

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-\_\_\_\_  
Exhibit No.: (SCG-09-CWP)

CAPITAL 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

OCTOBER 2017



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

**Exhibit SCG-09-CWP - GAS ENGINEERING**

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Southern California Gas Company  
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Capital Workpapers

**Overall Summary For Exhibit No. SCG-09-CWP**

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

In 2016 \$ (000)			
Adjusted-Forecast			
	2017	2018	2019
<b>A. LAND &amp; RIGHT OF WAY</b>	5,468	5,468	5,468
<b>B. CAPITAL TOOLS &amp; LAB EQUIPMENT</b>	2,245	2,245	2,245
<b>C. TRANS &amp; STORAGE SUPERVISION &amp; ENGINEERING POC</b>	4,909	5,648	6,388
<b>Total</b>	<b>12,622</b>	<b>13,361</b>	<b>14,101</b>

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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Capital Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Category: A. LAND & RIGHT OF WAY  
Workpaper: 006170

**Summary for Category: A. LAND & RIGHT OF WAY**

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	118	118	118	118
Non-Labor	5,350	5,350	5,350	5,350
NSE	0	0	0	0
<b>Total</b>	<b>5,468</b>	<b>5,468</b>	<b>5,468</b>	<b>5,468</b>
FTE	1.3	1.3	1.3	1.3

**006170 Land Rights (BC 617) & Buildings (BC 633)**

Labor	118	118	118	118
Non-Labor	5,350	5,350	5,350	5,350
NSE	0	0	0	0
<b>Total</b>	<b>5,468</b>	<b>5,468</b>	<b>5,468</b>	<b>5,468</b>
FTE	1.3	1.3	1.3	1.3

*Note: Totals may include rounding differences.*

**Beginning of Workpaper Group  
006170 - Land Rights (BC 617) & Buildings (BC 633)**

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00617.0  
 Category: A. LAND & RIGHT OF WAY  
 Category-Sub: 1. LAND RIGHTS  
 Workpaper Group: 006170 - Land Rights (BC 617) & Buildings (BC 633)

**Summary of Results (Constant 2016 \$ in 000s):**

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Base YR Rec	42	57	164	135	118	118	118	118
Non-Labor	Base YR Rec	92	537	516	1,929	5,350	5,350	5,350	5,350
NSE	Base YR Rec	0	0	0	0	0	0	0	0
<b>Total</b>		<b>133</b>	<b>594</b>	<b>680</b>	<b>2,064</b>	<b>5,468</b>	<b>5,468</b>	<b>5,468</b>	<b>5,468</b>
FTE	Base YR Rec	0.5	0.7	1.9	1.3	1.3	1.3	1.3	1.3

**Business Purpose:**

This workpaper provides capital funding for purchases of land or land rights for new Transmission pipelines and for existing rights-of-way that have expired per contractual obligation and need to be re-negotiated. Typically these are for pipelines installed in private lands. It also provides funding for construction, replacement or upgrades to building structures used by Transmission operations to contain, shelter and/or protect Transmission equipment such as meter stations, pressure regulating equipment, critical valves, or controls equipment.

**Physical Description:**

Pipeline rights-of-way physical dimensions vary but may be at least thirty feet wide (to allow for workers, vehicles and equipment) and are as long as the distance across a property owner's land. They are contractual agreements for which landowners are compensated and may incorporate an expiration date. Such buildings and structures may be gauge houses, shelters for multiple critical valves or buildings providing shelter and protection for critical controls or SCADA-related equipment. Such structures and buildings vary from frame-and-stucco houses or buildings made from reinforced masonry blocks in cases where protection and security is needed.

**Project Justification:**

Federal law requires public utility lines occupying private lands to be protected by acquisition of land rights thus protecting the utility and their downstream consumers. In addition, the protection of electronic equipment from the elements is done by placing it in a suitable housing. If it is a remote location, the housing may be a hardened structure to provide additional protection from vandalism. Such protection may be required by Federal or local laws but most often is required to protect vulnerable and expensive equipment related to the continuity of supply into the greater Southern California area and should be considered reasonable and prudent measures. In addition, the need has been identified to harden the physical security at several locations throughout SoCalGas' service territory. The need was driven by two factors. The first factor was the Transportation Security Administration (TSA) guidelines to objectively identify gas assets deemed as critical. The second factor was the various security breaches that recently occurred affecting the energy sector.

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Budget Code: 00617.0  
Category: A. LAND & RIGHT OF WAY  
Category-Sub: 1. LAND RIGHTS  
Workpaper Group: 006170 - Land Rights (BC 617) & Buildings (BC 633)

**Forecast Methodology:**

**Labor - Base YR Rec**

The base year forecast methodology was selected for this category because it is anticipated to continue this pattern for test year 2019.

**Non-Labor - Base YR Rec**

The base year forecast methodology was selected for this category because it is anticipated to continue this pattern for test year 2019.

**NSE - Base YR Rec**

Not applicable.

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00617.0  
 Category: A. LAND & RIGHT OF WAY  
 Category-Sub: 1. LAND RIGHTS  
 Workpaper Group: 006170 - Land Rights (BC 617) & Buildings (BC 633)

**Summary of Adjustments to Forecast**

In 2016 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Base YR Rec	117	117	117	1	1	1	118	118	118
Non-Labor	Base YR Rec	5,350	5,350	5,350	0	0	0	5,350	5,350	5,350
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>5,467</b>	<b>5,467</b>	<b>5,467</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5,468</b>	<b>5,468</b>	<b>5,468</b>
FTE	Base YR Rec	1.3	1.3	1.3	0.0	0.0	0.0	1.3	1.3	1.3

**Forecast Adjustment Details**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	RefID
2017 Total		0	0	0	0	0.0	
2018 Total		0	0	0	0	0.0	
2019 Total		0	0	0	0	0.0	

*Note: Totals may include rounding differences.*



Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Budget Code: 00617.0  
Category: A. LAND & RIGHT OF WAY  
Category-Sub: 1. LAND RIGHTS  
Workpaper Group: 006170 - Land Rights (BC 617) & Buildings (BC 633)

**Determination of Adjusted-Recorded:**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	37	50	92	51	58
Non-Labor	82	543	252	441	252
NSE	0	0	0	0	0
<b>Total</b>	<b>119</b>	<b>593</b>	<b>344</b>	<b>492</b>	<b>310</b>
FTE	0.4	0.6	1.0	0.5	0.6
<b>Adjustments (Nominal \$)**</b>					
Labor	0	0	52	66	44
Non-Labor	11	0	275	1,503	5,098
NSE	0	0	0	0	0
<b>Total</b>	<b>11</b>	<b>0</b>	<b>327</b>	<b>1,569</b>	<b>5,142</b>
FTE	0.0	0.0	0.6	0.6	0.5
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	37	50	144	117	101
Non-Labor	93	543	527	1,944	5,350
NSE	0	0	0	0	0
<b>Total</b>	<b>130</b>	<b>593</b>	<b>671</b>	<b>2,061</b>	<b>5,451</b>
FTE	0.4	0.6	1.6	1.1	1.1
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	6	8	24	19	17
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>8</b>	<b>24</b>	<b>19</b>	<b>17</b>
FTE	0.1	0.1	0.3	0.2	0.2
<b>Escalation to 2016\$</b>					
Labor	-1	-1	-4	-1	0
Non-Labor	-2	-6	-11	-15	0
NSE	0	0	0	0	0
<b>Total</b>	<b>-2</b>	<b>-6</b>	<b>-15</b>	<b>-16</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	42	57	164	135	118
Non-Labor	92	537	516	1,929	5,350
NSE	0	0	0	0	0
<b>Total</b>	<b>133</b>	<b>594</b>	<b>680</b>	<b>2,064</b>	<b>5,468</b>
FTE	0.5	0.7	1.9	1.3	1.3

\* 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  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00617.0  
 Category: A. LAND & RIGHT OF WAY  
 Category-Sub: 1. LAND RIGHTS  
 Workpaper Group: 006170 - Land Rights (BC 617) & Buildings (BC 633)

**Summary of Adjustments to Recorded:**

In Nominal \$(000)					
Years	2012	2013	2014	2015	2016
Labor	0	0	52	66	44
Non-Labor	11	0	275	1,503	5,098
NSE	0	0	0	0	0
<b>Total</b>	<b>11</b>	<b>0</b>	<b>327</b>	<b>1,569</b>	<b>5,142</b>
FTE	0.0	0.0	0.6	0.6	0.5

**Detail of Adjustments to Recorded in Nominal \$:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	RefID
2012	Other	0.185	11	0	11	0.0	MGONZALX20170831234322007
<b>Explanation:</b>		Adjustment to add the historical expenditures from Budget Code 633 (Gas Transmission Buildings) to Budget Code 617 (Land Rights).					
<b>2012 Total</b>		0.185	11	0	11	0.0	
<b>2013 Total</b>		0	0	0	0	0.0	
2014	Other	52	275	0	327	0.6	MGONZALX20170831234354193
<b>Explanation:</b>		Adjustment to add the historical expenditures from Budget Code 633 (Gas Transmission Buildings) to Budget Code 617 (Land Rights).					
<b>2014 Total</b>		52	275	0	327	0.6	
2015	Other	66	1,503	0	1,569	0.6	MGONZALX20170831234425510
<b>Explanation:</b>		Adjustment to add the historical expenditures from Budget Code 633 (Gas Transmission Buildings) to Budget Code 617 (Land Rights).					
<b>2015 Total</b>		66	1,503	0	1,569	0.6	
2016	Other	44	5,098	0	5,142	0.5	MGONZALX20170831234458337
<b>Explanation:</b>		Adjustment to add the historical expenditures from Budget Code 633 (Gas Transmission Buildings) to Budget Code 617 (Land Rights).					
<b>2016 Total</b>		44	5,098	0	5,142	0.5	

*Note: Totals may include rounding differences.*

**Beginning of Workpaper Sub Details for  
Workpaper Group 006170**

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00617.0  
 Category: A. LAND & RIGHT OF WAY  
 Category-Sub: 1. LAND RIGHTS  
 Workpaper Group: 006170 - Land Rights (BC 617) & Buildings (BC 633)  
 Workpaper Detail: 006170.001 - Land and Land Rights

In-Service Date: Not Applicable

Description:

This Budget Code provides capital funding for purchases of land or land rights for new Transmission pipelines and for existing rights-of-way that have expired per contractual obligation and need to be re-negotiated. Typically these are for pipelines installed in private lands. Pipeline rights-of-way physical dimensions vary but may be at least thirty feet wide (to allow for workers, vehicles and equipment) and are as long as the distance across a property owner's land. They are contractual agreements for which landowners are compensated and may incorporate an expiration date.

<b>Forecast in 2016 \$(000)</b>				
	<b>Years</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Labor		66	66	66
Non-Labor		311	311	311
NSE		0	0	0
	<b>Total</b>	<b>377</b>	<b>377</b>	<b>377</b>
FTE		0.7	0.7	0.7

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00617.0  
 Category: A. LAND & RIGHT OF WAY  
 Category-Sub: 1. LAND RIGHTS  
 Workpaper Group: 006170 - Land Rights (BC 617) & Buildings (BC 633)  
 Workpaper Detail: 006170.002 - GAS TRANSMISSION BUILDINGS  
 In-Service Date: Not Applicable

Description:

This sub workpaper provides funding for construction, replacement or upgrades to building structures used by Transmission operations to contain, shelter and/or protect Transmission equipment such as meter stations, pressure regulating equipment, critical valves, or controls equipment.

<b>Forecast In 2016 \$(000)</b>				
	<b>Years</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Labor		52	52	52
Non-Labor		5,039	5,039	5,039
NSE		0	0	0
	<b>Total</b>	<b>5,091</b>	<b>5,091</b>	<b>5,091</b>
FTE		0.6	0.6	0.6

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper: 007300

**Summary for Category: B. CAPITAL TOOLS & LAB EQUIPMENT**

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	101	55	55	55
Non-Labor	2,825	2,190	2,190	2,190
NSE	0	0	0	0
<b>Total</b>	<b>2,926</b>	<b>2,245</b>	<b>2,245</b>	<b>2,245</b>
FTE	1.1	0.7	0.7	0.7

**007300 Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC**

Labor	101	55	55	55
Non-Labor	2,825	2,190	2,190	2,190
NSE	0	0	0	0
<b>Total</b>	<b>2,926</b>	<b>2,245</b>	<b>2,245</b>	<b>2,245</b>
FTE	1.1	0.7	0.7	0.7

*Note: Totals may include rounding differences.*

**Beginning of Workpaper Group**  
**007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and**  
**Capital Tools (BC736)**

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00730.0  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)

**Summary of Results (Constant 2016 \$ in 000s):**

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
<b>Years</b>									
Labor	5-YR Average	6	8	12	146	101	55	55	55
Non-Labor	5-YR Average	788	1,594	1,450	4,291	2,825	2,190	2,190	2,190
NSE	5-YR Average	0	0	0	0	0	0	0	0
<b>Total</b>		<b>794</b>	<b>1,602</b>	<b>1,462</b>	<b>4,437</b>	<b>2,927</b>	<b>2,245</b>	<b>2,245</b>	<b>2,245</b>
FTE	5-YR Average	0.7	0.1	0.1	1.6	1.1	0.7	0.7	0.7

**Business Purpose:**

The purpose of this workpaper is to equip the Engineering Analysis Center with modern, state-of-the-art laboratory equipment necessary to maintain the Company's ability to perform necessary analysis and evaluation of materials, emissions and technology. This workpaper also provides for acquiring and replacing high-value tools used on a daily basis by the operating people of Transmission and Storage.

**Physical Description:**

Tools used by laboratory personnel are frequently sensitive instruments for measuring a variety of materials, substances and gases including emissions. Other equipment may include ovens, burners, microscopes, scales, handling equipment, and tools for computed radiography. Also, this includes hand tools, Volt/Amp Meters, GPS receivers, leak detection equipment, methane detectors, gauges, wrenches, tapping and stopping equipment.

**Project Justification:**

Regulations are already in process requiring equipment upgrades for both pipeline and engine monitoring. Equipment replacement schedules are developed based on equipment life and past practices thus requiring purchase of new equipment. Laboratory-grade equipment continues to evolve and become more costly. Purchases are mostly to replace old, worn or damaged tools used in the field. Such tools are used on a daily basis by personnel installing and maintaining Transmission and Storage equipment and assets. Additional methane detectors may have to be obtained due to Greenhouse Gas Emissions-related legislation.

*Note: Totals may include rounding differences.*



Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Budget Code: 00730.0  
Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)

**Forecast Methodology:**

**Labor - 5-YR Average**

The five-year average was selected for this category because it is anticipated to continue this pattern for test year 2019.

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

The five-year average was selected for this category because it is anticipated to continue this pattern for test year 2019.

**NSE - 5-YR Average**

Not applicable

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00730.0  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)

**Summary of Adjustments to Forecast**

In 2016 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	54	54	54	1	1	1	55	55	55
Non-Labor	5-YR Average	2,189	2,189	2,189	1	1	1	2,190	2,190	2,190
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>2,243</b>	<b>2,243</b>	<b>2,243</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2,245</b>	<b>2,245</b>	<b>2,245</b>
FTE	5-YR Average	0.7	0.7	0.7	0.0	0.0	0.0	0.7	0.7	0.7

**Forecast Adjustment Details**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	RefID
<b>2017 Total</b>		0	0	0	0	0.0	
<b>2018 Total</b>		0	0	0	0	0.0	
<b>2019 Total</b>		0	0	0	0	0.0	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00730.0  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)

**Determination of Adjusted-Recorded:**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	0	0	3	118	70
Non-Labor	241	789	484	780	700
NSE	0	0	0	0	0
<b>Total</b>	<b>241</b>	<b>789</b>	<b>487</b>	<b>898</b>	<b>770</b>
FTE	0.0	0.0	0.0	1.3	0.7
<b>Adjustments (Nominal \$)**</b>					
Labor	5	7	7	9	17
Non-Labor	560	823	998	3,543	2,125
NSE	0	0	0	0	0
<b>Total</b>	<b>565</b>	<b>830</b>	<b>1,005</b>	<b>3,552</b>	<b>2,142</b>
FTE	0.6	0.1	0.1	0.1	0.2
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	5	7	10	127	87
Non-Labor	801	1,612	1,482	4,323	2,825
NSE	0	0	0	0	0
<b>Total</b>	<b>806</b>	<b>1,619</b>	<b>1,492</b>	<b>4,450</b>	<b>2,912</b>
FTE	0.6	0.1	0.1	1.4	0.9
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	1	1	2	21	14
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>21</b>	<b>14</b>
FTE	0.1	0.0	0.0	0.2	0.2
<b>Escalation to 2016\$</b>					
Labor	0	0	0	-1	0
Non-Labor	-13	-17	-32	-33	0
NSE	0	0	0	0	0
<b>Total</b>	<b>-13</b>	<b>-17</b>	<b>-32</b>	<b>-34</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	6	8	12	146	101
Non-Labor	788	1,594	1,450	4,291	2,825
NSE	0	0	0	0	0
<b>Total</b>	<b>794</b>	<b>1,602</b>	<b>1,462</b>	<b>4,437</b>	<b>2,927</b>
FTE	0.7	0.1	0.1	1.6	1.1

\* 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 - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00730.0  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)

**Summary of Adjustments to Recorded:**

		In Nominal \$(000)				
Years		2012	2013	2014	2015	2016
Labor		5	7	7	9	17
Non-Labor		560	823	998	3,543	2,125
NSE		0	0	0	0	0
<b>Total</b>		<b>565</b>	<b>830</b>	<b>1,005</b>	<b>3,552</b>	<b>2,142</b>
FTE		0.6	0.1	0.1	0.1	0.2

**Detail of Adjustments to Recorded in Nominal \$:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	RefID
2012	Other	5	560	0	565	0.6	MGONZALX20170901001237950
<b>Explanation:</b>		Adjustment to add the historical expenditures from budget code 736 (Capital Tools) to budget code 730 (Lab Equipment and Capital Tools).					
<b>2012 Total</b>		5	560	0	565	0.6	
2013	Other	7	823	0	830	0.1	MGONZALX20170901001317703
<b>Explanation:</b>		Adjustment to add the historical expenditures from budget code 736 (Capital Tools) to budget code 730 (Lab Equipment and Capital Tools).					
<b>2013 Total</b>		7	823	0	830	0.1	
2014	Other	7	998	0	1,005	0.1	MGONZALX20170901001348103
<b>Explanation:</b>		Adjustment to add the historical expenditures from budget code 736 (Capital Tools) to budget code 730 (Lab Equipment and Capital Tools).					
<b>2014 Total</b>		7	998	0	1,005	0.1	
2015	Other	9	3,543	0	3,552	0.1	MGONZALX20170901001452463
<b>Explanation:</b>		Adjustment to add the historical expenditures from budget code 736 (Capital Tools) to budget code 730 (Lab Equipment and Capital Tools).					
<b>2015 Total</b>		9	3,543	0	3,552	0.1	
2016	Other	8	44	0	52	0.1	MGONZALX20170831233036260
<b>Explanation:</b>		Adjustment to add the 2016 historical expenditures from budget 714 (Measurement Gas Samples).					
2016	Other	9	2,081	0	2,090	0.1	MGONZALX20170901001519383

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00730.0  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)

<u>Year</u>	<u>Adj_Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>RefID</u>
<b>Explanation:</b> Adjustment to add the historical expenditures from budget code 736 (Capital Tools) to budget code 730 (Lab Equipment and Capital Tools).							
<b>2016 Total</b>		17	2,125	0	2,142	0.2	

*Note: Totals may include rounding differences.*

**Beginning of Workpaper Sub Details for  
Workpaper Group 007300**

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00730.0  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)  
 Workpaper Detail: 007300.001 - RAMP - Base: ENGINEERING LABORATORY EQUIPMENT  
 In-Service Date: Not Applicable  
 Description:

Tools used by laboratory personnel are frequently sensitive instruments for measuring a variety of materials, substances and gases including emissions. Other equipment may include ovens, burners, microscopes, scales, handling equipment, and tools for computed radiography.

<b>Forecast In 2016 \$(000)</b>				
	<b>Years</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Labor		55	55	55
Non-Labor		2,190	2,190	2,190
NSE		0	0	0
	<b>Total</b>	<b>2,245</b>	<b>2,245</b>	<b>2,245</b>
FTE		0.7	0.7	0.7

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00730.0  
 Category: B. CAPITAL TOOLS & LAB EQUIPMENT  
 Category-Sub: 1. CAPITAL TOOLS & LAB EQUIPMENT  
 Workpaper Group: 007300 - Laboratory Equipment (BC730), Measurement Gas Samples (BC714) and Capital Tools (BC736)  
 Workpaper Detail: 007300.001 - RAMP - Base: ENGINEERING LABORATORY EQUIPMENT

**RAMP Item # 1**

RAMP Chapter: SCG-4

Program Name: Engineering Analysis Center Odorization

Program Description: Engineering Analysis Center (EAC) develops odorant techniques for system

**Risk/Mitigation:**

Risk: Operations

Mitigation: Odorization

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

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	110	110	110
High	122	122	122

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Mandated

Work Type Citation: 49 CFR Part 192

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

Embedded Costs: 116

Explanation: The estimated 2016 RAMP embedded cost is derived from the five-year average of direct expenditures in Odorization techniques in the Engineering Analysis Center for the years 2011 to 2015 as filed in the RAMP filing. The direct historical expenditures for 2011, 2012, 2013, 2014, and 2015 are \$316, \$114, \$2, \$134, and \$12, respectively.



Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL  
 Workpaper: 009080

**Summary for Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL**

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	3,167	3,732	4,210	4,688
Non-Labor	1,023	1,177	1,438	1,700
NSE	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total</b>	<b>4,190</b>	<b>4,909</b>	<b>5,648</b>	<b>6,388</b>
FTE	30.2	35.9	40.4	44.9

**009080 Supervision and Engineering Overhead Pool**

Labor	3,167	3,732	4,210	4,688
Non-Labor	1,023	1,177	1,438	1,700
NSE	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total</b>	<b>4,190</b>	<b>4,909</b>	<b>5,648</b>	<b>6,388</b>
FTE	30.2	35.9	40.4	44.9

*Note: Totals may include rounding differences.*

**Beginning of Workpaper Group**  
**009080 - Supervision and Engineering Overhead Pool**

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00908.0  
 Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL  
 Category-Sub: 1. SUPERVISION & ENGINEERING CAPITAL POOL  
 Workpaper Group: 009080 - Supervision and Engineering Overhead Pool

**Summary of Results (Constant 2016 \$ in 000s):**

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
<b>Years</b>									
Labor	5-YR Linear	1,448	1,723	2,089	3,064	3,167	3,732	4,210	4,688
Non-Labor	5-YR Linear	100	-3	73	767	1,023	1,177	1,438	1,700
NSE	5-YR Linear	0	0	0	0	0	0	0	0
<b>Total</b>		<b>1,547</b>	<b>1,719</b>	<b>2,162</b>	<b>3,831</b>	<b>4,189</b>	<b>4,909</b>	<b>5,648</b>	<b>6,388</b>
FTE	5-YR Linear	14.3	16.8	20.1	30.2	30.2	35.9	40.4	44.9

**Business Purpose:**

Capital expenditures that will be reassigned to the various budget categories on a direct basis. Charges reside in this Budget Category temporarily and are reassigned on a monthly basis.

**Physical Description:**

Provide a pool for overhead charges from the Gas Engineering Supervisors or other employees. The charges get reassigned to the various budget categories on a direct basis. Charges reside in this Budget Category temporarily and are reassigned on a monthly basis. Overhead charges stemming from labor spend on capital projects and reassigned to Capital budget categories.

**Project Justification:**

Continues an established accounting procedure for making charges for certain overheads on a direct cost basis to capital budget categories.

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
Witness: Deanna R. Haines  
Budget Code: 00908.0  
Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL  
Category-Sub: 1. SUPERVISION & ENGINEERING CAPITAL POOL  
Workpaper Group: 009080 - Supervision and Engineering Overhead Pool

**Forecast Methodology:**

**Labor - 5-YR Linear**

The five-year linear has been selected as the forecast methodology for Gas Engineering supervision and engineering overheads. The five-year linear was selected because the history has shown an upward trend that is supported by the number of capital projects in scope in SoCalGas.

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

The five-year linear has been selected as the forecast methodology for Gas Engineering supervision and engineering overheads. The five-year linear was selected because the history has shown an upward trend that is supported by the number of capital projects in scope in SoCalGas.

**NSE - 5-YR Linear**

Not Applicable

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00908.0  
 Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL  
 Category-Sub: 1. SUPERVISION & ENGINEERING CAPITAL POOL  
 Workpaper Group: 009080 - Supervision and Engineering Overhead Pool

**Summary of Adjustments to Forecast**

In 2016 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Linear	3,731	4,209	4,687	1	1	1	3,732	4,210	4,688
Non-Labor	5-YR Linear	1,176	1,438	1,699	1	0	1	1,177	1,438	1,700
NSE	5-YR Linear	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>4,907</b>	<b>5,647</b>	<b>6,386</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>4,909</b>	<b>5,648</b>	<b>6,388</b>
FTE	5-YR Linear	35.9	40.4	44.9	0.0	0.0	0.0	35.9	40.4	44.9

**Forecast Adjustment Details**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	RefID
<b>2017 Total</b>		0	0	0	0	0.0	
<b>2018 Total</b>		0	0	0	0	0.0	
<b>2019 Total</b>		0	0	0	0	0.0	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00908.0  
 Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL  
 Category-Sub: 1. SUPERVISION & ENGINEERING CAPITAL POOL  
 Workpaper Group: 009080 - Supervision and Engineering Overhead Pool

**Determination of Adjusted-Recorded:**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	1,269	1,493	1,835	2,658	2,719
Non-Labor	101	-3	74	773	1,023
NSE	0	0	0	0	0
<b>Total</b>	<b>1,370</b>	<b>1,490</b>	<b>1,909</b>	<b>3,431</b>	<b>3,741</b>
FTE	12.3	14.4	17.2	25.9	25.8
<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	1,269	1,493	1,835	2,658	2,719
Non-Labor	101	-3	74	773	1,023
NSE	0	0	0	0	0
<b>Total</b>	<b>1,370</b>	<b>1,490</b>	<b>1,909</b>	<b>3,431</b>	<b>3,741</b>
FTE	12.3	14.4	17.2	25.9	25.8
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	203	248	299	430	448
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>203</b>	<b>248</b>	<b>299</b>	<b>430</b>	<b>448</b>
FTE	2.0	2.4	2.9	4.3	4.4
<b>Escalation to 2016\$</b>					
Labor	-24	-19	-46	-23	0
Non-Labor	-2	0	-2	-6	0
NSE	0	0	0	0	0
<b>Total</b>	<b>-26</b>	<b>-19</b>	<b>-47</b>	<b>-29</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	1,448	1,723	2,089	3,064	3,167
Non-Labor	100	-3	73	767	1,023
NSE	0	0	0	0	0
<b>Total</b>	<b>1,547</b>	<b>1,719</b>	<b>2,162</b>	<b>3,831</b>	<b>4,189</b>
FTE	14.3	16.8	20.1	30.2	30.2

\* 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 - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00908.0  
 Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL  
 Category-Sub: 1. SUPERVISION & ENGINEERING CAPITAL POOL  
 Workpaper Group: 009080 - Supervision and Engineering Overhead Pool

**Summary of Adjustments to Recorded:**

In Nominal \$(000)					
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>Total</u>	<u>FTE</u>	<u>RefID</u>
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*Note: Totals may include rounding differences.*

**Beginning of Workpaper Sub Details for  
Workpaper Group 009080**



Southern California Gas Company  
2019 GRC - APP  
Capital Workpapers

Area: GAS ENGINEERING  
 Witness: Deanna R. Haines  
 Budget Code: 00908.0  
 Category: C. TRANS & STORAGE SUPERVISION & ENGINEERING POOL  
 Category-Sub: 1. SUPERVISION & ENGINEERING CAPITAL POOL  
 Workpaper Group: 009080 - Supervision and Engineering Overhead Pool  
 Workpaper Detail: 009080.001 - SUPERVISION AND ENGINEERING OVERHEAD POOL  
 In-Service Date: Not Applicable  
 Description:

Pool for supervision and engineering (S&E) charges that will be reassigned to the various budget categories on a direct basis. Charges reside in this Budget Category temporarily and are reassigned on a monthly basis.

<b>Forecast In 2016 \$(000)</b>				
	<b>Years</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Labor		3,732	4,210	4,688
Non-Labor		1,177	1,438	1,700
NSE		0	0	0
	<b>Total</b>	<b>4,909</b>	<b>5,648</b>	<b>6,388</b>
FTE		35.9	40.4	44.9

*Note: Totals may include rounding differences.*