  
 Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	74	79	90	36	27
Non-Labor	17	17	83	7	110
NSE	0	0	0	0	0
<b>Total</b>	<b>91</b>	<b>95</b>	<b>173</b>	<b>43</b>	<b>137</b>
FTE	0.6	0.6	0.8	0.5	0.3
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	74	79	90	36	27
Non-Labor	17	17	83	7	110
NSE	0	0	0	0	0
<b>Total</b>	<b>91</b>	<b>95</b>	<b>173</b>	<b>43</b>	<b>137</b>
FTE	0.6	0.6	0.8	0.5	0.3
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	12	13	15	6	5
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>12</b>	<b>13</b>	<b>15</b>	<b>6</b>	<b>5</b>
FTE	0.1	0.1	0.1	0.1	0.0
<b>Escalation to 2016\$</b>					
Labor	8	7	5	1	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>9</b>	<b>7</b>	<b>5</b>	<b>1</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	94	98	110	43	32
Non-Labor	17	17	82	7	110
NSE	0	0	0	0	0
<b>Total</b>	<b>111</b>	<b>115</b>	<b>192</b>	<b>50</b>	<b>142</b>
FTE	0.7	0.7	0.9	0.6	0.3

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
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 Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING  
 Category-Sub: 2. CIVIL, STRUCTURAL & HAZARD MITIGATION ENGINEERING  
 Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
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Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

**RAMP Item # 1**

Ref ID: MGONZALX20161201113552433

RAMP Chapter: SCG-9

Program Name: Geotechnical Hazard Satellite Monitoring & Flood Hazard Analysis

Program Description: Research related to the increase in extreme weather events and subsidence

**Risk/Mitigation:**

Risk: Climate Change Adaptation

Mitigation: Monitoring of Land Movement & Flood zones

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	800	800	800
High	2,000	2,000	2,000

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Non-Mandated

Work Type Citation: GeoHazard Program

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 230

Explanation: The \$230K is the 2015 historical expend for the satellite monitoring project.

Southern California Gas Company  
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Non-Shared Service Workpapers

Area: GAS ENGINEERING  
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 Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

**RAMP Item # 2**

Ref ID: MGONZALX20170511211510330

RAMP Chapter: SCG-9

Program Name: Study of impact to SoCalGas system over a 50 to 100 year period

Program Description: Addresses/identifies potential risks posed to the gas infrastructure in SoCalGas by climate change

**Risk/Mitigation:**

Risk: Climate Change Adaptation

Mitigation: Gas Infrastructure Resilience & Vulnerability Report

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	200	200	200
High	400	400	400

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Non-Mandated

Work Type Citation: Senate Bill

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 0

Explanation: This is a proposed mitigation and there was no spending in 2016 for this project.

Southern California Gas Company  
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Non-Shared Service Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: A. GAS ENGINEERING  
Category-Sub: 2. CIVIL, STRUCTURAL & HAZARD MITIGATION ENGINEERING  
Workpaper: 2EN002.000 - CIVIL STRUCTURAL & HAZARD MITIGATION ENGINEERING

**RAMP Item # 3**

Ref ID: MGONZALX20170511212156760

RAMP Chapter: SCG-9

Program Name: Strain Gauge Installation Projects

Program Description: Monitors land movement via current infrastructure

**Risk/Mitigation:**

Risk: Climate Change Adaptation

Mitigation: Real time monitoring of land movement via stress acting on infrastructure

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	50	50	50
High	100	100	100

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Non-Mandated

Work Type Citation: n/a

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 0

Explanation: There was no expenditure for this type of project in 2016.

Southern California Gas Company  
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Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. LAND SERVICES & RIGHT OF WAY  
 Workpaper: 2EN001.000

**Summary for Category: B. LAND SERVICES & RIGHT OF WAY**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	554	685	736	837
Non-Labor	1,552	2,021	2,374	2,788
NSE	0	0	0	0
<b>Total</b>	<b>2,106</b>	<b>2,706</b>	<b>3,110</b>	<b>3,625</b>
FTE	6.2	7.5	8.0	9.0

**Workpapers belonging to this Category:**

**2EN001.000 LAND SERVICES & RIGHT OF WAY**

Labor	554	685	736	837
Non-Labor	1,552	2,021	2,374	2,788
NSE	0	0	0	0
<b>Total</b>	<b>2,106</b>	<b>2,706</b>	<b>3,110</b>	<b>3,625</b>
FTE	6.2	7.5	8.0	9.0

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2EN001.000 - LAND SERVICES & RIGHT OF WAY**

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. LAND SERVICES & RIGHT OF WAY  
 Category-Sub: 1. LAND SERVICES & RIGHT OF WAY  
 Workpaper: 2EN001.000 - LAND SERVICES & RIGHT OF WAY

**Activity Description:**

This work paper group has been assigned to incorporate the Operation and Maintenance expenses in the Land Services and Right of Way group in Gas Engineering. In addition to the O&M expenses, this work paper also includes activities associated with the right of way lease payments. Although no costs have been included for Morongo Project right-of-way, this workpaper has been assigned to show the two-way balancing account request.

**Forecast Explanations:**

**Labor - 5-YR Linear**

The 5-year linear was chosen for the labor in this group because the historical data indicate that activities and staffing levels have been consistent and this trend is expected to continue. Therefore, the best estimate for future requirements is the five year average.

**Non-Labor - 5-YR Linear**

The 5-year linear was chosen for the labor in this group because the historical data indicate that activities and staffing levels have been consistent and this trend is expected to continue. Therefore, the best estimate for future requirements is the five year average.

**NSE - 5-YR Linear**

There are no Non Standard escalation expenses in this work group.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		429	394	449	740	554	685	736	837	
Non-Labor		122	120	1,138	1,202	1,552	2,021	2,374	2,788	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>551</b>	<b>514</b>	<b>1,587</b>	<b>1,942</b>	<b>2,106</b>	<b>2,706</b>	<b>3,110</b>	<b>3,625</b>	
FTE		5.5	4.8	5.0	8.3	6.2	7.4	8.0	9.0	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. LAND SERVICES & RIGHT OF WAY  
 Category-Sub: 1. LAND SERVICES & RIGHT OF WAY  
 Workpaper: 2EN001.000 - LAND SERVICES & RIGHT OF WAY

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Linear	692	751	810	-7	-15	27	685	736	837
Non-Labor	5-YR Linear	2,010	2,404	2,798	11	-30	-10	2,021	2,374	2,788
NSE	5-YR Linear	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>2,701</b>	<b>3,155</b>	<b>3,609</b>	<b>4</b>	<b>-45</b>	<b>17</b>	<b>2,705</b>	<b>3,110</b>	<b>3,626</b>
FTE	5-YR Linear	7.5	8.0	8.5	0.0	0.0	0.5	7.5	8.0	9.0

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	FOF-Implementation	0	11	0	11	0.0	1-Sided Adj	MGONZALX20170310212539190	
<b>Explanation:</b>		FOF Implementation # 670: Digitize and create a searchable database of land right documents, eliminating hard-copy archive cost while optimizing time locating documents.							
2017	FOF-Ongoing	-7	0	0	-7	0.0	1-Sided Adj	MGONZALX20170310212705360	
<b>Explanation:</b>		FOF Ongoing Idea number 660: Benefit from the digitized and created searchable database of land right documents, eliminating hard-copy archive cost while optimizing time locating documents.							
<b>2017 Total</b>		<b>-7</b>	<b>11</b>	<b>0</b>	<b>4</b>	<b>0.0</b>			
2018	FOF-Ongoing	-15	-30	0	-45	0.0	1-Sided Adj	MGONZALX20170310212750237	
<b>Explanation:</b>		FOF Ongoing Idea number 660: Benefit from the digitized and created searchable database of land right documents, eliminating hard-copy archive cost while optimizing time locating documents.							
<b>2018 Total</b>		<b>-15</b>	<b>-30</b>	<b>0</b>	<b>-45</b>	<b>0.0</b>			
2019	FOF-Ongoing	-15	-40	0	-55	0.0	1-Sided Adj	MGONZALX20170622133651130	
<b>Explanation:</b>		FOF Ongoing Idea number 660: Benefit from the digitized and created searchable database of land right documents, eliminating hard-copy archive cost while optimizing time locating documents.							
2019	RnwblGas-SB1383	42	30	0	72	0.5	1-Sided Adj	MGONZALX20170309162051777	
<b>Explanation:</b>		Adjustment for land services expenditures related to new renewable natural gas projects.							
<b>2019 Total</b>		<b>27</b>	<b>-10</b>	<b>0</b>	<b>17</b>	<b>0.5</b>			

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: B. LAND SERVICES & RIGHT OF WAY  
Category-Sub: 1. LAND SERVICES & RIGHT OF WAY  
Workpaper: 2EN001.000 - LAND SERVICES & RIGHT OF WAY

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	337	315	368	621	526
Non-Labor	118	118	1,142	1,199	1,554
NSE	0	0	0	0	0
<b>Total</b>	<b>455</b>	<b>433</b>	<b>1,510</b>	<b>1,821</b>	<b>2,080</b>
FTE	4.7	4.1	4.3	7.2	5.8
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	-51
Non-Labor	0	0	0	0	-2
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-53</b>
FTE	0.0	0.0	0.0	0.0	-0.5
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	337	315	368	621	476
Non-Labor	118	118	1,142	1,199	1,552
NSE	0	0	0	0	0
<b>Total</b>	<b>455</b>	<b>433</b>	<b>1,510</b>	<b>1,821</b>	<b>2,027</b>
FTE	4.7	4.1	4.3	7.2	5.3
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	54	52	60	101	78
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>54</b>	<b>52</b>	<b>60</b>	<b>101</b>	<b>78</b>
FTE	0.8	0.7	0.7	1.2	0.9
<b>Escalation to 2016\$</b>					
Labor	38	27	21	18	0
Non-Labor	3	1	-4	3	0
NSE	0	0	0	0	0
<b>Total</b>	<b>42</b>	<b>28</b>	<b>17</b>	<b>21</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	429	394	449	740	554
Non-Labor	122	120	1,138	1,202	1,552
NSE	0	0	0	0	0
<b>Total</b>	<b>551</b>	<b>514</b>	<b>1,587</b>	<b>1,942</b>	<b>2,106</b>
FTE	5.5	4.8	5.0	8.4	6.2

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. LAND SERVICES & RIGHT OF WAY  
 Category-Sub: 1. LAND SERVICES & RIGHT OF WAY  
 Workpaper: 2EN001.000 - LAND SERVICES & RIGHT OF WAY

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	-51
Non-Labor	0	0	0	0	-2
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-53</b>
FTE	0.0	0.0	0.0	0.0	-0.5

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2015 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2016	Aliso	-51	-2	0	-0.5	1-Sided Adj	JJBUNTIN20170224122518187
<b>2016 Total</b>		<b>-51</b>	<b>-2</b>	<b>0</b>	<b>-0.5</b>		

**Explanation:** This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines

**Summary of Shared Services Workpapers:**

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
A. GAS ENGINEERING DIRECTOR	387	506	506	808
B. MEASUREMENT, REGULATION & CONTROL	4,930	6,084	6,294	6,648
C. ENGINEERING DESIGN	2,128	2,653	2,738	4,376
D. ENGINEERING ANALYSIS CENTER	1,501	1,702	1,777	2,133
E. RESEARCH & MATERIALS	491	438	438	438
<b>Total</b>	<b>9,437</b>	<b>11,383</b>	<b>11,753</b>	<b>14,403</b>

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING DIRECTOR  
 Cost Center: 2200-0300.000

**Summary for Category: A. GAS ENGINEERING DIRECTOR**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	352	455	455	755
Non-Labor	35	52	52	54
NSE	0	0	0	0
<b>Total</b>	<b>387</b>	<b>507</b>	<b>507</b>	<b>809</b>
FTE	2.6	3.6	3.6	7.6

**Cost Centers belonging to this Category:**

**2200-0300.000 DIR ENG & TECH SERVICES**

Labor	352	455	455	755
Non-Labor	35	52	52	54
NSE	0	0	0	0
<b>Total</b>	<b>387</b>	<b>507</b>	<b>507</b>	<b>809</b>
FTE	2.6	3.6	3.6	7.6

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0300.000 - DIR ENG & TECH SERVICES**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING DIRECTOR  
 Category-Sub: 1. DIRECTOR OF GAS ENGINEERING  
 Cost Center: 2200-0300.000 - DIR ENG & TECH SERVICES

**Activity Description:**

This cost center captures the activities and expenses associated with the Director of Gas Engineering and the organizations' administrative and financial support functions. Expenses are typically for engineering services and associated costs of management to the Cathodic Protect Program.

**Forecast Explanations:**

**Labor - 5-YR Average**

The labor expense requirements for this cost center have been consistent over recorded historical data. This trend is expected to continue. As such the 5 year average methodology was chosen as best representing the future expense requirements.

**Non-Labor - 5-YR Average**

The non labor expense requirements for this cost center have been consistent over recorded historical data. This trend is expected to continue. As such the 5 year average methodology was chosen as best representing the future expense requirements.

**NSE - 5-YR Average**

There are no Non Standard escalation expenses in this work group.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		424	374	258	264	352	454	454	754	
Non-Labor		45	13	60	46	35	51	51	53	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>469</b>	<b>387</b>	<b>318</b>	<b>310</b>	<b>387</b>	<b>505</b>	<b>505</b>	<b>807</b>	
FTE		3.4	2.9	2.1	1.9	2.6	3.5	3.5	7.5	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING DIRECTOR  
 Category-Sub: 1. DIRECTOR OF GAS ENGINEERING  
 Cost Center: 2200-0300.000 - DIR ENG & TECH SERVICES

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	16	1	0	17	0.1	3	0	0	3	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	337	34	0	371	2.4	451	51	0	502	3.5
<b>Total Incurred</b>	<b>353</b>	<b>35</b>	<b>0</b>	<b>388</b>	<b>2.5</b>	<b>454</b>	<b>51</b>	<b>0</b>	<b>505</b>	<b>3.5</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	3	0	0	3	0.0	3	0	0	3	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	451	51	0	502	3.5	751	53	0	804	7.5
<b>Total Incurred</b>	<b>454</b>	<b>51</b>	<b>0</b>	<b>505</b>	<b>3.5</b>	<b>754</b>	<b>53</b>	<b>0</b>	<b>807</b>	<b>7.5</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING DIRECTOR  
 Category-Sub: 1. DIRECTOR OF GAS ENGINEERING  
 Cost Center: 2200-0300.000 - DIR ENG & TECH SERVICES

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	335	335	335	120	120	420	455	455	755
Non-Labor	5-YR Average	40	40	40	12	12	14	52	52	54
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>374</b>	<b>374</b>	<b>374</b>	<b>132</b>	<b>132</b>	<b>434</b>	<b>506</b>	<b>506</b>	<b>808</b>
FTE	5-YR Average	2.6	2.6	2.6	1.0	1.0	5.0	3.6	3.6	7.6

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	120	12	0	132	1.0	1-Sided Adj	MGONZALX20161201150236407	
<b>Explanation:</b>		Upward pressure adjustment for the new project manager hired in 2016 to coordinate work associated with Cathodic Protection and other regulatory policies.							
<b>2017 Total</b>		<b>120</b>	<b>12</b>	<b>0</b>	<b>132</b>	<b>1.0</b>			
2018	Other	120	12	0	132	1.0	1-Sided Adj	MGONZALX20161201150248673	
<b>Explanation:</b>		Upward pressure adjustment for the new project manager hired in 2016 to coordinate work associated with Cathodic Protection and other regulatory policies.							
<b>2018 Total</b>		<b>120</b>	<b>12</b>	<b>0</b>	<b>132</b>	<b>1.0</b>			
2019	Other	120	12	0	132	1.0	1-Sided Adj	MGONZALX20161201150306983	
<b>Explanation:</b>		Upward pressure adjustment for the new project manager hired in 2016 to coordinte work associated with Cathodic Protection and other regulatory policies.							
2019	RAMP Incremental	300	2	0	302	4.0	1-Sided Adj	MGONZALX20170309130100433	
<b>Explanation:</b>		Adjustment to add 4 FTEs to the Gas Engineering department for the administration and support of the engineering design conversion from two-dimensional drawings to three-dimensional drawings (3D) using data centric design software, which will include modeling and scanning of gas facilities. The project is part of the records management effort as described RAMP chapter 8, Records Management. The forecast adjustment is shown in year 2019. This incremental adjustment to the forecast in this workpaper (2200-0300) was entered in the incorrect workpaper group. The correct workpaper groups is the Engineering Design workpaper group (2200-0318). The impacted forecast will be updated at the earliest opportunity.							

Note: Totals may include rounding differences.

Southern California Gas Company  
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 Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING DIRECTOR  
 Category-Sub: 1. DIRECTOR OF GAS ENGINEERING  
 Cost Center: 2200-0300.000 - DIR ENG & TECH SERVICES

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
<b>2019 Total</b>		<b>420</b>	<b>14</b>	<b>0</b>	<b>434</b>	<b>5.0</b>		

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING DIRECTOR  
 Category-Sub: 1. DIRECTOR OF GAS ENGINEERING  
 Cost Center: 2200-0300.000 - DIR ENG & TECH SERVICES

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	345	308	217	225	310
Non-Labor	43	14	59	45	35
NSE	0	0	0	0	0
<b>Total</b>	<b>387</b>	<b>323</b>	<b>276</b>	<b>270</b>	<b>345</b>
FTE	2.9	2.5	1.8	1.6	2.3
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	-7
Non-Labor	0	-2	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>-2</b>	<b>0</b>	<b>0</b>	<b>-7</b>
FTE	0.0	0.0	0.0	0.0	-0.1
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	345	308	217	225	302
Non-Labor	43	13	59	45	35
NSE	0	0	0	0	0
<b>Total</b>	<b>387</b>	<b>321</b>	<b>276</b>	<b>270</b>	<b>337</b>
FTE	2.9	2.5	1.8	1.6	2.2
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	55	51	35	36	50
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>55</b>	<b>51</b>	<b>35</b>	<b>36</b>	<b>50</b>
FTE	0.5	0.4	0.3	0.3	0.4
<b>Escalation to 2016\$</b>					
Labor	24	14	6	3	0
Non-Labor	3	1	1	1	0
NSE	0	0	0	0	0
<b>Total</b>	<b>27</b>	<b>15</b>	<b>7</b>	<b>4</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	424	374	258	264	352
Non-Labor	45	13	60	46	35
NSE	0	0	0	0	0
<b>Total</b>	<b>469</b>	<b>387</b>	<b>318</b>	<b>310</b>	<b>387</b>
FTE	3.4	2.9	2.1	1.9	2.6

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: A. GAS ENGINEERING DIRECTOR  
 Category-Sub: 1. DIRECTOR OF GAS ENGINEERING  
 Cost Center: 2200-0300.000 - DIR ENG & TECH SERVICES

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	-7
Non-Labor	0	-2	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>-2</b>	<b>0</b>	<b>0</b>	<b>-7</b>
FTE	0.0	0.0	0.0	0.0	-0.1

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2013	Other	0	-2	0	0.0	CCTR Transf To 2200-8000.002	MGONZALX20161119065601973
<b>2013 Total</b>		<b>0</b>	<b>-2</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2015 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2016	Aliso	-7	0	0	-0.1	1-Sided Adj	JJBUNTIN20170224104443013
<b>2016 Total</b>		<b>-7</b>	<b>0</b>	<b>0</b>	<b>-0.1</b>		

**Explanation:** This adjustment is to transfers LTIP to the Comp & Benefits witness at 2200-8000.002.

**Explanation:** This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: A. GAS ENGINEERING DIRECTOR  
Category-Sub: 1. DIRECTOR OF GAS ENGINEERING  
Cost Center: 2200-0300.000 - DIR ENG & TECH SERVICES

**RAMP Item # 1**

Ref ID: MGONZALX20170511213108577

RAMP Chapter: SCG-8

Program Name: Records Management - IT O&M Costs

Program Description: Costs for the ongoing O&M to maintain the systems used to store operational asset records

**Risk/Mitigation:**

Risk: Records Management

Mitigation: Information Management Systems

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	5,362	5,362	5,362
High	6,553	6,553	6,553

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Non-Mandated

Work Type Citation: Pending

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 0

Explanation: There are no historical expenditures for this program in 2016.

Southern California Gas Company  
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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: B. MEASUREMENT, REGULATION & CONTROL  
Cost Center: VARIOUS

**Summary for Category: B. MEASUREMENT, REGULATION & CONTROL**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	3,778	4,864	5,064	5,396
Non-Labor	1,152	1,221	1,231	1,253
NSE	0	0	0	0
<b>Total</b>	<b>4,930</b>	<b>6,085</b>	<b>6,295</b>	<b>6,649</b>
FTE	39.4	50.5	52.5	55.5

**Cost Centers belonging to this Category:**

**2200-0309.000 MRC MANAGEMENT & SPECIAL PROJECTS**

Labor	490	582	582	582
Non-Labor	373	316	316	316
NSE	0	0	0	0
<b>Total</b>	<b>863</b>	<b>898</b>	<b>898</b>	<b>898</b>
FTE	4.8	6.1	6.1	6.1

**2200-0310.000 MEASUREMENT & DESIGN**

Labor	600	788	788	1,018
Non-Labor	262	147	147	147
NSE	0	0	0	0
<b>Total</b>	<b>862</b>	<b>935</b>	<b>935</b>	<b>1,165</b>
FTE	6.3	7.9	7.9	9.9

**2200-0311.000 MEASUREMENT TECHNOLOGIES**

Labor	700	1,001	1,101	1,101
Non-Labor	107	154	179	179
NSE	0	0	0	0
<b>Total</b>	<b>807</b>	<b>1,155</b>	<b>1,280</b>	<b>1,280</b>
FTE	7.4	10.1	11.1	11.1

**2200-0312.000 MEASUREMENT FIELD SUPPORT**

Labor	623	843	943	1,045
Non-Labor	65	198	183	205
NSE	0	0	0	0
<b>Total</b>	<b>688</b>	<b>1,041</b>	<b>1,126</b>	<b>1,250</b>
FTE	6.2	8.4	9.4	10.4

**2200-0799.000 MRC - INSTRUMENTATION REPAIR AND FIELD SUPPORT**

Labor	772	945	945	945
Non-Labor	327	381	381	381
NSE	0	0	0	0
<b>Total</b>	<b>1,099</b>	<b>1,326</b>	<b>1,326</b>	<b>1,326</b>
FTE	8.9	10.8	10.8	10.8

Note: Totals may include rounding differences.

Southern California Gas Company  
 2019 GRC - REVISED  
 Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Cost Center: VARIOUS

In 2016\$ (000) Incurred Costs			
Adjusted-Recorded	Adjusted-Forecast		
2016	2017	2018	2019

**2200-2248.000 MRC STANDARDS**

Labor	593	705	705	705
Non-Labor	18	25	25	25
NSE	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total</b>	<b>611</b>	<b>730</b>	<b>730</b>	<b>730</b>
FTE	5.8	7.2	7.2	7.2

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0309.000 - MRC MANAGEMENT & SPECIAL PROJECTS**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 1. MRC MANAGEMENT & SPECIAL PROJECTS  
 Cost Center: 2200-0309.000 - MRC MANAGEMENT & SPECIAL PROJECTS

**Activity Description:**

This cost center provides the general management and all administrative support for approximately 114 employees performing work in shared cost centers 2200-0310, 2200- 0311, 2200-0312, 2200-2248, 2200-0799, 2200-2487; and for similar support of non-shared cost center 2200-2265. The shared cost centers are for engineering policy, design, material selection, testing and field support related to measurement, gas regulation, automated control systems for pipelines and compressor stations and other instrumentation for both SoCalGas and SDG&E.

**Forecast Explanations:**

**Labor - 5-YR Average**

The labor expense requirements for this cost center have been consistent over recorded historical data. This trend is expected to continue. As such, the 5 year average methodology was chosen as best representing the future expense requirements.

**Non-Labor - 5-YR Average**

The non-labor expense requirements for this cost center have been consistent over recorded historical data. This trend is expected to continue. As such the 5 year average methodology was chosen as best representing the future expense requirements.

**NSE - 5-YR Average**

There are no Non Standard escalation expenses in this work group.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		546	589	705	580	490	582	582	582	
Non-Labor		536	275	247	147	373	316	316	316	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>1,082</b>	<b>864</b>	<b>952</b>	<b>727</b>	<b>864</b>	<b>898</b>	<b>898</b>	<b>898</b>	
FTE		5.8	6.3	7.5	6.2	4.7	6.1	6.1	6.1	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 1. MRC MANAGEMENT & SPECIAL PROJECTS  
 Cost Center: 2200-0309.000 - MRC MANAGEMENT & SPECIAL PROJECTS

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	7	-2	0	5	0.1	5	4	0	9	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	483	374	0	857	4.7	577	312	0	889	6.1
<b>Total Incurred</b>	<b>490</b>	<b>372</b>	<b>0</b>	<b>862</b>	<b>4.8</b>	<b>582</b>	<b>316</b>	<b>0</b>	<b>898</b>	<b>6.1</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	5	4	0	9	0.0	5	4	0	9	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	577	312	0	889	6.1	577	312	0	889	6.1
<b>Total Incurred</b>	<b>582</b>	<b>316</b>	<b>0</b>	<b>898</b>	<b>6.1</b>	<b>582</b>	<b>316</b>	<b>0</b>	<b>898</b>	<b>6.1</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 1. MRC MANAGEMENT & SPECIAL PROJECTS  
 Cost Center: 2200-0309.000 - MRC MANAGEMENT & SPECIAL PROJECTS

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	582	582	582	0	0	0	582	582	582
Non-Labor	5-YR Average	316	316	316	0	0	0	316	316	316
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>898</b>	<b>898</b>	<b>898</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>898</b>	<b>898</b>	<b>898</b>
FTE	5-YR Average	6.1	6.1	6.1	0.0	0.0	0.0	6.1	6.1	6.1

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 1. MRC MANAGEMENT & SPECIAL PROJECTS  
 Cost Center: 2200-0309.000 - MRC MANAGEMENT & SPECIAL PROJECTS

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	444	485	460	396	424
Non-Labor	506	264	210	95	374
NSE	0	0	0	0	0
<b>Total</b>	<b>950</b>	<b>750</b>	<b>670</b>	<b>491</b>	<b>798</b>
FTE	5.0	5.4	5.0	4.3	4.2
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	133	96	-3
Non-Labor	0	0	32	50	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>165</b>	<b>147</b>	<b>-4</b>
FTE	0.0	0.0	1.4	1.0	-0.1
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	444	485	593	493	421
Non-Labor	506	264	242	145	373
NSE	0	0	0	0	0
<b>Total</b>	<b>950</b>	<b>750</b>	<b>835</b>	<b>638</b>	<b>794</b>
FTE	5.0	5.4	6.4	5.3	4.1
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	71	81	97	80	69
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>71</b>	<b>81</b>	<b>97</b>	<b>80</b>	<b>69</b>
FTE	0.8	0.9	1.1	0.9	0.7
<b>Escalation to 2016\$</b>					
Labor	31	23	15	7	0
Non-Labor	30	11	5	2	0
NSE	0	0	0	0	0
<b>Total</b>	<b>61</b>	<b>33</b>	<b>21</b>	<b>9</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	546	589	705	580	490
Non-Labor	536	275	247	147	373
NSE	0	0	0	0	0
<b>Total</b>	<b>1,082</b>	<b>864</b>	<b>952</b>	<b>727</b>	<b>864</b>
FTE	5.8	6.3	7.5	6.2	4.8

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 1. MRC MANAGEMENT & SPECIAL PROJECTS  
 Cost Center: 2200-0309.000 - MRC MANAGEMENT & SPECIAL PROJECTS

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	133	96	-3
Non-Labor	0	0.153	32	50	-0.456
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0.153</b>	<b>165</b>	<b>147</b>	<b>-4</b>
FTE	0.0	0.0	1.4	1.0	-0.1

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2013	Other	0	0	0	0.0	CCTR Transf From 2200-2488.000	PDOMAGAS20161205101432093
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2014	Other	133	32	0	1.4	CCTR Transf From 2200-2488.000	PDOMAGAS20161205101537280
<b>2014 Total</b>		<b>133</b>	<b>32</b>	<b>0</b>	<b>1.4</b>		
2015	Other	96	50	0	1.0	CCTR Transf From 2200-2488.000	PDOMAGAS20161205101653313
<b>2015 Total</b>		<b>96</b>	<b>50</b>	<b>0</b>	<b>1.0</b>		
2016	Other	96	50	0	1.0	CCTR Transf From 2200-2488.000	PDOMAGAS20161205101834750
<b>2016 Total</b>		<b>96</b>	<b>50</b>	<b>0</b>	<b>1.0</b>		
2016	Aliso	-3	0	0	-0.1	1-Sided Adj	JJBUNTIN20170224111834867
<b>2016 Total</b>		<b>-3</b>	<b>0</b>	<b>0</b>	<b>-0.1</b>		
2016	Other	-96	-50	0	-1.0	1-Sided Adj	MGONZALX20170308171014600

*Note: Totals may include rounding differences.*

Southern California Gas Company  
 2019 GRC - REVISED  
 Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 1. MRC MANAGEMENT & SPECIAL PROJECTS  
 Cost Center: 2200-0309.000 - MRC MANAGEMENT & SPECIAL PROJECTS

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
<b>Explanation:</b> Adjustment to remove the 2015 proxy transfer from Non-PSEP O&M costs to Gas Engineering from cost center 2200-2488 to 2200-0309.							
<b>2016 Total</b>		-3	0	0	-0.1		

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0310.000 - MEASUREMENT & DESIGN**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 2. MRC DESIGN  
 Cost Center: 2200-0310.000 - MEASUREMENT & DESIGN

**Activity Description:**

This cost center provides detailed engineering design, planning, policy, equipment standards and consultation to operations related to: large meter and regulator stations, interstate pipeline inter-connects, pressure protection for pipelines and related automated controls. This cost center will also be utilized to represent the pole maintenance and all the electrical and control system engineering associated with the design, operation; and the related compliance the safety aspects of large gas handling facilities also reside within this cost center and are contained within the associated cost. These engineering services are provided for both SoCalGas and SDG&E. Design, material specifications and policy are typically managed for gas assets; and supports the operational personnel associated with those entities.

**Forecast Explanations:**

**Labor - 5-YR Average**

The labor expense requirements for this cost center have been consistent over recorded historical data. Thus, the 5-year average was chosen because it best represents the future expense requirements, and because it captures the fluctuations that this cost center can experience. However, due to the requirement anticipated for the roll out of SB1383, additional staffing and resources are required. These incremental costs have been identified and added to the 5-year average.

**Non-Labor - 5-YR Average**

The non-labor expense requirements for this cost center have been consistent over recorded historical data. Thus, the 5-year average was chosen because it best represents the future expense requirements, and because it captures the fluctuations that this cost center can experience. However, due to the requirement anticipated for the roll out of SB3183, additional staffing and resources are required. These incremental costs have been identified and added to the 5-year average.

**NSE - 5-YR Average**

There are no Non Standard escalation expenses in this work group.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		845	1,028	761	704	600	788	788	1,018	
Non-Labor		80	164	92	139	262	147	147	147	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>925</b>	<b>1,192</b>	<b>854</b>	<b>842</b>	<b>862</b>	<b>935</b>	<b>935</b>	<b>1,165</b>	
FTE		8.4	10.6	7.6	7.0	6.3	8.0	8.0	10.0	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 2. MRC DESIGN  
 Cost Center: 2200-0310.000 - MEASUREMENT & DESIGN

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	5	-1	0	4	0.0	16	0	0	16	0.1
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	595	262	0	857	6.3	772	147	0	919	7.9
<b>Total Incurred</b>	<b>600</b>	<b>261</b>	<b>0</b>	<b>861</b>	<b>6.3</b>	<b>788</b>	<b>147</b>	<b>0</b>	<b>935</b>	<b>8.0</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	16	0	0	16	0.1	16	0	0	16	0.1
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	772	147	0	919	7.9	1,002	147	0	1,149	9.9
<b>Total Incurred</b>	<b>788</b>	<b>147</b>	<b>0</b>	<b>935</b>	<b>8.0</b>	<b>1,018</b>	<b>147</b>	<b>0</b>	<b>1,165</b>	<b>10.0</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 2. MRC DESIGN  
 Cost Center: 2200-0310.000 - MEASUREMENT & DESIGN

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	788	788	788	0	0	230	788	788	1,018
Non-Labor	5-YR Average	147	147	147	0	0	0	147	147	147
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>935</b>	<b>935</b>	<b>935</b>	<b>0</b>	<b>0</b>	<b>230</b>	<b>935</b>	<b>935</b>	<b>1,165</b>
FTE	5-YR Average	7.9	7.9	7.9	0.0	0.0	2.0	7.9	7.9	9.9

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
<b>2017 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2018 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2019	RnwblGas-SB1383	230	0	0	230	2.0	1-Sided Adj	MGONZALX20170309161510150
<b>2019 Total</b>		<b>230</b>	<b>0</b>	<b>0</b>	<b>230</b>	<b>2.0</b>		

**Explanation:** Upward pressure adjustment in anticipation of new renewable natural gas projects. The two full time equivalents (FTEs) were assumed to be hired as full time employees at a rate of \$115K per year per FTE. These FTEs will be responsible for initial studies related to receipt points related to renewable natural gas.

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: B. MEASUREMENT, REGULATION & CONTROL  
Category-Sub: 2. MRC DESIGN  
Cost Center: 2200-0310.000 - MEASUREMENT & DESIGN

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	687	847	640	598	516
Non-Labor	75	157	90	137	262
NSE	0	0	0	0	0
<b>Total</b>	<b>762</b>	<b>1,005</b>	<b>731</b>	<b>735</b>	<b>777</b>
FTE	7.2	9.0	6.5	6.0	5.5
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	-0.1
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	687	847	640	598	515
Non-Labor	75	157	90	137	262
NSE	0	0	0	0	0
<b>Total</b>	<b>762</b>	<b>1,005</b>	<b>731</b>	<b>735</b>	<b>777</b>
FTE	7.2	9.0	6.5	6.0	5.4
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	110	141	104	97	85
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>110</b>	<b>141</b>	<b>104</b>	<b>97</b>	<b>85</b>
FTE	1.2	1.5	1.1	1.0	0.9
<b>Escalation to 2016\$</b>					
Labor	48	40	17	9	0
Non-Labor	5	6	2	2	0
NSE	0	0	0	0	0
<b>Total</b>	<b>52</b>	<b>46</b>	<b>19</b>	<b>10</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	845	1,028	761	704	600
Non-Labor	80	164	92	139	262
NSE	0	0	0	0	0
<b>Total</b>	<b>925</b>	<b>1,192</b>	<b>854</b>	<b>842</b>	<b>862</b>
FTE	8.4	10.5	7.6	7.0	6.3

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 2. MRC DESIGN  
 Cost Center: 2200-0310.000 - MEASUREMENT & DESIGN

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	-0.184
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-0.184</b>
FTE	0.0	0.0	0.0	0.0	-0.1

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2015 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2016	Aliso	0	0	0	-0.1	1-Sided Adj	JJBUNTIN20170307070811490
<b>2016 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>-0.1</b>		

**Explanation:** This adjustment was made because this work (internal order number 300777009) was related to the Aliso Canyon Incident.

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0311.000 - MEASUREMENT TECHNOLOGIES**

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 3. MRC TECHNOLOGIES  
 Cost Center: 2200-0311.000 - MEASUREMENT TECHNOLOGIES

**Activity Description:**

The Measurement Technologies team in this cost center is responsible for testing, evaluation, selection, and deployment of strategic planning and policies and practices associated with gas metering equipment ranging from the smallest residential diaphragm meters to the largest ultrasonic meters and electronic measurement equipment. This work is conducted on behalf of both SDGE and SoCalGas. This group is also responsible for managing the company's meter and regulator maintenance and inspection scheduling and reporting system, and for providing auditing of company measurement sites to validate compliance with policy and technical specifications. Furthermore, this group is also responsible for conducting engineering studies to determine replacement and performance enhancement strategies for installed measurement infrastructure.

**Forecast Explanations:**

**Labor - 5-YR Average**

The labor expense requirements for this cost center have been consistent over recorded historical data. Thus, the five-year average was chosen because it best represents the future expense requirements, and because it captures the fluctuations that this cost center can experience.

**Non-Labor - 5-YR Average**

The non-labor expense requirements for this cost center have been consistent over recorded historical data. Thus, the five-year average was chosen because it best represents the future expense requirements, and because it captures the fluctuations that this cost center can experience.

**NSE - 5-YR Average**

There are no Non Standard escalation expenses in this work group.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		892	721	862	831	700	1,001	1,101	1,101	
Non-Labor		289	141	93	90	107	153	178	178	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>1,181</b>	<b>862</b>	<b>955</b>	<b>921</b>	<b>807</b>	<b>1,154</b>	<b>1,279</b>	<b>1,279</b>	
FTE		9.1	7.1	8.5	8.3	7.5	10.1	11.1	11.1	

*Note: Totals may include rounding differences.*

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 3. MRC TECHNOLOGIES  
 Cost Center: 2200-0311.000 - MEASUREMENT TECHNOLOGIES

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	13	4	0	17	0.1	6	1	0	7	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	687	102	0	789	7.3	995	152	0	1,147	10.1
<b>Total Incurred</b>	<b>700</b>	<b>106</b>	<b>0</b>	<b>806</b>	<b>7.4</b>	<b>1,001</b>	<b>153</b>	<b>0</b>	<b>1,154</b>	<b>10.1</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	6	1	0	7	0.0	6	1	0	7	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	1,095	177	0	1,272	11.1	1,095	177	0	1,272	11.1
<b>Total Incurred</b>	<b>1,101</b>	<b>178</b>	<b>0</b>	<b>1,279</b>	<b>11.1</b>	<b>1,101</b>	<b>178</b>	<b>0</b>	<b>1,279</b>	<b>11.1</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 3. MRC TECHNOLOGIES  
 Cost Center: 2200-0311.000 - MEASUREMENT TECHNOLOGIES

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	801	801	801	200	300	300	1,001	1,101	1,101
Non-Labor	5-YR Average	144	144	144	10	35	35	154	179	179
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>945</b>	<b>945</b>	<b>945</b>	<b>210</b>	<b>335</b>	<b>335</b>	<b>1,155</b>	<b>1,280</b>	<b>1,280</b>
FTE	5-YR Average	8.1	8.1	8.1	2.0	3.0	3.0	10.1	11.1	11.1

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
2017	Other	200	10	0	210	2.0	1-Sided Adj	MGONZALX20161201154249300

**Explanation:** Adjustment to incorporate two FTE migrating from the Advanced Meter capital project to operations, policy, procedures, training, special studies, and RMA. Calculation for labor is based on \$110K per FTE per year and \$5K in non-labor related expenditures.

<b>2017 Total</b>		<b>200</b>	<b>10</b>	<b>0</b>	<b>210</b>	<b>2.0</b>		
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2018	Other	100	25	0	125	1.0	1-Sided Adj	MGONZALX20161201154022957
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**Explanation:** Upward pressure adjustment to incorporate one new FTE for the planning, system modification and field support of 17,000 newly-inspected tap facilities per year and aging infrastructure. Calculation is based on \$100K per FTE per year and \$25K in non labor expenditures related to travel to these tap facilities.

2018	Other	200	10	0	210	2.0	1-Sided Adj	MGONZALX20161201154343753
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**Explanation:** Adjustment to incorporate two FTE migrating from the Advanced Meter capital project to operations, policy, procedures, training, special studies, and RMA. Calculation for labor is based on \$110K per FTE per year and \$5K in non-labor related expenditures.

<b>2018 Total</b>		<b>300</b>	<b>35</b>	<b>0</b>	<b>335</b>	<b>3.0</b>		
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2019	Other	100	25	0	125	1.0	1-Sided Adj	MGONZALX20161201154108880
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**Explanation:** Upward pressure adjustment to incorporate one new FTE for the planning, system modification and field support of 17,000 newly-inspected tap facilities per year and aging infrastructure. Calculation is based on \$100K per FTE per year and \$25K in non labor expenditures related to travel to these tap facilities.

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 3. MRC TECHNOLOGIES  
 Cost Center: 2200-0311.000 - MEASUREMENT TECHNOLOGIES

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>	
2019	Other	200	10	0	210	2.0	1-Sided Adj	MGONZALX20161201154401110	
<b>Explanation:</b>		Adjustment to incorporate two FTE migrating from the Advanced Meter capital project to operations, policy, procedures, training, special studies, and RMA. Calculation for labor is based on \$110K per FTE per year and \$5K in non-labor related expenditures.							
<b>2019 Total</b>		<b>300</b>	<b>35</b>	<b>0</b>	<b>335</b>	<b>3.0</b>			

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: B. MEASUREMENT, REGULATION & CONTROL  
Category-Sub: 3. MRC TECHNOLOGIES  
Cost Center: 2200-0311.000 - MEASUREMENT TECHNOLOGIES

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	725	594	725	707	604
Non-Labor	273	136	91	89	107
NSE	0	0	0	0	0
<b>Total</b>	<b>998</b>	<b>730</b>	<b>815</b>	<b>796</b>	<b>711</b>
FTE	7.9	6.1	7.3	7.1	6.4
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	-3
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-4</b>
FTE	0.0	0.0	0.0	0.0	-0.1
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	725	594	725	707	601
Non-Labor	273	136	91	89	107
NSE	0	0	0	0	0
<b>Total</b>	<b>998</b>	<b>730</b>	<b>815</b>	<b>796</b>	<b>708</b>
FTE	7.9	6.1	7.3	7.1	6.3
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	116	99	118	114	99
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>116</b>	<b>99</b>	<b>118</b>	<b>114</b>	<b>99</b>
FTE	1.3	1.0	1.2	1.2	1.1
<b>Escalation to 2016\$</b>					
Labor	50	28	19	10	0
Non-Labor	16	5	2	1	0
NSE	0	0	0	0	0
<b>Total</b>	<b>67</b>	<b>33</b>	<b>21</b>	<b>11</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	892	721	862	831	700
Non-Labor	289	141	93	90	107
NSE	0	0	0	0	0
<b>Total</b>	<b>1,181</b>	<b>862</b>	<b>955</b>	<b>921</b>	<b>807</b>
FTE	9.2	7.1	8.5	8.3	7.4

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 3. MRC TECHNOLOGIES  
 Cost Center: 2200-0311.000 - MEASUREMENT TECHNOLOGIES

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	-3
Non-Labor	0	0	0	0	-0.090
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-4</b>
FTE	0.0	0.0	0.0	0.0	-0.1

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		0	0	0	0.0		
<b>2013 Total</b>		0	0	0	0.0		
<b>2014 Total</b>		0	0	0	0.0		
<b>2015 Total</b>		0	0	0	0.0		
2016	Aliso	-3	0	0	-0.1	1-Sided Adj	JJBUNTIN20170224112654017
<b>2016 Total</b>		-3	0	0	-0.1		

**Explanation:** This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0312.000 - MEASUREMENT FIELD SUPPORT**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 4. MRC FIELD SUPPORT  
 Cost Center: 2200-0312.000 - MEASUREMENT FIELD SUPPORT

**Activity Description:**

The labor and non-labor expenses for this cost center are for employees who provide planning, hands on support, technical guidance, policy, procedures and training in the areas of large automated control systems for gas compressor stations, pipelines, metering and regulating stations and auxiliary equipment for both SDGE and SCG. This cost center also provides field support to maintain over 200 field computers used by field personnel to program, calibrate and configure electronic field instruments such as measurement systems, gas chromatographs, and programmable logic controllers.

**Forecast Explanations:**

**Labor - 5-YR Average**

The labor expense requirements for this cost center have been consistent over recorded historical data. Thus 5 year average methodology was chosen as best representing the future expense requirements because it best captures the fluctuations that this cost center can experience. These incremental costs have been identified and added to the 5-year average.

**Non-Labor - 5-YR Average**

The non-labor expense requirements for this cost center have been consistent over recorded historical data. Thus 5 year average methodology was chosen as best representing the future expense requirements because it best captures the fluctuations that this cost center can experience. These incremental costs have been identified and added to the 5-year average.

**NSE - 5-YR Average**

There are no Non Standard Escalation expenses in this work group.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		771	790	874	659	623	843	943	1,045	
Non-Labor		167	223	199	212	65	198	183	205	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>938</b>	<b>1,013</b>	<b>1,073</b>	<b>870</b>	<b>688</b>	<b>1,041</b>	<b>1,126</b>	<b>1,250</b>	
FTE		7.7	7.8	8.8	6.5	6.2	8.4	9.4	10.4	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 4. MRC FIELD SUPPORT  
 Cost Center: 2200-0312.000 - MEASUREMENT FIELD SUPPORT

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	4	0	0	4	0.0	3	0	0	3	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	619	65	0	684	6.2	840	198	0	1,038	8.4
<b>Total Incurred</b>	<b>623</b>	<b>65</b>	<b>0</b>	<b>688</b>	<b>6.2</b>	<b>843</b>	<b>198</b>	<b>0</b>	<b>1,041</b>	<b>8.4</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	3	0	0	3	0.0	3	0	0	3	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	940	183	0	1,123	9.4	1,042	205	0	1,247	10.4
<b>Total Incurred</b>	<b>943</b>	<b>183</b>	<b>0</b>	<b>1,126</b>	<b>9.4</b>	<b>1,045</b>	<b>205</b>	<b>0</b>	<b>1,250</b>	<b>10.4</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the number of meter installations/upgrades (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 4. MRC FIELD SUPPORT  
 Cost Center: 2200-0312.000 - MEASUREMENT FIELD SUPPORT

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	743	743	743	100	200	302	843	943	1,045
Non-Labor	5-YR Average	173	173	173	25	10	32	198	183	205
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>916</b>	<b>916</b>	<b>916</b>	<b>125</b>	<b>210</b>	<b>334</b>	<b>1,041</b>	<b>1,126</b>	<b>1,250</b>
FTE	5-YR Average	7.4	7.4	7.4	1.0	2.0	3.0	8.4	9.4	10.4

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	100	25	0	125	1.0	1-Sided Adj	MGONZALX20161202123047080	
<b>Explanation:</b>		Upward pressure adjustment for one engineering instrument and field support employee to perform the maintenance and system enhances to methane detectors and pressure monitoring units. Calculation is based on \$100K per FTE per year and \$25K in non labor expenditures related to travel to these detector and monitoring facilities.							
<b>2017 Total</b>		<b>100</b>	<b>25</b>	<b>0</b>	<b>125</b>	<b>1.0</b>			
2018	Other	200	10	0	210	2.0	1-Sided Adj	MGONZALX20161202122701617	
<b>Explanation:</b>		Upward pressure adjustment for one engineering instrument and field support employee to perform the maintenance and system enhances to methane detectors and pressure monitoring units. Calculation is based on \$100K per FTE per year and \$5K in non labor expenditures per FTE related to travel to these detector and monitoring facilities.							
<b>2018 Total</b>		<b>200</b>	<b>10</b>	<b>0</b>	<b>210</b>	<b>2.0</b>			
2019	Other	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161202122808130	
<b>Explanation:</b>		Upward pressure adjustment to account for one FTE from 2018 and one additional FTE in 2019 for Methane Sensor Technology Plan Management of installed assets. Calculation is based on \$100K per FTE per year and \$20K in non labor expenditures.							
2019	Other	102	12	0	114	1.0	1-Sided Adj	MGONZALX20170308214507293	
<b>Explanation:</b>		Adjustment to incorporate one FTE (Technical Advisor) migrating from the Advanced Meter capital project to operations.							
<b>2019 Total</b>		<b>302</b>	<b>32</b>	<b>0</b>	<b>334</b>	<b>3.0</b>			

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: B. MEASUREMENT, REGULATION & CONTROL  
Category-Sub: 4. MRC FIELD SUPPORT  
Cost Center: 2200-0312.000 - MEASUREMENT FIELD SUPPORT

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	627	652	735	560	535
Non-Labor	158	214	194	209	65
NSE	0	0	0	0	0
<b>Total</b>	<b>785</b>	<b>866</b>	<b>929</b>	<b>769</b>	<b>600</b>
FTE	6.6	6.7	7.5	5.6	5.3
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	627	652	735	560	535
Non-Labor	158	214	194	209	65
NSE	0	0	0	0	0
<b>Total</b>	<b>785</b>	<b>866</b>	<b>929</b>	<b>769</b>	<b>600</b>
FTE	6.6	6.7	7.5	5.6	5.3
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	100	108	120	91	88
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>100</b>	<b>108</b>	<b>120</b>	<b>91</b>	<b>88</b>
FTE	1.1	1.1	1.3	0.9	0.9
<b>Escalation to 2016\$</b>					
Labor	44	31	19	8	0
Non-Labor	9	9	4	3	0
NSE	0	0	0	0	0
<b>Total</b>	<b>53</b>	<b>39</b>	<b>23</b>	<b>11</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	771	790	874	659	623
Non-Labor	167	223	199	212	65
NSE	0	0	0	0	0
<b>Total</b>	<b>938</b>	<b>1,013</b>	<b>1,073</b>	<b>870</b>	<b>688</b>
FTE	7.7	7.8	8.8	6.5	6.2

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 4. MRC FIELD SUPPORT  
 Cost Center: 2200-0312.000 - MEASUREMENT FIELD SUPPORT

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0799.000 - MRC - INSTRUMENTATION REPAIR AND FIELD SUPPORT**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 5. MRC INSTRUMENTATION REPAIR  
 Cost Center: 2200-0799.000 - MRC - INSTRUMENTATION REPAIR AND FIELD SUPPORT

**Activity Description:**

The resources in this organization provide: calibration of temperature and pressure gauges and secondary standards used by field personnel to maintain gas facilities, field inspection of large metering facilities using bore scoping techniques, maintenance of all company gas standards used to test and calibrate gas meters and the laboratory configuration, programming testing and laboratory repair/assessment of all electronic measurement devices used for customer billing. Special meter testing is also conducted on gas meters removed from the field where safety or other matters are investigated. This cost center also provides for the maintenance, troubleshooting repair and upgrade of all "bell provers" (primary measurement test standards) used by the both SDGE and SCG to test over 100,000 meters annually.

**Forecast Explanations:**

**Labor - 5-YR Average**

The labor expense requirements for this cost center have been consistent over recorded historical data. This trend is expected to continue. As such the 5 year average methodology was chosen as best representing the future expense requirements.

**Non-Labor - 5-YR Average**

The non-labor expense requirements for this cost center have been consistent over recorded historical data. This trend is expected to continue. As such the 5 year average methodology was chosen as best representing the future expense requirements.

**NSE - 5-YR Average**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		689	690	793	781	772	945	945	945	
Non-Labor		325	363	445	343	327	380	380	380	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>1,014</b>	<b>1,053</b>	<b>1,237</b>	<b>1,124</b>	<b>1,098</b>	<b>1,325</b>	<b>1,325</b>	<b>1,325</b>	
FTE		8.3	8.1	9.4	9.2	8.9	10.8	10.8	10.8	

*Note: Totals may include rounding differences.*

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 5. MRC INSTRUMENTATION REPAIR  
 Cost Center: 2200-0799.000 - MRC - INSTRUMENTATION REPAIR AND FIELD SUPPORT

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	14	87	0	101	0.2	19	131	0	150	0.2
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	758	239	0	997	8.8	926	249	0	1,175	10.6
<b>Total Incurred</b>	<b>772</b>	<b>326</b>	<b>0</b>	<b>1,098</b>	<b>9.0</b>	<b>945</b>	<b>380</b>	<b>0</b>	<b>1,325</b>	<b>10.8</b>
<b>% Allocation</b>										
Retained	95.60%	95.60%				95.60%	95.60%			
SEU	4.40%	4.40%				4.40%	4.40%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	19	131	0	150	0.2	19	131	0	150	0.2
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	926	249	0	1,175	10.6	926	249	0	1,175	10.6
<b>Total Incurred</b>	<b>945</b>	<b>380</b>	<b>0</b>	<b>1,325</b>	<b>10.8</b>	<b>945</b>	<b>380</b>	<b>0</b>	<b>1,325</b>	<b>10.8</b>
<b>% Allocation</b>										
Retained	95.60%	95.60%				95.60%	95.60%			
SEU	4.40%	4.40%				4.40%	4.40%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E meters to SoCal meters applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E meters to SoCal meters applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E meters to SoCal meters applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E meters to SoCal meters applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 5. MRC INSTRUMENTATION REPAIR  
 Cost Center: 2200-0799.000 - MRC - INSTRUMENTATION REPAIR AND FIELD SUPPORT

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	745	745	745	200	200	200	945	945	945
Non-Labor	5-YR Average	361	361	361	20	20	20	381	381	381
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>1,105</b>	<b>1,105</b>	<b>1,105</b>	<b>220</b>	<b>220</b>	<b>220</b>	<b>1,325</b>	<b>1,325</b>	<b>1,325</b>
FTE	5-YR Average	8.8	8.8	8.8	2.0	2.0	2.0	10.8	10.8	10.8

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161202141109817	
<b>Explanation:</b>		Adjustment to account for two FTEs transferring from Advanced Meter Quality Assurance to meter repair and Operating and Maintenance of Advanced Meter module reuse.							
<b>2017 Total</b>		<b>200</b>	<b>20</b>	<b>0</b>	<b>220</b>	<b>2.0</b>			
2018	Other	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161202141124587	
<b>Explanation:</b>		Adjustment to account for two FTEs transferring from Advanced Meter Quality Assurance to meter repair and Operating and Maintenance of Advanced Meter module reuse.							
<b>2018 Total</b>		<b>200</b>	<b>20</b>	<b>0</b>	<b>220</b>	<b>2.0</b>			
2019	Other	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161202141142360	
<b>Explanation:</b>		Adjustment to account for two FTEs transferring from Advanced Meter Quality Assurance to meter repair and Operating and Maintenance of Advanced Meter module reuse.							
<b>2019 Total</b>		<b>200</b>	<b>20</b>	<b>0</b>	<b>220</b>	<b>2.0</b>			

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 5. MRC INSTRUMENTATION REPAIR  
 Cost Center: 2200-0799.000 - MRC - INSTRUMENTATION REPAIR AND FIELD SUPPORT

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	560	568	667	664	663
Non-Labor	307	349	435	339	327
NSE	0	0	0	0	0
<b>Total</b>	<b>867</b>	<b>918</b>	<b>1,102</b>	<b>1,002</b>	<b>989</b>
FTE	7.1	7.0	7.9	7.9	7.6
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	560	568	667	664	663
Non-Labor	307	349	435	339	327
NSE	0	0	0	0	0
<b>Total</b>	<b>867</b>	<b>918</b>	<b>1,102</b>	<b>1,002</b>	<b>989</b>
FTE	7.1	7.0	7.9	7.9	7.6
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	90	94	109	107	109
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>90</b>	<b>94</b>	<b>109</b>	<b>107</b>	<b>109</b>
FTE	1.2	1.2	1.3	1.3	1.3
<b>Escalation to 2016\$</b>					
Labor	39	27	17	10	0
Non-Labor	18	14	10	4	0
NSE	0	0	0	0	0
<b>Total</b>	<b>57</b>	<b>41</b>	<b>27</b>	<b>14</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	689	690	793	781	772
Non-Labor	325	363	445	343	327
NSE	0	0	0	0	0
<b>Total</b>	<b>1,014</b>	<b>1,053</b>	<b>1,237</b>	<b>1,124</b>	<b>1,098</b>
FTE	8.3	8.2	9.2	9.2	8.9

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 5. MRC INSTRUMENTATION REPAIR  
 Cost Center: 2200-0799.000 - MRC - INSTRUMENTATION REPAIR AND FIELD SUPPORT

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-2248.000 - MRC STANDARDS**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 6. MRC STANDARDS  
 Cost Center: 2200-2248.000 - MRC STANDARDS

**Activity Description:**

Activity in this cost center includes engineering, design, material specification and technical standards for small and medium sized meter and regulator stations employed by both SoCalGas and SDG&E. Other activity includes the management of all policy, standards and planning for the measurement of gas quality associated with thermal zone (SDGE) and Btu district measurement, and for any special reporting and planning in both companies to contend with regulatory and customer need for gas quality/component reporting.

**Forecast Explanations:**

**Labor - 5-YR Average**

As the foundation for future labor expense requirements, the 5 year average was chosen. This forecasting methodology serves to more accurately even out the work variations that occur.

**Non-Labor - 5-YR Average**

As the foundation for future non-labor expense requirements, the 5 year average was chosen. This forecasting methodology serves to more accurately even out the work variations that occur. However, due to anticipated gas quality reporting requirements, additional costs have been added to the five year average.

**NSE - 5-YR Average**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		636	753	760	786	593	705	705	705	
Non-Labor		24	22	18	40	18	24	24	24	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>660</b>	<b>775</b>	<b>778</b>	<b>826</b>	<b>611</b>	<b>729</b>	<b>729</b>	<b>729</b>	
FTE		6.6	8.0	7.9	7.6	5.8	7.2	7.2	7.2	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 6. MRC STANDARDS  
 Cost Center: 2200-2248.000 - MRC STANDARDS

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	9	1	0	10	0.0	3	0	0	3	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	584	17	0	601	5.8	702	24	0	726	7.2
<b>Total Incurred</b>	<b>593</b>	<b>18</b>	<b>0</b>	<b>611</b>	<b>5.8</b>	<b>705</b>	<b>24</b>	<b>0</b>	<b>729</b>	<b>7.2</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	3	0	0	3	0.0	3	0	0	3	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	702	24	0	726	7.2	702	24	0	726	7.2
<b>Total Incurred</b>	<b>705</b>	<b>24</b>	<b>0</b>	<b>729</b>	<b>7.2</b>	<b>705</b>	<b>24</b>	<b>0</b>	<b>729</b>	<b>7.2</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 6. MRC STANDARDS  
 Cost Center: 2200-2248.000 - MRC STANDARDS

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	705	705	705	0	0	0	705	705	705
Non-Labor	5-YR Average	25	25	25	0	0	0	25	25	25
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>730</b>	<b>730</b>	<b>730</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>730</b>	<b>730</b>	<b>730</b>
FTE	5-YR Average	7.2	7.2	7.2	0.0	0.0	0.0	7.2	7.2	7.2

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: B. MEASUREMENT, REGULATION & CONTROL  
Category-Sub: 6. MRC STANDARDS  
Cost Center: 2200-2248.000 - MRC STANDARDS

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	517	621	639	668	509
Non-Labor	23	22	18	39	18
NSE	0	0	0	0	0
<b>Total</b>	<b>540</b>	<b>642</b>	<b>657</b>	<b>707</b>	<b>527</b>
FTE	5.7	6.8	6.8	6.6	5.0
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	517	621	639	668	509
Non-Labor	23	22	18	39	18
NSE	0	0	0	0	0
<b>Total</b>	<b>540</b>	<b>642</b>	<b>657</b>	<b>707</b>	<b>527</b>
FTE	5.7	6.8	6.8	6.6	5.0
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	83	103	104	108	84
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>83</b>	<b>103</b>	<b>104</b>	<b>108</b>	<b>84</b>
FTE	0.9	1.2	1.1	1.1	0.8
<b>Escalation to 2016\$</b>					
Labor	36	29	17	10	0
Non-Labor	1	1	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>37</b>	<b>30</b>	<b>17</b>	<b>10</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	636	753	760	786	593
Non-Labor	24	22	18	40	18
NSE	0	0	0	0	0
<b>Total</b>	<b>660</b>	<b>775</b>	<b>778</b>	<b>826</b>	<b>611</b>
FTE	6.6	8.0	7.9	7.7	5.8

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. MEASUREMENT, REGULATION & CONTROL  
 Category-Sub: 6. MRC STANDARDS  
 Cost Center: 2200-2248.000 - MRC STANDARDS

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: C. ENGINEERING DESIGN  
Cost Center: VARIOUS

**Summary for Category: C. ENGINEERING DESIGN**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	1,795	2,140	2,219	3,149
Non-Labor	334	512	518	1,226
NSE	0	0	0	0
<b>Total</b>	<b>2,129</b>	<b>2,652</b>	<b>2,737</b>	<b>4,375</b>
FTE	17.6	21.2	21.8	32.0

**Cost Centers belonging to this Category:**

**2200-0318.000 ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTI**

Labor	548	717	767	1,069
Non-Labor	210	340	345	1,011
NSE	0	0	0	0
<b>Total</b>	<b>758</b>	<b>1,057</b>	<b>1,112</b>	<b>2,080</b>
FTE	5.2	7.4	7.9	10.9

**2200-0321.000 MECHANICAL DESIGN**

Labor	44	120	120	120
Non-Labor	13	59	59	59
NSE	0	0	0	0
<b>Total</b>	<b>57</b>	<b>179</b>	<b>179</b>	<b>179</b>
FTE	0.4	1.1	1.1	1.1

**2200-0322.000 PIPELINE ENGINEERING**

Labor	514	589	589	589
Non-Labor	87	82	82	82
NSE	0	0	0	0
<b>Total</b>	<b>601</b>	<b>671</b>	<b>671</b>	<b>671</b>
FTE	5.5	6.1	6.1	6.1

**2200-2377.000 HIGH PRESSURE & DISTRIBUTION ENGINEERING**

Labor	544	569	598	1,226
Non-Labor	14	21	22	64
NSE	0	0	0	0
<b>Total</b>	<b>558</b>	<b>590</b>	<b>620</b>	<b>1,290</b>
FTE	5.0	5.1	5.2	12.4

**2200-2487.000 ELECTRICAL DESIGN**

Labor	145	145	145	145
Non-Labor	10	10	10	10
NSE	0	0	0	0
<b>Total</b>	<b>155</b>	<b>155</b>	<b>155</b>	<b>155</b>
FTE	1.5	1.5	1.5	1.5

Note: Totals may include rounding differences.

**Beginning of Workpaper**  
**2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING &**  
**DESIGN DRAFTING**

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRA

**Activity Description:**

This workpaper consolidates three shared services in Gas Engineering: Engineering Design, Process Engineering, and Design Drafting. The engineering design cost center 2200-0318 is the administrative, managerial and budgetary oversight over the following engineering activities; Pipeline Design, Mechanical Design, Process Engineering, Design Drafting, Electrical Engineering Design, and Distribution System Engineering Support. Also included in this workpaper are the cost related to Process Engineering (2200-0316). and Design Drafting (2200-1335). The Process Engineering group is responsible for supporting operations and projects related to dehydration units, scrubbers, vessels and wells. The Design Drafting group is responsible for drafting engineering designs for the projects related to gas assets.

**Forecast Explanations:**

**Labor - 5-YR Average**

The 5-year average serves as the best indication of the ongoing requirements for this organization. Historical data indicate that activities and staffing levels have been transient, driven by unforeseen requests. This trend is expected to continue so the best estimate for future requirements is the five year average.

**Non-Labor - 5-YR Average**

The 5-year average serves as the best indication of the ongoing requirements for this organization. Historical data indicate that activities and staffing levels have been transient, driven by unforeseen requests. This trend is expected to continue so the best estimate for future requirements is the five year average.

**NSE - 5-YR Average**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		615	770	820	581	548	717	767	1,069	
Non-Labor		471	312	457	225	210	339	344	1,010	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>1,086</b>	<b>1,082</b>	<b>1,277</b>	<b>806</b>	<b>758</b>	<b>1,056</b>	<b>1,111</b>	<b>2,079</b>	
FTE		6.4	7.8	8.9	6.0	5.3	7.4	7.9	10.9	

*Note: Totals may include rounding differences.*

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIC

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	2	1	0	3	0.0	24	3	0	27	0.2
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	545	209	0	754	5.2	693	336	0	1,029	7.2
<b>Total Incurred</b>	<b>547</b>	<b>210</b>	<b>0</b>	<b>757</b>	<b>5.2</b>	<b>717</b>	<b>339</b>	<b>0</b>	<b>1,056</b>	<b>7.4</b>
<b>% Allocation</b>										
Retained	93.76%	93.76%				93.76%	93.76%			
SEU	6.24%	6.24%				6.24%	6.24%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	24	3	0	27	0.2	24	3	0	27	0.2
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	743	341	0	1,084	7.7	1,045	1,007	0	2,052	10.7
<b>Total Incurred</b>	<b>767</b>	<b>344</b>	<b>0</b>	<b>1,111</b>	<b>7.9</b>	<b>1,069</b>	<b>1,010</b>	<b>0</b>	<b>2,079</b>	<b>10.9</b>
<b>% Allocation</b>										
Retained	93.76%	93.76%				93.76%	93.76%			
SEU	6.24%	6.24%				6.24%	6.24%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of miles of pipe applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of miles of pipe applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of miles of pipe applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of miles of pipe applied to specific budgeted activities (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAF

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	667	667	667	50	100	402	717	767	1,069
Non-Labor	5-YR Average	335	335	335	5	10	676	340	345	1,011
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>1,002</b>	<b>1,002</b>	<b>1,002</b>	<b>55</b>	<b>110</b>	<b>1,078</b>	<b>1,057</b>	<b>1,112</b>	<b>2,080</b>
FTE	5-YR Average	6.9	6.9	6.9	0.5	1.0	4.0	7.4	7.9	10.9

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
2017	RAMP Incremental	50	5	0	55	0.5	1-Sided Adj	MGONZALX20161202130211670

**Explanation:** Upward pressure adjustment to support the engineering design conversion from two-dimensional drawings to three-dimensional drawings (3D) using data centric design software, which will include modeling and scanning of gas facilities. The project is part of the records management effort as described in RAMP chapter 8, Records Management. Labor is based on \$100,000 and \$10,000 in non-labor per FTE. The specific RAMP project in Records Management is Operational Compliance & Oversight specifically in cost center 2200-1335.

<b>2017 Total</b>		<b>50</b>	<b>5</b>	<b>0</b>	<b>55</b>	<b>0.5</b>		
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2018	RAMP Incremental	100	10	0	110	1.0	1-Sided Adj	MGONZALX20161202130231547
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**Explanation:** Upward pressure adjustment to support the engineering design conversion from two-dimensional drawings to three-dimensional drawings (3D) using data centric design software, which will include modeling and scanning of gas facilities. The project is part of the records management effort as described in RAMP chapter 8, Records Management. Labor is based on \$100,000 and \$10,000 in non-labor per FTE. The specific RAMP project in Records Management is Operational Compliance & Oversight specifically in cost center 2200-1335.

<b>2018 Total</b>		<b>100</b>	<b>10</b>	<b>0</b>	<b>110</b>	<b>1.0</b>		
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2019	RAMP Incremental	200	20	0	220	2.0	1-Sided Adj	MGONZALX20161202130248817
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**Explanation:** Upward pressure adjustment to support the engineering design conversion from two-dimensional drawings to three-dimensional drawings (3D) using data centric design software, which will include modeling and scanning of gas facilities. The project is part of the records management effort as described in RAMP chapter 8, Records Management. Labor is based on \$100,000 and \$10,000 in non-labor per FTE. The specific RAMP project in Records Management is Operational Compliance & Oversight specifically in cost center 2200-1335.

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAF

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>	
2019	Other	204	12	0	216	2.0	1-Sided Adj	MGONZALX20170308213535197	
<b>Explanation:</b>		Adjustment to add two FTEs (Engineers) in the Engineering Design (Electrical, Civil) department in support of policy and support of Data Collection Units after full deployment of Advanced Meter.							
2019	Other	-102	-6	0	-108	-1.0	1-Sided Adj	TP1JMY20171114152818227	
<b>Explanation:</b>		Accounted for more labor then needed.							
2019	RnwblGas-SB1383	100	650	0	750	1.0	1-Sided Adj	MGONZALX20170309160937083	
<b>Explanation:</b>		Adjustment for Process Engineering (cost center 2200-0316) expenditures related to new renewable natural gas projects. The labor is based on \$100K per FTE. The non-labor is for the contract labor anticipated for work related to the interconnect of a renewable project.							
<b>2019 Total</b>		<b>402</b>	<b>676</b>	<b>0</b>	<b>1,078</b>	<b>4.0</b>			

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	118	234	208	181	181
Non-Labor	243	128	225	117	96
NSE	0	0	0	0	0
<b>Total</b>	<b>361</b>	<b>362</b>	<b>434</b>	<b>298</b>	<b>277</b>
FTE	1.3	2.2	2.0	1.7	1.9
<b>Adjustments (Nominal \$) **</b>					
Labor	382	400	481	313	289
Non-Labor	202	172	221	106	114
NSE	0	0	0	0	0
<b>Total</b>	<b>583</b>	<b>573</b>	<b>703</b>	<b>418</b>	<b>404</b>
FTE	4.2	4.5	5.6	3.4	2.6
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	500	635	690	494	470
Non-Labor	444	300	447	222	210
NSE	0	0	0	0	0
<b>Total</b>	<b>944</b>	<b>935</b>	<b>1,137</b>	<b>716</b>	<b>680</b>
FTE	5.5	6.7	7.6	5.1	4.5
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	80	106	113	80	77
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>80</b>	<b>106</b>	<b>113</b>	<b>80</b>	<b>77</b>
FTE	0.9	1.1	1.3	0.9	0.8
<b>Escalation to 2016\$</b>					
Labor	35	30	18	7	0
Non-Labor	27	12	10	3	0
NSE	0	0	0	0	0
<b>Total</b>	<b>61</b>	<b>42</b>	<b>28</b>	<b>10</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	615	770	820	581	548
Non-Labor	471	312	457	225	210
NSE	0	0	0	0	0
<b>Total</b>	<b>1,086</b>	<b>1,082</b>	<b>1,277</b>	<b>806</b>	<b>758</b>
FTE	6.4	7.8	8.9	6.0	5.3

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRA

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	382	400	481	313	289
Non-Labor	202	172	221	106	114
NSE	0	0	0	0	0
<b>Total</b>	<b>583</b>	<b>573</b>	<b>703</b>	<b>418</b>	<b>404</b>
FTE	4.2	4.5	5.6	3.4	2.6

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	259	83	0	2.7	CCTR Transf From 2200-0316.000	MGONZALX20161201143055433

**Explanation:** Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.

2012	Other	123	119	0	1.5	CCTR Transf From 2200-1335.000	MGONZALX20161201143946183
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**Explanation:** Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.

<b>2012 Total</b>		<b>382</b>	<b>202</b>	<b>0</b>	<b>4.2</b>		
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2013	Other	188	107	0	1.7	CCTR Transf From 2200-0316.000	MGONZALX20161201143153193
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**Explanation:** Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.

2013	Other	212	65	0	2.8	CCTR Transf From 2200-1335.000	MGONZALX20161201143856680
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**Explanation:** Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.

<b>2013 Total</b>		<b>400</b>	<b>172</b>	<b>0</b>	<b>4.5</b>		
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*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRA

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2014	Other	0	-5	0	0.0	CCTR Transf To 2200-2213.000	MGONZALX20161027135829307
<b>Explanation:</b> This adjustment is being made to show expenditures related to Public Awareness (PA) in the PA workpaper 2200-2213 that were charged in the Engineering Design cost center 2200-0318. The change is due to a reorganization of the PA duties from Engineering Design to the Major Programs department.							
2014	Other	245	184	0	2.6	CCTR Transf From 2200-0316.000	MGONZALX20161201143233307
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2014	Other	237	43	0	3.0	CCTR Transf From 2200-1335.000	MGONZALX20161201143755930
<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
<b>2014 Total</b>		<b>481</b>	<b>221</b>	<b>0</b>	<b>5.6</b>		
2015	Other	159	57	0	1.5	CCTR Transf From 2200-0316.000	MGONZALX20161201143316980
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2015	Other	154	49	0	1.9	CCTR Transf From 2200-1335.000	MGONZALX20161201143703217
<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
<b>2015 Total</b>		<b>313</b>	<b>106</b>	<b>0</b>	<b>3.4</b>		
2016	Other	163	79	0	1.2	CCTR Transf From 2200-0316.000	MGONZALX20170307090759347
<b>Explanation:</b> Adjustment to transfer the Gas Process Design (2200-0316) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Gas Process Design will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
2016	Other	126	35	0	1.4	CCTR Transf From 2200-1335.000	MGONZALX20170307091246760

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRA

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
<b>Explanation:</b> Adjustment to transfer the Design Drafting group (2200-1335) historical expenditure to Utility Shared Service (USS) cost center 2200-0318 (Engineering Design Manager). The Design Drafting group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
<b>2016 Total</b>		<b>289</b>	<b>114</b>	<b>0</b>	<b>2.6</b>		

*Note: Totals may include rounding differences.*

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 1. MANAGEMENT, PROCESS ENGINEERING & DESIGN DRAFTING  
 Cost Center: 2200-0318.000 - ENGINEERING DESIGN MANAGEMENT, PROCESS ENGINEERING & DESIGN DRA

**RAMP Item # 1**

Ref ID: MGONZALX20161202130211670

RAMP Chapter: SCG-8

Program Name: IT O&M Costs and Operational Compliance and Oversight

Program Description: Costs for the ongoing O&M to maintain the systems used to store operational asset records

**Risk/Mitigation:**

Risk: Records Management

Mitigation: Information Management Systems

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	5,362	5,362	5,362
High	6,553	6,553	6,553

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Non-Mandated

Work Type Citation: In Progress

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 5442

Explanation: The embedded cost is the 2015 historical cost that was included in the RAMP filing.

**Beginning of Workpaper**  
**2200-0321.000 - MECHANICAL DESIGN**

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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 2. MECHANICAL DESIGN  
 Cost Center: 2200-0321.000 - MECHANICAL DESIGN

**Activity Description:**

The Mechanical Design engineering group provides technical expertise in the development and implementation of mechanical engineering strategies and designs related to gas facilities, including compressor stations, instrument air systems, exhaust systems, pressure vessels, field piping, fire protection systems, and gas processing facilities.

**Forecast Explanations:**

**Labor - 5-YR Average**

As the foundation for future labor expense requirements, the 5 year average was chosen. The nature of work performed by the Mechanical Design department, has proven to be consistent over time as evident by historical data. It is predicted that the current activity levels and program support functions will be sustained moving forward. As such, the 5 year average would sufficiently meet the future funding requirements.

**Non-Labor - 5-YR Average**

As the foundation for future non-labor expense requirements, the 5 year average was chosen. The nature of work performed by the Mechanical Design department, has proven to be consistent over time as evident by historical data. It is predicted that the current activity levels and program support functions will be sustained moving forward. As such, the 5 year average would sufficiently meet the future funding requirements.

**NSE - 5-YR Average**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		110	135	183	129	44	120	120	120	
Non-Labor		45	93	85	60	13	59	59	59	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>155</b>	<b>228</b>	<b>269</b>	<b>189</b>	<b>57</b>	<b>179</b>	<b>179</b>	<b>179</b>	
FTE		0.9	1.3	1.6	1.3	0.4	1.1	1.1	1.1	

*Note: Totals may include rounding differences.*

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 2. MECHANICAL DESIGN  
 Cost Center: 2200-0321.000 - MECHANICAL DESIGN

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	0	0	0	0	0.0	5	0	0	5	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	44	13	0	57	0.4	115	59	0	174	1.1
<b>Total Incurred</b>	<b>44</b>	<b>13</b>	<b>0</b>	<b>57</b>	<b>0.4</b>	<b>120</b>	<b>59</b>	<b>0</b>	<b>179</b>	<b>1.1</b>
<b>% Allocation</b>										
Retained	91.05%	91.05%				91.05%	91.05%			
SEU	8.95%	8.95%				8.95%	8.95%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	5	0	0	5	0.0	5	0	0	5	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	115	59	0	174	1.1	115	59	0	174	1.1
<b>Total Incurred</b>	<b>120</b>	<b>59</b>	<b>0</b>	<b>179</b>	<b>1.1</b>	<b>120</b>	<b>59</b>	<b>0</b>	<b>179</b>	<b>1.1</b>
<b>% Allocation</b>										
Retained	91.05%	91.05%				91.05%	91.05%			
SEU	8.95%	8.95%				8.95%	8.95%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower.

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower.

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower.

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower.

Note: Totals may include rounding differences.

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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 2. MECHANICAL DESIGN  
 Cost Center: 2200-0321.000 - MECHANICAL DESIGN

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	120	120	120	0	0	0	120	120	120
Non-Labor	5-YR Average	59	59	59	0	0	0	59	59	59
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>180</b>	<b>180</b>	<b>180</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>180</b>	<b>180</b>	<b>180</b>
FTE	5-YR Average	1.1	1.1	1.1	0.0	0.0	0.0	1.1	1.1	1.1

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
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Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: C. ENGINEERING DESIGN  
Category-Sub: 2. MECHANICAL DESIGN  
Cost Center: 2200-0321.000 - MECHANICAL DESIGN

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	91	111	154	110	38
Non-Labor	43	90	83	59	13
NSE	0	0	0	0	0
<b>Total</b>	<b>134</b>	<b>201</b>	<b>238</b>	<b>169</b>	<b>51</b>
FTE	0.8	1.2	1.4	1.2	0.3
<b>Adjustments (Nominal \$) **</b>					
Labor	-2	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>-2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	89	111	154	110	38
Non-Labor	43	90	83	59	13
NSE	0	0	0	0	0
<b>Total</b>	<b>132</b>	<b>201</b>	<b>238</b>	<b>169</b>	<b>51</b>
FTE	0.8	1.2	1.4	1.2	0.3
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	14	19	25	18	6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>14</b>	<b>19</b>	<b>25</b>	<b>18</b>	<b>6</b>
FTE	0.1	0.2	0.2	0.2	0.1
<b>Escalation to 2016\$</b>					
Labor	6	5	4	2	0
Non-Labor	3	4	2	1	0
NSE	0	0	0	0	0
<b>Total</b>	<b>9</b>	<b>9</b>	<b>6</b>	<b>2</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	110	135	183	129	44
Non-Labor	45	93	85	60	13
NSE	0	0	0	0	0
<b>Total</b>	<b>155</b>	<b>228</b>	<b>269</b>	<b>189</b>	<b>57</b>
FTE	0.9	1.4	1.6	1.4	0.4

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 2. MECHANICAL DESIGN  
 Cost Center: 2200-0321.000 - MECHANICAL DESIGN

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	-2	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>-2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	-2	0	0	0.0	1-Sided Adj	MGONZALX20161109145350387

**Explanation:** This adjustment was made to exclude the Compression Service Tariff (CST) costs related to the evaluation of CST facility installation site. Pursuant to CPUC decision D.12-12-037, all CST activities must be excluded from base rates.

<b>2012 Total</b>	<b>-2</b>	<b>0</b>	<b>0</b>	<b>0.0</b>
<b>2013 Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>
<b>2014 Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>
<b>2015 Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>
<b>2016 Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0322.000 - PIPELINE ENGINEERING**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 3. PIPELINE ENGINEERING  
 Cost Center: 2200-0322.000 - PIPELINE ENGINEERING

**Activity Description:**

This group assesses new and existing gas pipelines for both SoCalGas and SDG&E. For existing pipelines, the group assesses various loadings on pipe, such as surface loadings from vehicles and construction equipment. The group also evaluates existing spans and crossings and piping vibration at compressor stations, and pipelines impacted by ground movement. Other tasks include assessment of pipeline operations, including purging, pipeline lowering and MAOP increases. The group develops and manages pipeline engineering gas standards and procedures and material specifications related to the design, construction, maintenance, pressure testing and operation of pipelines. It performs annual reviews of Pipeline Engineering O&M standards and updates them as needed. The group reviews all pressure testing of transmission lines. The group sets and updates pipeline engineering policies that provide the required specifications of all the pipe for both utilities.

**Forecast Explanations:**

**Labor - 5-YR Average**

As the foundation for future labor expense requirements, the 5 year average was chosen. The nature of the associated activities provided by this work group has proven to be relatively stable over time. The 5 year average best represents the work group's funding requirements. These incremental costs have been identified and added to the 5 year average.

**Non-Labor - 5-YR Average**

As the foundation for future non-labor expense requirements, the 5 year average was chosen. The nature of the associated activities provided by this work group has proven to be relatively stable over time. The 5 year average best represents the work group's funding requirements. These incremental costs have been identified and added to the 5 year average.

**NSE - 5-YR Average**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		579	681	648	526	514	589	589	589	
Non-Labor		48	86	118	72	87	82	82	82	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>626</b>	<b>767</b>	<b>766</b>	<b>598</b>	<b>601</b>	<b>671</b>	<b>671</b>	<b>671</b>	
FTE		5.5	7.0	6.8	5.7	5.5	6.1	6.1	6.1	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 3. PIPELINE ENGINEERING  
 Cost Center: 2200-0322.000 - PIPELINE ENGINEERING

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	1	2	0	3	0.0	5	6	0	11	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	512	85	0	597	5.5	584	76	0	660	6.1
<b>Total Incurred</b>	<b>513</b>	<b>87</b>	<b>0</b>	<b>600</b>	<b>5.5</b>	<b>589</b>	<b>82</b>	<b>0</b>	<b>671</b>	<b>6.1</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	5	6	0	11	0.0	5	6	0	11	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	584	76	0	660	6.1	584	76	0	660	6.1
<b>Total Incurred</b>	<b>589</b>	<b>82</b>	<b>0</b>	<b>671</b>	<b>6.1</b>	<b>589</b>	<b>82</b>	<b>0</b>	<b>671</b>	<b>6.1</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 3. PIPELINE ENGINEERING  
 Cost Center: 2200-0322.000 - PIPELINE ENGINEERING

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	589	589	589	0	0	0	589	589	589
Non-Labor	5-YR Average	82	82	82	0	0	0	82	82	82
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>672</b>	<b>672</b>	<b>672</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>672</b>	<b>672</b>	<b>672</b>
FTE	5-YR Average	6.1	6.1	6.1	0.0	0.0	0.0	6.1	6.1	6.1

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: C. ENGINEERING DESIGN  
Category-Sub: 3. PIPELINE ENGINEERING  
Cost Center: 2200-0322.000 - PIPELINE ENGINEERING

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	471	561	545	447	441
Non-Labor	45	83	116	71	87
NSE	0	0	0	0	0
<b>Total</b>	<b>516</b>	<b>644</b>	<b>660</b>	<b>519</b>	<b>529</b>
FTE	4.7	6.0	5.8	4.9	4.7
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	471	561	545	447	441
Non-Labor	45	83	116	71	87
NSE	0	0	0	0	0
<b>Total</b>	<b>516</b>	<b>644</b>	<b>660</b>	<b>519</b>	<b>529</b>
FTE	4.7	6.0	5.8	4.9	4.7
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	75	93	89	72	73
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>75</b>	<b>93</b>	<b>89</b>	<b>72</b>	<b>73</b>
FTE	0.8	1.0	1.0	0.8	0.8
<b>Escalation to 2016\$</b>					
Labor	33	26	14	7	0
Non-Labor	3	3	3	1	0
NSE	0	0	0	0	0
<b>Total</b>	<b>35</b>	<b>30</b>	<b>17</b>	<b>7</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	579	681	648	526	514
Non-Labor	48	86	118	72	87
NSE	0	0	0	0	0
<b>Total</b>	<b>626</b>	<b>767</b>	<b>766</b>	<b>598</b>	<b>601</b>
FTE	5.5	7.0	6.8	5.7	5.5

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 3. PIPELINE ENGINEERING  
 Cost Center: 2200-0322.000 - PIPELINE ENGINEERING

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-2377.000 - HIGH PRESSURE & DISTRIBUTION ENGINEERING**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: C. ENGINEERING DESIGN  
Category-Sub: 4. HIGH PRESSURE DISTRIBUTION ENGINEERING  
Cost Center: 2200-2377.000 - HIGH PRESSURE & DISTRIBUTION ENGINEERING

**Activity Description:**

Activities associated with this work group are performed by the System Engineering and Data Analytics (NOTE - formerly: Distribution System Engineering Support) group. Activities are primarily focused on providing the Distribution region engineering groups with technical, data and policy support, as well as developing and implementing new technologies to enhance safety, effectiveness and productivity in those groups. Specific activities include (1) the creation and validation of computer hydraulic models of medium and high pressure pipe Distribution networks, (2) managing and enhancing the company's pressure monitoring programs, (3) developing and providing system design and analysis training to Region Engineering employees, (4) meeting the requirements of SB 1383 and evaluating other renewable natural gas sources, (5) providing engineering data analytics and performance optimization services to Distribution, Transmission and Storage, and (6) providing project management over a range of other areas, including gas blown to atmosphere, isolation area management, year-end gas inventory calculation and reporting, review and update of company standards, and participation on industry committees.

**Forecast Explanations:**

**Labor - 5-YR Linear**

The 5-year linear was chosen for the labor in this group because the historical data indicate that activities and staffing levels have been consistent and this trend is expected to continue. Therefore, the best estimate for future requirements is the five year linear forecast. However, due to the anticipated requirements for a) roll-out of SB1383 and related capacity studies, and b) enhancing data analytics and performance optimization, additional staffing and resources are required. These incremental costs have been identified and added to the 5-year linear forecast.

NOTE: incremental FTEs consist of 0.5 for SB1383, 1.5 for other renewable/biogas capacity studies, 5.0 for new Engineering Data Analytics & Performance Optimization (EDAPO) team - total 7.0 incremental.

**Non-Labor - 5-YR Linear**

The 5-year linear was chosen for the non-labor in this group because the historical data indicate that activities and staffing levels have been consistent and this trend is expected to continue. Therefore, the best estimate for future requirements is the five year linear. However, due to the anticipated requirements for (a) roll-out of SB1383 and related capacity studies, and (b) enhancing data analytics and performance optimization, additional non-labor costs are anticipated. These incremental costs have been identified and added to the 5-year linear forecast.

**NSE - 5-YR Linear**

There are no Non-Standard Escalation expenses associated with this cost center.

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 4. HIGH PRESSURE DISTRIBUTION ENGINEERING  
 Cost Center: 2200-2377.000 - HIGH PRESSURE & DISTRIBUTION ENGINEERING

**Summary of Results:**

		<b>In 2016\$ (000) Incurred Costs</b>								
		<b>Adjusted-Recorded</b>					<b>Adjusted-Forecast</b>			
<b>Years</b>		<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	
Labor		388	513	488	486	544	570	598	1,226	
Non-Labor		14	13	12	28	14	21	22	64	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>402</b>	<b>526</b>	<b>500</b>	<b>513</b>	<b>558</b>	<b>591</b>	<b>620</b>	<b>1,290</b>	
FTE		4.1	5.0	4.8	4.6	5.0	5.1	5.2	12.4	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 4. HIGH PRESSURE DISTRIBUTION ENGINEERING  
 Cost Center: 2200-2377.000 - HIGH PRESSURE & DISTRIBUTION ENGINEERING

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	0	1	0	1	0.0	0	6	0	6	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	544	13	0	557	5.0	570	15	0	585	5.1
<b>Total Incurred</b>	<b>544</b>	<b>14</b>	<b>0</b>	<b>558</b>	<b>5.0</b>	<b>570</b>	<b>21</b>	<b>0</b>	<b>591</b>	<b>5.1</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	-1	7	0	6	0.0	-1	8	0	7	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	599	15	0	614	5.2	1,227	56	0	1,283	12.4
<b>Total Incurred</b>	<b>598</b>	<b>22</b>	<b>0</b>	<b>620</b>	<b>5.2</b>	<b>1,226</b>	<b>64</b>	<b>0</b>	<b>1,290</b>	<b>12.4</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 4. HIGH PRESSURE DISTRIBUTION ENGINEERING  
 Cost Center: 2200-2377.000 - HIGH PRESSURE & DISTRIBUTION ENGINEERING

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Linear	569	598	626	0	0	600	569	598	1,226
Non-Labor	5-YR Linear	21	22	24	0	0	40	21	22	64
NSE	5-YR Linear	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>590</b>	<b>620</b>	<b>650</b>	<b>0</b>	<b>0</b>	<b>640</b>	<b>590</b>	<b>620</b>	<b>1,290</b>
FTE	5-YR Linear	5.1	5.2	5.4	0.0	0.0	7.0	5.1	5.2	12.4

**Forecast Adjustment Details:**

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>	
<b>2017 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>			
<b>2018 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>			
2019	Other	440	24	0	464	5.0	1-Sided Adj	MGONZALX20170308214907177	
<b>Explanation:</b>		Incremental FTEs for two Engineers two Technical Advisors and one project manager to develop and implement the EDAPO group.							
2019	RnwblGas-Other	160	16	0	176	2.0	1-Sided Adj	MGONZALX20170309161828243	
<b>Explanation:</b>		Two incremental FTEs to manage capacity studies for Gas Distribution interconnect expenditures related to new renewable natural gas projects.							
<b>2019 Total</b>		<b>600</b>	<b>40</b>	<b>0</b>	<b>640</b>	<b>7.0</b>			

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 4. HIGH PRESSURE DISTRIBUTION ENGINEERING  
 Cost Center: 2200-2377.000 - HIGH PRESSURE & DISTRIBUTION ENGINEERING

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	315	423	411	413	467
Non-Labor	13	12	11	27	14
NSE	0	0	0	0	0
<b>Total</b>	<b>328</b>	<b>435</b>	<b>422</b>	<b>440</b>	<b>481</b>
FTE	3.5	4.3	4.1	3.9	4.3
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	315	423	411	413	467
Non-Labor	13	12	11	27	14
NSE	0	0	0	0	0
<b>Total</b>	<b>328</b>	<b>435</b>	<b>422</b>	<b>440</b>	<b>481</b>
FTE	3.5	4.3	4.1	3.9	4.3
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	51	70	67	67	77
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>51</b>	<b>70</b>	<b>67</b>	<b>67</b>	<b>77</b>
FTE	0.6	0.7	0.7	0.7	0.7
<b>Escalation to 2016\$</b>					
Labor	22	20	11	6	0
Non-Labor	1	1	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>23</b>	<b>20</b>	<b>11</b>	<b>6</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	388	513	488	486	544
Non-Labor	14	13	12	28	14
NSE	0	0	0	0	0
<b>Total</b>	<b>402</b>	<b>526</b>	<b>500</b>	<b>513</b>	<b>558</b>
FTE	4.1	5.0	4.8	4.6	5.0

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 4. HIGH PRESSURE DISTRIBUTION ENGINEERING  
 Cost Center: 2200-2377.000 - HIGH PRESSURE & DISTRIBUTION ENGINEERING

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-2487.000 - ELECTRICAL DESIGN**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 5. ELECTRICAL DESIGN  
 Cost Center: 2200-2487.000 - ELECTRICAL DESIGN

**Activity Description:**

This cost center captures the activities and expenses associated with the Electrical Design Team. This team designs and produces the documents associated with all electric components in each utility such as meters, control valves, and monitors.

**Forecast Explanations:**

**Labor - Base YR Rec**

As the foundation for future labor expense requirements, base year was chosen because the historical costs included in other groups and activities that did not represent the anticipated expense requirements. In addition, incremental adjustments to the base year were included to represent the expense requirements anticipated in test year 2019.

**Non-Labor - Base YR Rec**

As the foundation for future non-labor expense requirements, base year was chosen because the historical costs included in other groups and activities that did not represent the anticipated expense requirements. In addition, incremental adjustments to the base year were included to represent the expense requirements anticipated in test year 2019.

**NSE - Base YR Rec**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		0	52	361	153	145	145	145	145	
Non-Labor		0	2	3	13	10	9	9	9	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>0</b>	<b>54</b>	<b>364</b>	<b>167</b>	<b>154</b>	<b>154</b>	<b>154</b>	<b>154</b>	
FTE		0.0	0.7	3.7	1.4	1.5	1.5	1.5	1.5	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 5. ELECTRICAL DESIGN  
 Cost Center: 2200-2487.000 - ELECTRICAL DESIGN

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	3	2	0	5	0.0	3	2	0	5	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	142	7	0	149	1.5	142	7	0	149	1.5
<b>Total Incurred</b>	<b>145</b>	<b>9</b>	<b>0</b>	<b>154</b>	<b>1.5</b>	<b>145</b>	<b>9</b>	<b>0</b>	<b>154</b>	<b>1.5</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	3	2	0	5	0.0	3	2	0	5	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	142	7	0	149	1.5	142	7	0	149	1.5
<b>Total Incurred</b>	<b>145</b>	<b>9</b>	<b>0</b>	<b>154</b>	<b>1.5</b>	<b>145</b>	<b>9</b>	<b>0</b>	<b>154</b>	<b>1.5</b>
<b>% Allocation</b>										
Retained	86.69%	86.69%				86.69%	86.69%			
SEU	13.31%	13.31%				13.31%	13.31%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

Meters - All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

Meters - All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

Meters - All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

Meters - All calculations are based on the ratio of SDG&E meters to SoCal meters (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 5. ELECTRICAL DESIGN  
 Cost Center: 2200-2487.000 - ELECTRICAL DESIGN

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Base YR Rec	145	145	145	0	0	0	145	145	145
Non-Labor	Base YR Rec	10	10	10	0	0	0	10	10	10
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>154</b>	<b>154</b>	<b>154</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>154</b>	<b>154</b>	<b>154</b>
FTE	Base YR Rec	1.5	1.5	1.5	0.0	0.0	0.0	1.5	1.5	1.5

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: C. ENGINEERING DESIGN  
Category-Sub: 5. ELECTRICAL DESIGN  
Cost Center: 2200-2487.000 - ELECTRICAL DESIGN

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	0	43	304	130	125
Non-Labor	0	2	3	13	10
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>45</b>	<b>307</b>	<b>143</b>	<b>134</b>
FTE	0.0	0.5	3.2	1.2	1.3
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	-1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-1</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	0	43	304	130	124
Non-Labor	0	2	3	13	10
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>45</b>	<b>307</b>	<b>143</b>	<b>134</b>
FTE	0.0	0.5	3.2	1.2	1.3
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	0	7	50	21	20
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>7</b>	<b>50</b>	<b>21</b>	<b>20</b>
FTE	0.0	0.1	0.5	0.2	0.2
<b>Escalation to 2016\$</b>					
Labor	0	2	8	2	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	0	52	361	153	145
Non-Labor	0	2	3	13	10
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>54</b>	<b>364</b>	<b>167</b>	<b>154</b>
FTE	0.0	0.6	3.7	1.4	1.5

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. ENGINEERING DESIGN  
 Category-Sub: 5. ELECTRICAL DESIGN  
 Cost Center: 2200-2487.000 - ELECTRICAL DESIGN

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	-0.662
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-0.662</b>
FTE	0.0	0.0	0.0	0.0	0.0

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		0	0	0	0.0		
<b>2013 Total</b>		0	0	0	0.0		
<b>2014 Total</b>		0	0	0	0.0		
<b>2015 Total</b>		0	0	0	0.0		
2016	Aliso	-1	0	0	0.0	1-Sided Adj	JJBUNTIN20170224115801470
<b>2016 Total</b>		-1	0	0	0.0		

**Explanation:** This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: D. ENGINEERING ANALYSIS CENTER  
 Cost Center: 2200-1178.000

**Summary for Category: D. ENGINEERING ANALYSIS CENTER**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	1,309	1,379	1,454	1,590
Non-Labor	193	324	324	544
NSE	0	0	0	0
<b>Total</b>	<b>1,502</b>	<b>1,703</b>	<b>1,778</b>	<b>2,134</b>
FTE	13.8	14.6	15.6	17.6

**Cost Centers belonging to this Category:**

**2200-1178.000 ENGINEERING ANALYSIS CENTER - CHEMICAL LAB**

Labor	1,309	1,379	1,454	1,590
Non-Labor	193	324	324	544
NSE	0	0	0	0
<b>Total</b>	<b>1,502</b>	<b>1,703</b>	<b>1,778</b>	<b>2,134</b>
FTE	13.8	14.6	15.6	17.6

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-1178.000 - ENGINEERING ANALYSIS CENTER - CHEMICAL LAB**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: D. ENGINEERING ANALYSIS CENTER  
 Category-Sub: 1. EAC CHEMICAL LAB  
 Cost Center: 2200-1178.000 - ENGINEERING ANALYSIS CENTER - CHEMICAL LAB

**Activity Description:**

The Engineering Analysis Center Chemical section provides environmental , gas operation, and Btu measurement related analytical services to the operating and customer services organizations. These activities include: - PCB analysis and sample management, hazardous material, gas quality policy and operating procedures, gas composition including inerts through C22+ and HC & H2O dew point, simulated distillation through C40+, sulfur gas analysis, odorization management and test development, line odor seasoning management and training, gas quality testing including, mobile gas operations test vehicle, Btu measurement services, Fugitive and Leakage Gas identification and Verification.

**Forecast Explanations:**

**Labor - 5-YR Average**

As the foundation for future labor expense requirements, the 5 year average was chosen. The nature of work performed by the Engineering Analysis Center department has proven to be relatively stable over time. The 5 year average best represents the work group's funding requirements. However, new and enhanced regulations are emerging and thus requiring additional staffing and resources to comply. These incremental costs have been identified and added to the 5 year average.

**Non-Labor - 5-YR Average**

As the foundation for future non-labor expense requirements, the 5 year average was chosen. The nature of work performed by the Engineering Analysis Center department has proven to be relatively stable over time. The 5 year average best represents the work group's funding requirements. However, new and enhanced regulations are emerging and thus requiring additional staffing and resources to comply. These incremental costs have been identified and added to the 5 year average

**NSE - 5-YR Average**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		1,354	1,265	1,203	1,314	1,309	1,378	1,453	1,589	
Non-Labor		328	335	366	296	193	323	323	543	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>1,681</b>	<b>1,600</b>	<b>1,569</b>	<b>1,610</b>	<b>1,501</b>	<b>1,701</b>	<b>1,776</b>	<b>2,132</b>	
FTE		14.7	13.1	12.6	13.9	13.8	14.7	15.7	17.7	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: D. ENGINEERING ANALYSIS CENTER  
 Category-Sub: 1. EAC CHEMICAL LAB  
 Cost Center: 2200-1178.000 - ENGINEERING ANALYSIS CENTER - CHEMICAL LAB

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	80	34	0	114	0.7	20	10	0	30	0.2
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	1,228	158	0	1,386	13.1	1,358	313	0	1,671	14.5
<b>Total Incurred</b>	<b>1,308</b>	<b>192</b>	<b>0</b>	<b>1,500</b>	<b>13.8</b>	<b>1,378</b>	<b>323</b>	<b>0</b>	<b>1,701</b>	<b>14.7</b>
<b>% Allocation</b>										
Retained	95.75%	95.75%				95.75%	95.75%			
SEU	4.25%	4.25%				4.25%	4.25%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	20	10	0	30	0.2	20	10	0	30	0.2
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	1,433	313	0	1,746	15.5	1,569	533	0	2,102	17.5
<b>Total Incurred</b>	<b>1,453</b>	<b>323</b>	<b>0</b>	<b>1,776</b>	<b>15.7</b>	<b>1,589</b>	<b>543</b>	<b>0</b>	<b>2,132</b>	<b>17.7</b>
<b>% Allocation</b>										
Retained	95.75%	95.75%				95.75%	95.75%			
SEU	4.25%	4.25%				4.25%	4.25%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower as well as for cost per year for budgeted activities.

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower as well as for cost per year for budgeted activities.

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower as well as for cost per year for budgeted activities..

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E compressor/engine horsepower to SoCal compressor/engine horsepower as well as for cost per year for budgeted activities.

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: D. ENGINEERING ANALYSIS CENTER  
 Category-Sub: 1. EAC CHEMICAL LAB  
 Cost Center: 2200-1178.000 - ENGINEERING ANALYSIS CENTER - CHEMICAL LAB

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	1,289	1,289	1,289	90	165	301	1,379	1,454	1,590
Non-Labor	5-YR Average	304	304	304	20	20	240	324	324	544
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>1,592</b>	<b>1,592</b>	<b>1,592</b>	<b>110</b>	<b>185</b>	<b>541</b>	<b>1,702</b>	<b>1,777</b>	<b>2,133</b>
FTE	5-YR Average	13.6	13.6	13.6	1.0	2.0	4.0	14.6	15.6	17.6

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
2017	Other	90	20	0	110	1.0	1-Sided Adj	MGONZALX20161201103911503
<b>2017 Total</b>		<b>90</b>	<b>20</b>	<b>0</b>	<b>110</b>	<b>1.0</b>		

**Explanation:** Adjustment for one incremental FTE for the upward pressure related to BTU Testing - Compliance; SCG has 51 Btu districts in its service territory. These districts are equipped with Gas Chromatographs (GCs) or sample bottles that are dedicated to accurately analyze pipeline gas for Btu measurements for calculating monthly bills of our over 6.5 million customers. 24 out of these 51 districts are equipped with gas chromatographs while other 27 districts have sample bottles used for the Btu measurements. Some large Btu districts such as district 11 could be easily broken into several new districts. We also plan to install GCs at the 27 districts in the next 5-15 years. With restructuring of Btu districts and anticipated significant increase in Btu measurement work, one additional FTE in 2017 is justified. Non-Labor: Employee Expense, Calibration Gases and GC parts

2018	RnwblGas-Other	75	0	0	75	1.0	1-Sided Adj	MGONZALX20161201103529790
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**Explanation:** Adjustment due to an upward pressure from Renewal Natural Gas (RNG); AB1900 AB 1383 requires SCG to allow conditioned RNG inject into SCG system. Other similar assembly bills or initiatives to promote the use of the RNG are expected to pass in the future. SCG needs to test the gas before after conditioning to ensure it meets Rule 30 limits for the safety of our employees, customers and public and protect our infrastructure. SCG is also promoting and encouraging the use of RNG. We are anticipating that over the next 3 years more wastewater treatment plants, landfills, and recycling facilities would be able to condition the gas to meet our gas quality limits and additional gas supplies will be coming into our system, which will require gas testing and continuous monitoring. In order to support biogas testing and monitoring and to promote the use of RNG, we are requesting one management position in 2018.

2018	Other	90	20	0	110	1.0	1-Sided Adj	MGONZALX20161201103932210
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Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: D. ENGINEERING ANALYSIS CENTER  
 Category-Sub: 1. EAC CHEMICAL LAB  
 Cost Center: 2200-1178.000 - ENGINEERING ANALYSIS CENTER - CHEMICAL LAB

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
<b>Explanation:</b>		Adjustment for one incremental FTE for the upward pressure related to BTU Testing - Compliance; SCG has 51 Btu districts in its service territory. These districts are equipped with Gas Chromatographs (GCs) or sample bottles that are dedicated to accurately analyze pipeline gas for Btu measurements for calculating monthly bills of our over 6.5 million customers. 24 out of these 51 districts are equipped with gas chromatographs while other 27 districts have sample bottles used for the Btu measurements. Some large Btu districts such as district 11 could be easily broken into several new districts. We also plan to install GCs at the 27 districts in the next 5-15 years. With restructuring of Btu districts and anticipated significant increase in Btu measurement work, one additional FTE in 2017 is justified. Non-Labor: Employee Expense, Calibration Gases and GC parts							
<b>2018 Total</b>		<b>165</b>	<b>20</b>	<b>0</b>	<b>185</b>	<b>2.0</b>			
2019	RnwblGas-Other	75	0	0	75	1.0	1-Sided Adj	MGONZALX20161201103629773	
<b>Explanation:</b>		Adjustment to account for the one FTE in the 2018 adjustment due to an upward pressure from Renewal Natural Gas (RNG); AB1900 requires SCG to allow conditioned RNG inject into SCG system. Other similar assembly bills or initiatives to promote the use of the RNG are expected to pass in the future. SCG needs to test the gas before after conditioning to ensure it meets Rule 30 limits for the safety of our employees, customers and public and protect our infrastructure. SCG is also promoting and encouraging the use of RNG. We are anticipating that over the next 3 years more wastewater treatment plants, landfills, and recycling facilities would be able to condition the gas to meet our gas quality limits and additional gas supplies will be coming into our system, which will require gas testing and continuous monitoring. In order to support biogas testing and monitoring and to promote the use of RNG, we are requesting one management position in 2018.							
2019	Other	90	20	0	110	1.0	1-Sided Adj	MGONZALX20161201103959567	
<b>Explanation:</b>		Adjustment for one incremental FTE for the upward pressure related to BTU Testing - Compliance; SCG has 51 Btu districts in its service territory. These districts are equipped with Gas Chromatographs (GCs) or sample bottles that are dedicated to accurately analyze pipeline gas for Btu measurements for calculating monthly bills of our over 6.5 million customers. 24 out of these 51 districts are equipped with gas chromatographs while other 27 districts have sample bottles used for the Btu measurements. Some large Btu districts such as district 11 could be easily broken into several new districts. We also plan to install GCs at the 27 districts in the next 5-15 years. With restructuring of Btu districts and anticipated significant increase in Btu measurement work, one additional FTE in 2017 is justified. Non-Labor: Employee Expense, Calibration Gases and GC parts.							
2019	RnwblGas-SB1383	136	220	0	356	2.0	1-Sided Adj	MGONZALX20170309161218020	
<b>Explanation:</b>		Adjustment for maintenance of the gas quality monitoring expenditures related to new renewable natural gas projects.							
<b>2019 Total</b>		<b>301</b>	<b>240</b>	<b>0</b>	<b>541</b>	<b>4.0</b>			

Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: D. ENGINEERING ANALYSIS CENTER  
Category-Sub: 1. EAC CHEMICAL LAB  
Cost Center: 2200-1178.000 - ENGINEERING ANALYSIS CENTER - CHEMICAL LAB

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	1,101	1,043	1,012	1,123	1,156
Non-Labor	309	322	358	307	219
NSE	0	0	0	0	0
<b>Total</b>	<b>1,410</b>	<b>1,365</b>	<b>1,370</b>	<b>1,430</b>	<b>1,375</b>
FTE	12.6	11.3	10.8	11.9	12.1
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	-6	-32
Non-Labor	0	0	0	-15	-27
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-21</b>	<b>-59</b>
FTE	0.0	0.0	0.0	-0.1	-0.3
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	1,101	1,043	1,012	1,117	1,124
Non-Labor	309	322	358	292	193
NSE	0	0	0	0	0
<b>Total</b>	<b>1,410</b>	<b>1,365</b>	<b>1,370</b>	<b>1,409</b>	<b>1,316</b>
FTE	12.6	11.3	10.8	11.8	11.8
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	176	173	165	181	185
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>176</b>	<b>173</b>	<b>165</b>	<b>181</b>	<b>185</b>
FTE	2.1	1.9	1.8	2.0	2.0
<b>Escalation to 2016\$</b>					
Labor	77	49	26	16	0
Non-Labor	19	13	8	4	0
NSE	0	0	0	0	0
<b>Total</b>	<b>95</b>	<b>62</b>	<b>34</b>	<b>20</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	1,354	1,265	1,203	1,314	1,309
Non-Labor	328	335	366	296	193
NSE	0	0	0	0	0
<b>Total</b>	<b>1,681</b>	<b>1,600</b>	<b>1,569</b>	<b>1,610</b>	<b>1,501</b>
FTE	14.7	13.2	12.6	13.8	13.8

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
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Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: D. ENGINEERING ANALYSIS CENTER  
 Category-Sub: 1. EAC CHEMICAL LAB  
 Cost Center: 2200-1178.000 - ENGINEERING ANALYSIS CENTER - CHEMICAL LAB

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	-6	-32
Non-Labor	0	0	0	-15	-27
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-21</b>	<b>-59</b>
FTE	0.0	0.0	0.0	-0.1	-0.3

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2015	Aliso	-6	-15	0	-0.1	1-Sided Adj	JJBUNTIN20161103133349690
<b>Explanation:</b>	This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.						
<b>2015 Total</b>		<b>-6</b>	<b>-15</b>	<b>0</b>	<b>-0.1</b>		
2016	Aliso	-32	-27	0	-0.3	1-Sided Adj	JJBUNTIN20170224114655533
<b>Explanation:</b>	This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.						
<b>2016 Total</b>		<b>-32</b>	<b>-27</b>	<b>0</b>	<b>-0.3</b>		

*Note: Totals may include rounding differences.*

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Shared Services Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: E. RESEARCH & MATERIALS  
Cost Center: VARIOUS

**Summary for Category: E. RESEARCH & MATERIALS**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	429	374	374	374
Non-Labor	61	63	63	63
NSE	0	0	0	0
<b>Total</b>	<b>490</b>	<b>437</b>	<b>437</b>	<b>437</b>
FTE	3.9	3.3	3.3	3.3

**Cost Centers belonging to this Category:**

**2200-0320.000 RESEARCH & MATERIALS**

Labor	103	103	103	103
Non-Labor	52	52	52	52
NSE	0	0	0	0
<b>Total</b>	<b>155</b>	<b>155</b>	<b>155</b>	<b>155</b>
FTE	1.0	1.0	1.0	1.0

**2200-0320.001 2200-2300 PIPELINE MATERIALS**

Labor	235	235	235	235
Non-Labor	7	7	7	7
NSE	0	0	0	0
<b>Total</b>	<b>242</b>	<b>242</b>	<b>242</b>	<b>242</b>
FTE	2.0	2.0	2.0	2.0

**2200-0323.000 RESEARCH PLANNING & DEVELOPMENT**

Labor	91	36	36	36
Non-Labor	2	4	4	4
NSE	0	0	0	0
<b>Total</b>	<b>93</b>	<b>40</b>	<b>40</b>	<b>40</b>
FTE	0.9	0.3	0.3	0.3

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0320.000 - RESEARCH & MATERIALS**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 1. MATERIALS & QUALITY  
 Cost Center: 2200-0320.000 - RESEARCH & MATERIALS

**Activity Description:**

The Research and Materials team (cost center 2200-0320) manages the activities in cost centers 2200-0320 (Research & Materials), cost center 2200-2300 (Pipeline Materials), cost center 2200-2067 (Special Projects), cost center 2200-0323 (Environmental Research), and cost center 2200-0324 (Research, Development and Demonstrations). Regulatory requirements mandate minimum requirements for the selection and qualification of pipe and components for use in pipelines. This team manages Gas Engineering oversight of material quality processes and research projects. This includes processes for approving manufacturers that supply specified pipeline materials, which is also integrated into the material approval process. This team coordinates assessments of potential and approved suppliers of pipeline materials and products, and tracks supplier quality performance. This team also supports the minimum levels of materials-related information, such as tracking and traceability requirements, that are needed to facilitate effective long-term management of pipeline data used for system integrity, and O&M decisions in the future.

**Forecast Explanations:**

**Labor - Base YR Rec**

As the foundation for future labor expense requirements, base year was chosen because the historical costs included other groups and activities that did not represent the anticipated expense requirements.

**Non-Labor - Base YR Rec**

As the foundation for future non-labor expense requirements, base year was chosen because the historical costs included other groups and activities that did not represent the anticipated expense requirements.

**NSE - Base YR Rec**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		-1	0	374	343	103	103	103	103	
Non-Labor		0	0	122	74	52	53	53	53	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>-1</b>	<b>0</b>	<b>495</b>	<b>416</b>	<b>156</b>	<b>156</b>	<b>156</b>	<b>156</b>	
FTE		0.0	0.0	3.4	3.3	1.0	1.0	1.0	1.0	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 1. MATERIALS & QUALITY  
 Cost Center: 2200-0320.000 - RESEARCH & MATERIALS

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	45	5	0	50	0.5	45	5	0	50	0.5
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	58	48	0	106	0.5	58	48	0	106	0.5
<b>Total Incurred</b>	<b>103</b>	<b>53</b>	<b>0</b>	<b>156</b>	<b>1.0</b>	<b>103</b>	<b>53</b>	<b>0</b>	<b>156</b>	<b>1.0</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	45	5	0	50	0.5	45	5	0	50	0.5
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	58	48	0	106	0.5	58	48	0	106	0.5
<b>Total Incurred</b>	<b>103</b>	<b>53</b>	<b>0</b>	<b>156</b>	<b>1.0</b>	<b>103</b>	<b>53</b>	<b>0</b>	<b>156</b>	<b>1.0</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 1. MATERIALS & QUALITY  
 Cost Center: 2200-0320.000 - RESEARCH & MATERIALS

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Base YR Rec	103	103	103	0	0	0	103	103	103
Non-Labor	Base YR Rec	52	52	52	0	0	0	52	52	52
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>156</b>	<b>156</b>	<b>156</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>156</b>	<b>156</b>	<b>156</b>
FTE	Base YR Rec	1.0	1.0	1.0	0.0	0.0	0.0	1.0	1.0	1.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: E. RESEARCH & MATERIALS  
Category-Sub: 1. MATERIALS & QUALITY  
Cost Center: 2200-0320.000 - RESEARCH & MATERIALS

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	-1	0	314	291	128
Non-Labor	0	0	119	73	56
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>433</b>	<b>364</b>	<b>184</b>
FTE	0.0	0.0	2.9	2.8	1.2
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	-39
Non-Labor	0	0	0	0	-4
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-43</b>
FTE	0.0	0.0	0.0	0.0	-0.4
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	-1	0	314	291	89
Non-Labor	0	0	119	73	52
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>433</b>	<b>364</b>	<b>141</b>
FTE	0.0	0.0	2.9	2.8	0.8
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	0	0	51	47	15
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>51</b>	<b>47</b>	<b>15</b>
FTE	0.0	0.0	0.5	0.5	0.1
<b>Escalation to 2016\$</b>					
Labor	0	0	8	4	0
Non-Labor	0	0	3	1	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>5</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	-1	0	374	343	103
Non-Labor	0	0	122	74	52
NSE	0	0	0	0	0
<b>Total</b>	<b>-1</b>	<b>0</b>	<b>495</b>	<b>416</b>	<b>156</b>
FTE	0.0	0.0	3.4	3.3	0.9

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 1. MATERIALS & QUALITY  
 Cost Center: 2200-0320.000 - RESEARCH & MATERIALS

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	-39
Non-Labor	0	0	0	0	-4
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-43</b>
FTE	0.0	0.0	0.0	0.0	-0.4

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2015 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2016	Aliso	-39	-4	0	-0.4	1-Sided Adj	JJBUNTIN20170224113344910
<b>2016 Total</b>		<b>-39</b>	<b>-4</b>	<b>0</b>	<b>-0.4</b>		

**Explanation:** This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0320.001 - 2200-2300 PIPELINE MATERIALS**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 2. PIPELINE MATERIALS  
 Cost Center: 2200-0320.001 - 2200-2300 PIPELINE MATERIALS

**Activity Description:**

Workpaper 2200-0320.001 was created to capture costs in cost center 2200-2300 and 2200-2067, which were previously non-shared cost centers. The Pipeline Materials (cost center 2200-2300.000) and Special Projects (2200-2067) manage the business processes for the approval, documentation, and quality management of gas pipeline materials. These cost centers were previously non-shared; however new activities are being implemented to support and provide services to both SoCalGas and SDG&E.

**Forecast Explanations:**

**Labor - Base YR Rec**

As the foundation for future labor expense requirements, base year was chosen because the historical costs were included in other groups and activities that did not represent the anticipated expense requirements.

**Non-Labor - Base YR Rec**

As the foundation for future non-labor expense requirements, base year was chosen because the historical costs were included in other groups and activities that did not represent the anticipated expense requirements.

**NSE - Base YR Rec**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		0	0	222	154	235	235	235	235	
Non-Labor		0	0	1	6	7	7	7	7	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>0</b>	<b>0</b>	<b>223</b>	<b>160</b>	<b>242</b>	<b>242</b>	<b>242</b>	<b>242</b>	
FTE		0.0	0.0	2.2	1.5	2.0	2.0	2.0	2.0	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 2. PIPELINE MATERIALS  
 Cost Center: 2200-0320.001 - 2200-2300 PIPELINE MATERIALS

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	0	0	0	0	0.0	0	0	0	0	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	235	7	0	242	2.0	235	7	0	242	2.0
<b>Total Incurred</b>	<b>235</b>	<b>7</b>	<b>0</b>	<b>242</b>	<b>2.0</b>	<b>235</b>	<b>7</b>	<b>0</b>	<b>242</b>	<b>2.0</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	0	0	0	0	0.0	0	0	0	0	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	235	7	0	242	2.0	235	7	0	242	2.0
<b>Total Incurred</b>	<b>235</b>	<b>7</b>	<b>0</b>	<b>242</b>	<b>2.0</b>	<b>235</b>	<b>7</b>	<b>0</b>	<b>242</b>	<b>2.0</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 2. PIPELINE MATERIALS  
 Cost Center: 2200-0320.001 - 2200-2300 PIPELINE MATERIALS

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Base YR Rec	235	235	235	0	0	0	235	235	235
Non-Labor	Base YR Rec	7	7	7	0	0	0	7	7	7
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>242</b>	<b>242</b>	<b>242</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>242</b>	<b>242</b>	<b>242</b>
FTE	Base YR Rec	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	2.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 2. PIPELINE MATERIALS  
 Cost Center: 2200-0320.001 - 2200-2300 PIPELINE MATERIALS

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	187	131	202
Non-Labor	0	0	1	6	7
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>187</b>	<b>137</b>	<b>209</b>
FTE	0.0	0.0	1.9	1.3	1.7
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	0	0	187	131	202
Non-Labor	0	0	1	6	7
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>187</b>	<b>137</b>	<b>209</b>
FTE	0.0	0.0	1.9	1.3	1.7
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	0	0	30	21	33
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>21</b>	<b>33</b>
FTE	0.0	0.0	0.3	0.2	0.3
<b>Escalation to 2016\$</b>					
Labor	0	0	5	2	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	0	0	222	154	235
Non-Labor	0	0	1	6	7
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>223</b>	<b>160</b>	<b>242</b>
FTE	0.0	0.0	2.2	1.5	2.0

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.



Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 2. PIPELINE MATERIALS  
 Cost Center: 2200-0320.001 - 2200-2300 PIPELINE MATERIALS

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2016	Other	231	8	0	2.2	CCTR Transf From 2200-2300.000	MGONZALX20170308171956010
<b>Explanation:</b> Adjustment to transfer the Non-Shared Materials & Quality group (2200-2300) historical expenditure to Utility Shared Service (USS) cost center 2200-0320.001 (Materials & Quality). The Materials & Quality group will be switching from a Non-Shared cost center to a USS cost center, and transferring the historical expenditures will best represent the forecast for 2019.							
<b>2016 Total</b>		<b>202</b>	<b>7</b>	<b>0</b>	<b>1.7</b>		

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-0323.000 - RESEARCH PLANNING & DEVELOPMENT**

Southern California Gas Company  
2019 GRC - REVISED  
Shared Services Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 2. PIPELINE MATERIALS  
 Cost Center: 2200-0323.000 - RESEARCH PLANNING & DEVELOPMENT

**Activity Description:**

The activities provided in this workpaper are related to the program management of Environmental Research, and Gas Operations Research, Development and Demonstrations (RD&D). This workpaper includes cost centers 2200-0323 and 2200-0324. These workgroups participate in research projects related to environmental research with organizations such as Pipeline Research Council International (PRCI) and in gas operations RD&D projects such as methane detection using a un-manned aerial vehicle (Drone).

**Forecast Explanations:**

**Labor - 5-YR Average**

As the foundation for future labor expense requirements, five year average was chosen. The nature of work performed by the Research Planning and Development, has proven to be consistent over time as evident by historical data. It is predicted that the current activity levels and program support functions will be sustained moving forward. As such, the five-year average would sufficiently meet the future funding requirements.

**Non-Labor - 5-YR Average**

As the foundation for future labor expense requirements, five year average was chosen. The nature of work performed by the Research Planning and Development, has proven to be consistent over time as evident by historical data. It is predicted that the current activity levels and program support functions will be sustained moving forward. As such, the five-year average would sufficiently meet the future funding requirements.

**NSE - 5-YR Average**

There are no Non-Standard Escalation expenses associated with this cost center.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		30	21	26	13	91	35	35	35	
Non-Labor		5	5	3	4	2	4	4	4	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>35</b>	<b>26</b>	<b>29</b>	<b>17</b>	<b>93</b>	<b>39</b>	<b>39</b>	<b>39</b>	
FTE		0.2	0.2	0.0	0.0	0.9	0.3	0.3	0.3	

*Note: Totals may include rounding differences.*

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Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: E. RESEARCH & MATERIALS  
 Category-Sub: 2. PIPELINE MATERIALS  
 Cost Center: 2200-0323.000 - RESEARCH PLANNING & DEVELOPMENT

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	2	0	0	2	0.0	0	0	0	0	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	88	2	0	90	0.9	35	4	0	39	0.3
<b>Total Incurred</b>	<b>90</b>	<b>2</b>	<b>0</b>	<b>92</b>	<b>0.9</b>	<b>35</b>	<b>4</b>	<b>0</b>	<b>39</b>	<b>0.3</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	0	0	0	0	0.0	0	0	0	0	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	35	4	0	39	0.3	35	4	0	39	0.3
<b>Total Incurred</b>	<b>35</b>	<b>4</b>	<b>0</b>	<b>39</b>	<b>0.3</b>	<b>35</b>	<b>4</b>	<b>0</b>	<b>39</b>	<b>0.3</b>
<b>% Allocation</b>										
Retained	87.36%	87.36%				87.36%	87.36%			
SEU	12.64%	12.64%				12.64%	12.64%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2017**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2018**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

**Cost Center Allocation Percentage for 2019**

All calculations are based on the ratio of SDG&E Miles of Pipe to SoCal Miles of Pipe (inclusive of both Dist. Main, Dist. Services, & Trans.).

Note: Totals may include rounding differences.

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 Cost Center: 2200-0323.000 - RESEARCH PLANNING & DEVELOPMENT

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	36	36	36	0	0	0	36	36	36
Non-Labor	5-YR Average	4	4	4	0	0	0	4	4	4
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>40</b>	<b>40</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>40</b>	<b>40</b>
FTE	5-YR Average	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

SCG/GAS ENGINEERING/Exh No:SCG-09-WP-R/Witness: D. Haines

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**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	24	36	-12	55	52
Non-Labor	4	2,225	2,636	1,840	1
NSE	0	0	0	0	0
<b>Total</b>	<b>29</b>	<b>2,261</b>	<b>2,624</b>	<b>1,895</b>	<b>53</b>
FTE	0.2	0.3	0.0	0.4	0.5
<b>Adjustments (Nominal \$) **</b>					
Labor	0	-18	34	-44	26
Non-Labor	0	-2,220	-2,633	-1,836	1
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>-2,238</b>	<b>-2,599</b>	<b>-1,880</b>	<b>27</b>
FTE	0.0	-0.2	0.0	-0.3	0.3
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	24	18	22	11	78
Non-Labor	4	5	3	4	2
NSE	0	0	0	0	0
<b>Total</b>	<b>29</b>	<b>22</b>	<b>25</b>	<b>15</b>	<b>80</b>
FTE	0.2	0.1	0.0	0.1	0.8
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	4	3	4	2	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>13</b>
FTE	0.0	0.0	0.0	0.0	0.1
<b>Escalation to 2016\$</b>					
Labor	2	1	1	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	30	21	26	13	91
Non-Labor	5	5	3	4	2
NSE	0	0	0	0	0
<b>Total</b>	<b>35</b>	<b>26</b>	<b>29</b>	<b>17</b>	<b>93</b>
FTE	0.2	0.1	0.0	0.1	0.9

\* After company-wide exclusions of Non-GRC costs

\*\* Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

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 Cost Center: 2200-0323.000 - RESEARCH PLANNING & DEVELOPMENT

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0.196	-18	34	-44	26
Non-Labor	0.028	-2,220	-2,633	-1,836	1
NSE	0	0	0	0	0
<b>Total</b>	<b>0.224</b>	<b>-2,238</b>	<b>-2,599</b>	<b>-1,880</b>	<b>27</b>
FTE	0.0	-0.2	0.0	-0.3	0.3

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	0	0	0	0.0	CCTR Transf From 2200-0324.000	SYCHANG20161104154839510
<b>Explanation:</b> Transfer NL costs to the appropriate witness area							
2012	Other	0	0	0	0.0	CCTR Transf From 2200-2066.000	SYCHANG20161104155034910
<b>Explanation:</b> Transfer labor costs to the appropriate witness area							
2012	Other	0	0	0	0.0	CCTR Transf From 2200-2067.000	SYCHANG20161104155132577
<b>Explanation:</b> Transfer labor costs to the appropriate witness area							
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2013	Other	-18	0	0	-0.2	CCTR Transf To 2200-0832.000	MGONZALX20161130101410500
<b>Explanation:</b> This adjustment is to transfer the labor related to the AB32 Cap & Trade costs from the Gas Engineering shared cost center 2200-0323 to the Gas Acquisition cost center 2200-0832. The Cap and Trade responsibilities were transferred from Gas Engineering to Gas Acquisition effective April 1, 2014.							
2013	Other	0	-2,220	0	0.0	1-Sided Adj	MGONZALX20161130103332630
<b>Explanation:</b> This adjustment is to removed the AB32 Cap & Trade costs from the Gas Engineering shared cost center 2200-0323 because AB32 Cap & Trade costs are to be recovered in a separate proceeding.							
<b>2013 Total</b>		<b>-18</b>	<b>-2,220</b>	<b>0</b>	<b>-0.2</b>		
2014	Other	0	1	0	0.0	CCTR Transf From 2200-0324.000	SYCHANG20161104160148520
<b>Explanation:</b> Transfer NL costs to the appropriate witness area							
2014	Other	0	0	0	0.0	CCTR Transf From 2200-2067.000	SYCHANG20161104160541907
<b>Explanation:</b> Transfer labor costs to the appropriate witness area							

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<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2014	Other	-9	0	0	-0.2	CCTR Transf To 2200-0832.000	MGONZALX20161130101704923
<b>Explanation:</b> This adjustment is to transfer the labor related to the AB32 Cap & Trade costs from the Gas Engineering shared cost center 2200-0323 to the Gas Acquisition cost center 2200-0832. The Cap and Trade responsibilities were transferred from Gas Engineering to Gas Acquisition effective April 1, 2014.							
2014	Other	0	-2,634	0	0.0	1-Sided Adj	MGONZALX20161130102152207
<b>Explanation:</b> This adjustment is to remove the AB32 Cap & Trade costs from the Gas Engineering shared cost center 2200-0323 because AB32 Cap & Trade costs are to be recovered in a separate proceeding.							
2014	Other	43	0	0	0.2	1-Sided Adj	MGONZALX20161130103927380
<b>Explanation:</b> This adjustment is to balance the credit historically shown through an accrual in 2014. The expenses are shown in 2015 books but are also adjusted to reflect them in 2014.							
<b>2014 Total</b>		<b>34</b>	<b>-2,633</b>	<b>0</b>	<b>0.0</b>		
2015	Other	-44	-1,839	0	-0.3	1-Sided Adj	MGONZALX20161130102103360
<b>Explanation:</b> The labor adjustment is to transfer the expenditure to 2014 where a credit was shown as part of an accrual. The expenses are shown in 2015 books but are also adjusted to reflect them in 2014. The non-labor adjustment is to remove the AB32 Cap & Trade costs from the Gas Engineering shared cost center 2200-0323 because AB32 Cap & Trade costs are to be recovered in a separate proceeding.							
2015	Other	0	0	0	0.0	CCTR Transf From 2200-2066.000	SYCHANG20161104161905290
<b>Explanation:</b> Transfer labor costs to the appropriate witness area							
2015	Other	0	3	0	0.0	CCTR Transf From 2200-2067.000	SYCHANG20161104162254147
<b>Explanation:</b> Transfer non-labor costs to the appropriate witness area							
<b>2015 Total</b>		<b>-44</b>	<b>-1,836</b>	<b>0</b>	<b>-0.3</b>		
2016	Aliso	-3	0	0	0.0	1-Sided Adj	MGONZALX20170626141241843
<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident for cost center 2200-0324.							
2016	Aliso	-2	0	0	0.0	1-Sided Adj	JJBUNTIN20170224114124333
<b>Explanation:</b> This adjustment was made because this work (internal order number 300775156) was related to the Aliso Canyon Incident.							
2016	Other	30	0	0	0.3	CCTR Transf From 2200-0324.000	SYCHANG20170224110719397
<b>Explanation:</b> Transfer \$ to W/P where the function belongs.							

Note: Totals may include rounding differences.

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<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2016	Other	1	1	0	0.0	CCTR Transf From 2200-2067.000	SYCHANG20170224110813473
<b>Explanation:</b> Transfer \$ to W/P where the function belongs.							
<b>2016 Total</b>		<b>26</b>	<b>1</b>	<b>0</b>	<b>0.3</b>		

*Note: Totals may include rounding differences.*

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Non-Shared Service Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines

**Appendix A: List of Non-Shared Cost Centers**

<b>Cost Center</b>	<b>Sub</b>	<b>Description</b>
2200-0301	000	ENG ANALYSIS CTR MGR
2200-0304	000	MAXIMO
2200-0307	000	WEB/DATABASE/SERVER SUPPORT
2200-0314	000	GIS SUPERVISOR
2200-0315	000	LAND SERVICES
2200-0316	000	GAS PROCESS ENGINEERING
2200-1179	000	EAC-MATERIAL AND EQUIPMENT
2200-1180	000	EAC-AIR QUALITY AND COMPRESSOR SERVICES
2200-1199	000	ENGINEERING ANALYSIS CENTER ADMINISTRATI
2200-1200	000	EAC-APPLIED TECHNOLOGIES
2200-1335	000	DESIGN DRAFTING
2200-2265	000	NGV & ELECTRICAL FIELD MAINTENANCE
2200-2271	000	CIVIL/STRUCTURAL & HAZARD MITIGATION ENG
2200-2300	000	MATERIALS & QUALITY-NONSHARED
2200-2331	000	SVP OPERATIONS
2200-2368	000	LAND AND RIGHT OF WAY
2200-2472	000	GEOGRAPHIC ANALYSIS & SURVEY