

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-23-CWP)

CAPITAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF CARMEN L. HERRERA
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**

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Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Overall Summary For Exhibit No. SCG-23-CWP

Area:	FACILITIES/OTHER
Witness:	Carmen L. Herrera

In 2016 \$ (000)			
Adjusted-Forecast			
	2017	2018	2019
A. Infrastructure & Improvement	24,243	45,863	59,923
B. Safety & Environmental	2,450	2,075	2,000
C. Bakersfield Multi-Use Facility	7,000	7,000	0
D. Facility Energy Management Systems	1,000	500	0
E. Fleet Projects	548	2,194	1,650
F. NGV Refueling Stations	7,175	15,937	18,799
Total	42,416	73,569	82,372

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Category: A. Infrastructure & Improvement
Workpaper: VARIOUS

Summary for Category: A. Infrastructure & Improvement

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	0	469	892	1,100
Non-Labor	0	23,774	44,971	58,823
NSE	0	0	0	0
Total	0	24,243	45,863	59,923
FTE	0.0	4.8	9.0	11.3

00653A Infrastructure & Improvements

Labor	0	378	413	378
Non-Labor	0	18,536	20,236	18,557
NSE	0	0	0	0
Total	0	18,914	20,649	18,935
FTE	0.0	3.8	4.1	3.8

00653B Facility Renovations

Labor	0	62	405	645
Non-Labor	0	3,818	21,109	36,493
NSE	0	0	0	0
Total	0	3,880	21,514	37,138
FTE	0.0	0.7	4.1	6.6

00653C Sustainability Projects

Labor	0	29	62	65
Non-Labor	0	1,420	3,038	3,185
NSE	0	0	0	0
Total	0	1,449	3,100	3,250
FTE	0.0	0.3	0.6	0.7

00653D RAMP Incremental - Facility Security

Labor	0	0	12	12
Non-Labor	0	0	588	588
NSE	0	0	0	0
Total	0	0	600	600
FTE	0.0	0.0	0.2	0.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00653A - Infrastructure & Improvements

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 1. Infrastructure & Improvements
 Workpaper Group: 00653A - Infrastructure & Improvements

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	378	413	378
Non-Labor	Zero-Based	0	0	0	0	0	18,536	20,236	18,557
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	18,914	20,649	18,935
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.8	4.1	3.8

Business Purpose:

The SoCalGas capital renewal program is based on a systematic management process to plan for known recurring repairs and replacement requirements that extend the life and retain usable condition of facilities and systems. The Infrastructure & Improvements forecast funds necessary facility improvements and equipment upgrades to adequately support business operations. Facility Operations identifies requirements based on the criticality of the facility, the age of the asset, and the implications for failure to complete the replacement or upgrade.

Physical Description:

The following are examples of necessary improvements: Boilers, Chillers, Water Heaters, Cooling Towers, Flooring & Carpeting, Generators, Air Handlers, Stormwater Protection, HVAC Systems, Lighting, Plumbing, Electrical, ADA compliance, Security Systems, Ceiling Tiles, and Parking Lots.

Project Justification:

This funds numerous facility improvements to adequately support business operations, extend the life of the asset, protect employees and company property, adhere to codes and regulations, and maintain safety and environmental compliance. The requested capital expenditure costs are needed to maintain safety of company facilities and assets, support operational needs, and achieve cost avoidance. These basic infrastructure improvements maintain the functional integrity of our facilities.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00653.0
Category: A. Infrastructure & Improvement
Category-Sub: 1. Infrastructure & Improvements
Workpaper Group: 00653A - Infrastructure & Improvements

Forecast Methodology:

Labor - Zero-Based

Our calculations support 3.8 – 4.1 FTE's that have their labor costs spread over multiple projects for each annual budget.

Non-Labor - Zero-Based

The forecast for this cost category was determined using the aggregate current replacement value ("CRV") of SoCalGas owned buildings and applying a capital renewal rate based on an industry benchmarking index that supports the investment necessary to maintain our existing infrastructures. I applied an index from the International Facility Management Association ("IFMA") Utility Council benchmarking study conducted in 2012 to the CRV. The IFMA benchmarking study indicated capital renewal ranges from 1.16% to 3.77% for current year capital and 1.21% to 4.52% for 5-year average capital. Taking into consideration the IFMA ranges above in conjunction with the condition and average age of the properties (47 years), I applied a 2.5% capital renewal rate to our current replacement value to determine the forecasted amount. My forecast approach recognizes that facilities require ongoing investments to maintain their functional and operational integrity, as the conditions continually deteriorate over time. This method is most appropriate because it is based on industry standards and reputable benchmarking index. Please see supplemental for additional details.

NSE - Zero-Based

Not applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00653A**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 1. Infrastructure & Improvements
 Workpaper Group: 00653A - Infrastructure & Improvements
 Workpaper Detail: 00653A.001 - Infrastructure & Improvements - Distribution
 In-Service Date: Not Applicable

Description:

The SoCalGas capital renewal program is based on a systematic management process to plan for known recurring repairs and replacement requirements that extend the life and retain usable condition of facilities and systems. See SCG-36 for depreciation schedules.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		217	217	217
Non-Labor		10,652	10,652	10,652
NSE		0	0	0
	Total	10,869	10,869	10,869
FTE		2.1	2.1	2.1

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 1. Infrastructure & Improvements
 Workpaper Group: 00653A - Infrastructure & Improvements
 Workpaper Detail: 00653A.002 - Infrastructure & Improvements - General Plant
 In-Service Date: Not Applicable

Description:

The SoCalGas capital renewal program is based on a systematic management process to plan for known recurring repairs and replacement requirements that extend the life and retain usable condition of facilities and systems. See SCG-36 for depreciation schedules.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		145	180	145
Non-Labor		7,101	8,816	7,101
NSE		0	0	0
	Total	7,246	8,996	7,246
FTE		1.5	1.8	1.5

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 1. Infrastructure & Improvements
 Workpaper Group: 00653A - Infrastructure & Improvements
 Workpaper Detail: 00653A.003 - Water Pathogen Management Program
 In-Service Date: Not Applicable

Description:

Replace swamp coolers, water heaters, and other related equipment to optimize employee safety.

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		16	16	16
Non-Labor		783	768	804
NSE		0	0	0
	Total	799	784	820
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 00653A

Southern California Gas Company
2019 GRC - APP
Capital Workpapers
SCG-23-ESRF-CLH-653A Infrastructure & Improvements

Facilities Estimated Replacement Value

Type	Count	Facilities Estimated Replacement Value
Base and Sub Bases	49	\$ 286,844,125
Branch Offices	6	\$ 6,580,589
Multi-Purpose	6	\$ 300,742,462
Regional HQ	4	\$ 95,103,537
Stations	11	\$ 19,969,912
Storage Fields	4	\$ 15,389,746
Grand Total =	80	\$724,630,371

Capital Renewal Rate	Annual Capital Renewal Required
2.5%	\$ 18,115,759

Infrastructure & Improvements

	Year		
	2017	2018	2019
Infrastructure Improvements (I&I)	18,115	18,115	18,115
Infrastructure Improvements (I&I) - GCT Cafeteria Improvements	-	1,750	-
Water Pathogen Management Program	799	784	820
Total Infrastructure Improvements	18,914	20,649	18,935

Infrastructure & Improvements by Workpaper

	Year		
	2017	2018	2019
653A.001 - I&I - Distribution	10,869	10,869	10,869
653A.002 - I&I - General Plant	7,246	8,996	7,246
653A.003	799	784	820
Total Infrastructure & Improvements	18,914	20,649	18,935

My forecast is based on the replacement value of only the SoCalGas facilities maintained by Facility Operations. The current replacement value is routinely updated by SoCalGas Plant Accounting, where the original acquisition or development costs are escalated by a historic construction cost escalation index (the Handy-Whitman Index of Public Utility Construction Costs, the "Handy-Whitman Index").

**Beginning of Workpaper Group
00653B - Facility Renovations**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	62	405	645
Non-Labor	Zero-Based	0	0	0	0	0	3,818	21,109	36,493
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	3,880	21,514	37,138
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.7	4.1	6.6

Business Purpose:

These renovations are necessary due to the aging facilities that no longer meet workforce space requirements. These renovations will support SoCalGas' changing workplace requirements and improve the functionality of our buildings and/or sites, which support the work patterns of SoCalGas employees. Additionally, we need facilities that provide flexibility so that the space can evolve as people, technology, and business needs change over time. These improvements typically include space reconfiguration, building modifications, technology and furniture upgrades.

Physical Description:

The types of improvements include space reconfigurations, building modifications, technology and furniture upgrades needed to support future business requirements and increase functionality.

Project Justification:

Facility Operations manages a portfolio of 80 owned and staffed utility facilities averaging 47 years old. These renovations are necessary to update the aging facilities that no longer meet workforce space requirements. These renovations will support SoCalGas' changing workplace requirements and work patterns of SoCalGas employees. We need facilities that provide flexibility so that the space can evolve as people, technology, and business needs change over time.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00653.0
Category: A. Infrastructure & Improvement
Category-Sub: 2. Facility Renovations
Workpaper Group: 00653B - Facility Renovations

Forecast Methodology:

Labor - Zero-Based

Our calculations support 0.7 – 6.6 FTE's that have their labor costs spread over multiple projects for each annual budget. Due to the magnitude and complexity, these projects will transpire over several phases which can span from 6 to 12 months.

Non-Labor - Zero-Based

Projects have been estimated based on unique and specific scope requirements and professional expert judgement, including vendor estimates from qualified industry professionals such as licensed architects and designers, construction industry professionals, facility management professionals, and IT domain experts.

NSE - Zero-Based

Not applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00653B**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations
 Workpaper Detail: 00653B.001 - Facility Renovations - Chatsworth
 In-Service Date: 09/30/2018

Description:

Types of work included in this category are facility redesign, space reconfiguration, technology & furniture upgrades.

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		38	80	0
Non-Labor		1,862	3,918	0
NSE		0	0	0
	Total	1,900	3,998	0
FTE		0.4	0.8	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations
 Workpaper Detail: 00653B.002 - Facility Renovations - Compton
 In-Service Date: 03/31/2018
 Description:

Types of work included in this category are facility redesign, space reconfiguration, technology and furniture upgrades.

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		24	15	0
Non-Labor		1,956	987	0
NSE		0	0	0
	Total	1,980	1,002	0
FTE		0.3	0.2	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations
 Workpaper Detail: 00653B.003 - Facility Renovations - Anaheim
 In-Service Date: 03/31/2019

Description:

Types of work included in this category are facility redesign, space reconfiguration, technology and furniture upgrades.

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		0	24	54
Non-Labor		0	1,476	4,446
NSE		0	0	0
	Total	0	1,500	4,500
FTE		0.0	0.2	0.6

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations
 Workpaper Detail: 00653B.004 - Facility Renovations - Pico Rivera
 In-Service Date: 09/30/2019

Description:

Types of work included in this category are facility redesign, space reconfiguration, technology and furniture upgrades.

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		0	36	90
Non-Labor		0	2,460	7,416
NSE		0	0	0
	Total	0	2,496	7,506
FTE		0.0	0.4	1.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations
 Workpaper Detail: 00653B.005 - Gas Control Facility Relocation

In-Service Date: 09/30/2019

Description:

Costs to relocate, plan, and build a centralized Gas Control facility at an existing SoCalGas location. Types of work included in this category are facility redesign, space reconfiguration, technology & furniture upgrades. Currently, the Transmission & Storage (T&S) organization houses approximately 233 staff at 20 different facilities ranging from Taft in the north, Needles and Blythe in the east, Goleta in the West and Anaheim in the south. Consolidating the T&S administration functions into a single location will improve communication and work flow.

Forecast in 2016 \$(000)				
	Years	2017	2018	2019
Labor		0	170	148
Non-Labor		0	8,348	7,234
NSE		0	0	0
	Total	0	8,518	7,382
FTE		0.0	1.7	1.5

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations
 Workpaper Detail: 00653B.006 - Logistics Warehouse

In-Service Date: 09/30/2019

Description:

Increase Logistics Warehouse storage due to increased inventory and larger diameter pipe. This activity includes the development of existing facility to increase warehouse space or consolidation of existing Logistics Warehouse operations into a larger single site.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		0	40	333
Non-Labor		0	1,960	16,417
NSE		0	0	0
	Total	0	2,000	16,750
FTE		0.0	0.4	3.3

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 2. Facility Renovations
 Workpaper Group: 00653B - Facility Renovations
 Workpaper Detail: 00653B.007 - Collaborative Training Facility upgrade
 In-Service Date: 06/30/2019
 Description:

Renovations for a collaborative training facility in support of a technical academic training program

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		0	40	20
Non-Labor		0	1,960	980
NSE		0	0	0
	Total	0	2,000	1,000
FTE		0.0	0.4	0.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 00653B

**Beginning of Workpaper Group
00653C - Sustainability Projects**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 3. Sustainability Projects
 Workpaper Group: 00653C - Sustainability Projects

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	29	62	65
Non-Labor	Zero-Based	0	0	0	0	0	1,420	3,038	3,185
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,449	3,100	3,250
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.7

Business Purpose:

Sustainability is a key factor in our business planning. Our sustainability efforts are to improve energy conservation and to reduce our carbon footprint. Our goal is to become a sustainable Corporation that improves cost containment while protecting the environment and improving the lives of those with whom we share it. Our initiative offers an opportunity for SoCalGas to bring innovation, leadership and sustainability to company operations. Our sustainability plan includes solar systems and water conservation projects.

Physical Description:

The solar systems we plan to install at various facilities will generate renewable energy from solar photovoltaic ("PV") panels as follows:
 Solar photovoltaic systems require poly or mono-crystalline solar panels, an inverter(s) and wiring to connect the panels to the inverter. The system is built like a tree, in that the panels act as "leaves", converting sunlight to electricity which then flows through "branches" made of wires to the "trunk" (the inverter) for use. The electric current from all the panels is then conducted to an inverter, which converts the direct current (DC) electricity to alternating current (AC), so it can be used by the buildings lighting and HVAC systems.

Xeriscape conversions, which are also called drought-tolerant landscape conversions, requires the removal of more water intensive grass/turf landscapes, replaced with native and drought-tolerant plants that are able to survive without any irrigation. This process can involve the removal of vegetation and old irrigation systems, replacing them with native trees and water efficient irrigation systems.

Project Justification:

These solar projects improve energy conservation and reduce our carbon footprint. Additionally, these projects provide an opportunity to partially help offset rising electrical costs. The power generated by the solar PV system will provide more energy security by lowering our energy consumption.

The majority of the water consumption at company sites is used for landscape irrigation. By converting grass and turf to drought-tolerant plants, SoCalGas will continue its reduction in water consumption.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00653.0
Category: A. Infrastructure & Improvement
Category-Sub: 3. Sustainability Projects
Workpaper Group: 00653C - Sustainability Projects

Forecast Methodology:

Labor - Zero-Based

Costs forecasted based on the assumption that 0.3 - 0.7 FTE will be devoted to the Sustainability projects.

Non-Labor - Zero-Based

Forecast based on project spending and quotes from vendors.

NSE - Zero-Based

Not applicable.

**Beginning of Workpaper Sub Details for
Workpaper Group 00653C**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 3. Sustainability Projects
 Workpaper Group: 00653C - Sustainability Projects
 Workpaper Detail: 00653C.001 - Sustainability Projects - Distribution

In-Service Date: Not Applicable

Description:

Installation of water conservation projects such as Xeriscape conversions, also called drought-tolerant landscape conversions at the following locations: Alhambra, Azusa, Belvedere, Compton, Garden Grove, Juanita, Pico Rivera, and Valencia. This requires the removal of more water intensive grass/turf landscapes and replaces them with native and drought-tolerant plants that can survive without any or minimal irrigation.

Installation of solar systems at locations such as: Branford, Canoga, Chino, El Centro, Lancaster, Oxnard, Romoland, San Luis Obispo, Yucca, and Yukon.

In addition, to minimize our environmental impact and reduce energy use, energy efficiency improvements (such as LED lighting) will be completed at the following locations: Alhambra, Aliso Viejo, Azusa, Garden Grove, Needles, Pico Rivera, Redlands, San Dimas, and Simi Valley.

Forecast In 2016 \$(000)				
Years	2017	2018	2019	
Labor	13	41	39	
Non-Labor	657	2,019	1,911	
NSE	0	0	0	
Total	670	2,060	1,950	
FTE	0.1	0.4	0.4	

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 3. Sustainability Projects
 Workpaper Group: 00653C - Sustainability Projects
 Workpaper Detail: 00653C.002 - Sustainability Projects - General Plant

In-Service Date: Not Applicable

Description:

Installation of water conservation projects such as Xeriscape conversions, also called drought-tolerant landscape conversions at the following locations: Alhambra, Azusa, Belvedere, Compton, Garden Grove, Juanita, Pico Rivera, and Valencia. This requires the removal of more water intensive grass/turf landscapes and replaces them with native and drought-tolerant plants that can survive without any or minimal irrigation.

Installation of solar systems at locations such as: Branford, Canoga, Chino, El Centro, Lancaster, Oxnard, Romoland, San Luis Obispo, Yucca, and Yukon.

In addition, to minimize our environmental impact and reduce energy use, energy efficiency improvements (such as LED lighting) will be completed at the following locations: Alhambra, Aliso Viejo, Azusa, Garden Grove, Needles, Pico Rivera, Redlands, San Dimas, and Simi Valley.

Forecast In 2016 \$(000)				
Years	2017	2018	2019	
Labor	16	21	26	
Non-Labor	763	1,019	1,274	
NSE	0	0	0	
Total	779	1,040	1,300	
FTE	0.2	0.2	0.3	

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00653D - RAMP Incremental - Facility Security

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 4. RAMP
 Workpaper Group: 00653D - RAMP Incremental - Facility Security

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	0	12	12
Non-Labor	Zero-Based	0	0	0	0	0	0	588	588
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	600	600
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2

Business Purpose:

SoCalGas plans to enhance existing security infrastructure at various staffed facilities with the goal to minimize security threats to office and branch locations.

Physical Description:

The project plans include adding additional security cameras, adding or improving perimeter fencing, and adding controlled access points.

Project Justification:

SoCalGas plans to enhance existing security infrastructure at various staffed facilities with the goal to minimize security threats to office and branch locations.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00653.0
Category: A. Infrastructure & Improvement
Category-Sub: 4. RAMP
Workpaper Group: 00653D - RAMP Incremental - Facility Security

Forecast Methodology:

Labor - Zero-Based

Costs forecasted based on the assumption that 0.2 FTE will be devoted to RAMP projects.

Non-Labor - Zero-Based

Forecast based on project spending and quotes from vendors.

NSE - Zero-Based

Not applicable.

**Beginning of Workpaper Sub Details for
Workpaper Group 00653D**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 4. RAMP
 Workpaper Group: 00653D - RAMP Incremental - Facility Security
 Workpaper Detail: 00653D.001 - RAMP Incremental - Facility Security - Distribution
 In-Service Date: Not Applicable
 Description:

RAMP - Workplace Violence - Physical Security Systems Cost is estimated based on the a list of incremental projects due to RAMP requirements.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		0	7	7
Non-Labor		0	353	353
NSE		0	0	0
	Total	0	360	360
FTE		0.0	0.1	0.1

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 4. RAMP
 Workpaper Group: 00653D - RAMP Incremental - Facility Security
 Workpaper Detail: 00653D.001 - RAMP Incremental - Facility Security - Distribution

RAMP Item # 1

RAMP Chapter: SCG-5

Program Name: Physical Security Systems

Program Description: Physical security measures put in place for the security/safety of employees and infrastructure

Risk/Mitigation:

Risk: Physical Security of Critical Gas Infrastructure

Mitigation: Physical Security

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	0	300	300
High	0	500	500

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Non-Mandated

Work Type Citation: Capital

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 0

Explanation:

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 4. RAMP
 Workpaper Group: 00653D - RAMP Incremental - Facility Security
 Workpaper Detail: 00653D.002 - RAMP Incremental - Facility Security - General Plant
 In-Service Date: Not Applicable
 Description:

RAMP - Workplace Violence - Physical Security Systems Cost is estimated based on the a list of incremental projects due to RAMP requirements.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		0	5	5
Non-Labor		0	235	235
NSE		0	0	0
	Total	0	240	240
FTE		0.0	0.1	0.1

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00653.0
 Category: A. Infrastructure & Improvement
 Category-Sub: 4. RAMP
 Workpaper Group: 00653D - RAMP Incremental - Facility Security
 Workpaper Detail: 00653D.002 - RAMP Incremental - Facility Security - General Plant

RAMP Item # 1

RAMP Chapter: SCG-5

Program Name: Physical Security Systems

Program Description: Physical security measures put in place for the security/safety of employees and infrastructure

Risk/Mitigation:

Risk: Physical Security of Critical Gas Infrastructure

Mitigation: Physical Security

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	0	200	200
High	0	300	300

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Non-Mandated

Work Type Citation: Capital

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 0

Explanation:

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Category: B. Safety & Environmental
Workpaper: VARIOUS

Summary for Category: B. Safety & Environmental

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	0	49	42	40
Non-Labor	0	2,401	2,033	1,960
NSE	0	0	0	0
Total	0	2,450	2,075	2,000
FTE	0.0	0.5	0.5	0.4

00654A Safety/Environmental

Labor	0	29	25	24
Non-Labor	0	1,441	1,220	1,176
NSE	0	0	0	0
Total	0	1,470	1,245	1,200
FTE	0.0	0.3	0.3	0.2

00654B Safety/Environmental - General Plant

Labor	0	20	17	16
Non-Labor	0	960	813	784
NSE	0	0	0	0
Total	0	980	830	800
FTE	0.0	0.2	0.2	0.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00654A - Safety/Environmental**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00654.0
 Category: B. Safety & Environmental
 Category-Sub: 1. Safety & Environmental
 Workpaper Group: 00654A - Safety/Environmental

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	29	25	24
Non-Labor	Zero-Based	0	0	0	0	0	1,441	1,220	1,176
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,470	1,245	1,200
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2

Business Purpose:

The Safety & Environmental request is necessary to fund needed American with Disabilities (“ADA”) improvements to the San Luis Obispo facility to improve customer access and accessibility to the branch offices as well as to perform earthquake/seismic retrofits at various facilities throughout the service territory.

Physical Description:

The following are examples of necessary ADA improvements: adding or modifying access ramps, automatic doors, accesible restrooms, parking lot access and signage.

Earthquake retrofit or Seismic retrofitting to modify existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes.

This may include wood framed, concrete masonry block, and poured in place concrete structures erected prior to 1989.

Project Justification:

SoCalGas’ goal is to maintain compliance with all federal, state, and local laws and regulations. As laws and regulations are updated, SoCalGas must comply with updated standards and retrofit and/or modify facilities to comply with these new standards.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00654.0
Category: B. Safety & Environmental
Category-Sub: 1. Safety & Environmental
Workpaper Group: 00654A - Safety/Environmental

Forecast Methodology:

Labor - Zero-Based

SoCalGas' calculations support 0.2 - .03 FTE's that have their labor costs spared over multiple projects for each annual budget.

Non-Labor - Zero-Based

The forecast method developed in this cost category is zero-based. This method is most appropriate because each project has been estimated based on unique and specific scope and budgetary considerations. The estimates do however, reflect SoCalGas encountered costs and vendor estimates for projects with similar scope and complexity.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 00654A**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00654.0
 Category: B. Safety & Environmental
 Category-Sub: 1. Safety & Environmental
 Workpaper Group: 00654A - Safety/Environmental
 Workpaper Detail: 00654A.001 - Safety/Environmental

In-Service Date: Not Applicable

Description:

ADA and earthquake/seismic retrofits.

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		29	25	24
Non-Labor		1,441	1,220	1,176
NSE		0	0	0
	Total	1,470	1,245	1,200
FTE		0.3	0.3	0.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00654B - Safety/Environmental - General Plant

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00654.0
 Category: B. Safety & Environmental
 Category-Sub: 1. Safety & Environmental
 Workpaper Group: 00654B - Safety/Environmental - General Plant

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	20	17	16
Non-Labor	Zero-Based	0	0	0	0	0	960	813	784
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	980	830	800
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2

Business Purpose:

The Safety & Environmental request is necessary to fund needed American with Disabilities (“ADA”) improvements to the San Luis Obispo facility to improve customer access and accessibility to the branch offices as well as to perform earthquake/seismic retrofits at various facilities throughout the service territory.

Physical Description:

The following are examples of necessary ADA improvements: adding or modifying access ramps, automatic doors, accesible restrooms, parking lot access and signage.

Earthquake retrofit or Seismic retrofitting to modify existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. This may include wood framed, concrete masonry block, and poured in place concrete structures erected prior to 1989.

Project Justification:

SoCalGas’ goal is to maintain compliance with all federal, state, and local laws and regulations. As laws and regulations are updated, SoCalGas must comply with updated standards and retrofit and/or modify facilities to comply with these new standards.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00654.0
Category: B. Safety & Environmental
Category-Sub: 1. Safety & Environmental
Workpaper Group: 00654B - Safety/Environmental - General Plant

Forecast Methodology:

Labor - Zero-Based

SoCalGas' calculations support 0.2 - .03 FTE's that have their labor costs spared over multiple projects for each annual budget.

Non-Labor - Zero-Based

The forecast method developed this this cost category is zero-based. This method is most appropriate because each project has been estimated based on unique and specific scope and budgetary considerations. The estimates do however, reflect SoCalGas encountered costs and vendor estimates for projects with similar scope and complexity.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 00654B**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00654.0
 Category: B. Safety & Environmental
 Category-Sub: 1. Safety & Environmental
 Workpaper Group: 00654B - Safety/Environmental - General Plant
 Workpaper Detail: 00654B.001 - Safety/Environmental - General Plant
 In-Service Date: Not Applicable

Description:

ADA and earthquake/seismic retrofits - General Plant
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Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		20	17	16
Non-Labor		960	813	784
NSE		0	0	0
	Total	980	830	800
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Category: C. Bakersfield Multi-Use Facility
Workpaper: 00671A

Summary for Category: C. Bakersfield Multi-Use Facility

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	0	140	140	0
Non-Labor	0	6,860	6,860	0
NSE	0	0	0	0
Total	0	7,000	7,000	0
FTE	0.0	1.4	1.4	0.0

00671A Bakersfield Multi-Use Facility

Labor	0	140	140	0
Non-Labor	0	6,860	6,860	0
NSE	0	0	0	0
Total	0	7,000	7,000	0
FTE	0.0	1.4	1.4	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00671A - Bakersfield Multi-Use Facility

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00671.0
 Category: C. Bakersfield Multi-Use Facility
 Category-Sub: 1. Bakersfield Multi-Use Facility
 Workpaper Group: 00671A - Bakersfield Multi-Use Facility

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	140	140	0
Non-Labor	Zero-Based	0	0	0	0	0	6,860	6,860	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	7,000	7,000	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.4	1.4	0.0

Business Purpose:

This request is necessary to fund the planning, permitting, and construction of a new Bakersfield multi-use facility. Continuous customer expansion in this service territory requires a larger base that the current 2.66-acre site cannot accommodate. Expansion in the San Joaquin Valley to meet the needs of low income customers is priority for SoCalGas. Further, SoCalGas is including a NGV refueling station at the base for on-site fleet-public fueling in order to expand its NGV refueling network of stations to support the greening of our fleet and to serve the trucking sector along the transportation corridor. The Facility will have the capacity to service the 20-year growth projection in the San Joaquin Valley. The Functions of the facility will include: (1) District Operations Base for company field crews (2) Remote field technical Training facility for San Joaquin area that will reduce lodging requirements and travel to and from Los Angeles; (3) Customer Demonstration Center to display emerging gas technologies; and (4) A meeting hub for San Joaquin Valley area with adequate conferencing capabilities. The site will be built in compliance with zero-net energy (ZNE) standards and include photovoltaic solar panels.

Physical Description:

The new Bakersfield multi-use facility will encompass a 10-acre lot with a 14,000 square-foot administration building, a logistics building, a fleet garage, a storage building. The site will be built in compliance with zero-net energy (ZNE) standards and include photovoltaic solar system as well as include an NGV refueling station for on-site fleet-public fueling.

Project Justification:

Continuous customer expansion in this service territory requires a larger base that the current 2.66-acre site cannot accommodate. Expansion in the San Joaquin Valley to meet the needs of low income customers is priority for SoCalGas. Further, SoCalGas is including a NGV refueling station at the base for on-site fleet-public fueling in order to expand its NGV refueling network of stations to support the greening of our fleet and to serve the trucking sector along the transportation corridor.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00671.0
Category: C. Bakersfield Multi-Use Facility
Category-Sub: 1. Bakersfield Multi-Use Facility
Workpaper Group: 00671A - Bakersfield Multi-Use Facility

Forecast Methodology:

Labor - Zero-Based

SoCalGas' calculations support 1.4 FTE's that have their labor costs spread over multiple projects for each annual budget.

Non-Labor - Zero-Based

The forecast method developed this this cost category is zero-based. This method is most appropriate because the project has been estimated based on unique and specific scope and budgetary considerations. The estimates do however, reflect SoCalGas encountered costs and vendor estimates for projects with similar scope and complexity.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 00671A**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00671.0
 Category: C. Bakersfield Multi-Use Facility
 Category-Sub: 1. Bakersfield Multi-Use Facility
 Workpaper Group: 00671A - Bakersfield Multi-Use Facility
 Workpaper Detail: 00671A.001 - Bakersfield Multi-Use Facility
 In-Service Date: 09/30/2018

Description:

Bakersfield Multi-Use Facility Construction Project

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		140	140	0
Non-Labor		6,860	6,860	0
NSE		0	0	0
	Total	<u>7,000</u>	<u>7,000</u>	<u>0</u>
FTE		1.4	1.4	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 00671A

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Category: D. Facility Energy Management Systems
Workpaper: 00712A

Summary for Category: D. Facility Energy Management Systems

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	0	20	10	0
Non-Labor	0	980	490	0
NSE	0	0	0	0
Total	0	1,000	500	0
FTE	0.0	0.2	0.1	0.0

00712A Facility Energy Management Systems

Labor	0	20	10	0
Non-Labor	0	980	490	0
NSE	0	0	0	0
Total	0	1,000	500	0
FTE	0.0	0.2	0.1	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00712A - Facility Energy Management Systems

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00712.0
 Category: D. Facility Energy Management Systems
 Category-Sub: 1. Facility Energy Management Systems
 Workpaper Group: 00712A - Facility Energy Management Systems

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	20	10	0
Non-Labor	Zero-Based	0	0	0	0	0	980	490	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,000	500	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0

Business Purpose:

The primary business purpose of the Energy Management System (“EMS”) is to use electricity more efficiently and to reduce energy consumption at company facilities. EMS systems are a tool used by facility managers to monitor, measure, and control electrical building loads. EMS can be used to centrally control devices like HVAC units and lighting systems across multiple physical locations. Energy management systems can also provide metering, sub-metering, and monitoring functions. These functions allows facility and building managers to gather data and insight to make more informed decisions about energy activities across the remaining sites that do not have energy conservation measures.

Physical Description:

Energy management systems consist of software and hardware systems that are integrated with the building's HVAC and lighting systems. Depending whether the EMS is wireless or analog, wiring will also be required to connect the EMS with a site's building systems.

Project Justification:

This project is important for energy management and lowering our energy consumption at some of the remaining sites that do not have energy conservation measures. EMS systems can provide facility managers with the ability to pre-program the building lighting and HVAC systems remotely. The EMS provides facility managers with essential building controls and energy monitoring features to reduce energy waste and help with cost containment due to rising electricity costs.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00712.0
Category: D. Facility Energy Management Systems
Category-Sub: 1. Facility Energy Management Systems
Workpaper Group: 00712A - Facility Energy Management Systems

Forecast Methodology:

Labor - Zero-Based

Costs forecasted based on the assumption that 0.1 - 0.2 FTE will be devoted to Facility Energy Management System projects.

Non-Labor - Zero-Based

Estimated project costs are based upon estimates provided from preliminary project bids provided by the potential vendors for the project for their time and materials.

NSE - Zero-Based

Not applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00712A**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00712.0
 Category: D. Facility Energy Management Systems
 Category-Sub: 1. Facility Energy Management Systems
 Workpaper Group: 00712A - Facility Energy Management Systems
 Workpaper Detail: 00712A.001 - Facility Energy Management Systems

In-Service Date: 04/30/2018

Description:

Installation of an Energy Management System at remaining sites that do not have such a system, which consist of software and hardware that are integrated with the building's HVAC and lighting systems. Depending on whether the EMS is wireless or analog, wiring may also be required to connect the EMS with a site's building systems.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		20	10	0
Non-Labor		980	490	0
NSE		0	0	0
	Total	1,000	500	0
FTE		0.2	0.1	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Category: E. Fleet Projects
Workpaper: VARIOUS

Summary for Category: E. Fleet Projects

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	0	16	76	82
Non-Labor	0	532	2,118	1,568
NSE	0	0	0	0
Total	0	548	2,194	1,650
FTE	0.0	0.2	0.8	0.8

00716A Fleet Capital Tools Replacement

Labor	0	10	10	10
Non-Labor	0	238	238	238
NSE	0	0	0	0
Total	0	248	248	248
FTE	0.0	0.1	0.1	0.1

00716B Fleet Training Center

Labor	0	6	18	0
Non-Labor	0	294	882	0
NSE	0	0	0	0
Total	0	300	900	0
FTE	0.0	0.1	0.2	0.0

00716C Fleet UST Replacement Program

Labor	0	0	48	72
Non-Labor	0	0	998	1,330
NSE	0	0	0	0
Total	0	0	1,046	1,402
FTE	0.0	0.0	0.5	0.7

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00716A - Fleet Capital Tools Replacement

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00716.0
 Category: E. Fleet Projects
 Category-Sub: 1. Fleet Projects
 Workpaper Group: 00716A - Fleet Capital Tools Replacement

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	10	10	10
Non-Labor	Zero-Based	0	0	0	0	0	238	238	238
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	248	248	248
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

Business Purpose:

This request funds the replacement of fleet equipment and tools needed to operate the 48 SoCal Gas garages.

Physical Description:

New/Replacement garage equipment such as tire changing and balancing machines, diagnostic tools, parts cleaners, brake lathe, alignment machines, Air Conditioning/Freon machines, emissions related equipment for gasoline, diesel, and NGV/LNG vehicles.

Project Justification:

As newer vehicles are added to the fleet, technology upgrades for diagnostic equipment are required for maintenance. In addition, normal wear and tear on older equipment requires replacement.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00716.0
Category: E. Fleet Projects
Category-Sub: 1. Fleet Projects
Workpaper Group: 00716A - Fleet Capital Tools Replacement

Forecast Methodology:

Labor - Zero-Based

Forecast based on percentage of time assigned employees will be committed to the project.

Non-Labor - Zero-Based

Estimated blank budget is based upon historical spending and future forecast necessary to meet the company requirements and needs.

NSE - Zero-Based

Not applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00716A**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00716.0
 Category: E. Fleet Projects
 Category-Sub: 1. Fleet Projects
 Workpaper Group: 00716A - Fleet Capital Tools Replacement
 Workpaper Detail: 00716A.001 - Fleet Capital Tools Replacement
 In-Service Date: Not Applicable

Description:

Fleet Capital Tools

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		10	10	10
Non-Labor		238	238	238
NSE		0	0	0
	Total	248	248	248
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00716B - Fleet Training Center**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00716.0
 Category: E. Fleet Projects
 Category-Sub: 1. Fleet Projects
 Workpaper Group: 00716B - Fleet Training Center

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	6	18	0
Non-Labor	Zero-Based	0	0	0	0	0	294	882	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	300	900	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0

Business Purpose:

Fleet technician training facility for training on: safety, Basic Inspection of Terminal compliance, new vehicle technologies, SMOG program, and other automotive practices.

Physical Description:

New fleet training facility will house and store equipment and training tools needed to appropriately train technicians in new vehicle technologies such as NGV/CNG compliance & safety; SMOGs; and other automotive practices.

Project Justification:

SoCalGas moved its fleet operation from Monterey Park to Pico Rivera and no longer has a training facility for fleet technicians.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00716.0
Category: E. Fleet Projects
Category-Sub: 1. Fleet Projects
Workpaper Group: 00716B - Fleet Training Center

Forecast Methodology:

Labor - Zero-Based

Forecast based on percentage of time assigned employees will be committed to the project.

Non-Labor - Zero-Based

Estimated project costs are based upon estimates provided from preliminary project bids provided by the potential vendors for the project for their time and materials.

NSE - Zero-Based

Not applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00716B**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00716.0
 Category: E. Fleet Projects
 Category-Sub: 1. Fleet Projects
 Workpaper Group: 00716B - Fleet Training Center
 Workpaper Detail: 00716B.001 - Fleet Training Center

In-Service Date: 12/31/2018

Description:

SoCalGas moved its fleet operation from Monterey Park to Pico Rivera and no longer has a training facility available for fleet technicians. The new facility will house equipment and related training tools needed to provide Fleet technicians with up-to-date training associated with vehicle safety, SMOG, new vehicle technology, AFV technology, diagnostics, and BIT compliance.

Forecast In 2016 \$(000)					
	Years	2017	2018	2019	
Labor		6	18	0	
Non-Labor		294	882	0	
NSE		0	0	0	
	Total	300	900	0	
FTE		0.1	0.2	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00716C - Fleet UST Replacement Program

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00716.0
 Category: E. Fleet Projects
 Category-Sub: 1. Fleet Projects
 Workpaper Group: 00716C - Fleet UST Replacement Program

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	0	48	72
Non-Labor	Zero-Based	0	0	0	0	0	0	998	1,330
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	1,046	1,402
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7

Business Purpose:

SoCalGas currently has 77 USTs of which 38 were placed in service on or about 1987. As a result, SoCalGas is establishing a routine replacement plan for all USTs in the system so that any UST is either under warranty or within the standard life expectancy for the tank. We are also standardizing unleaded tanks to a 15,000 gallon capacity to maintain adequate inventory levels, allow for emergency response fuel requirements, and to allow for a more strategic ordering process so that fuel is purchased at the best price possible at the time of ordering. Diesel tanks will be standardized so that fuel inventory is used in no more than six months to prevent the degradation of the diesel fuel, algae contamination, or sludge buildup.

Physical Description:

This work will include the following:
 1) UST removal and replacement
 2) Piping removal and replacement
 3) Under Dispenser Containment (UDC) removal and replacement
 4) Removal and replacement of obsolete dispenser
 Items 1 -3 noted above will trigger the upgrades to meet the Assembly Bill ("AB") 2481 standards.

Project Justification:

In 1984, new law requirements were passed designed to protect the public from the effects of gasoline leaking from underground storage tanks and other petroleum releases. This new law required the EPA to develop a comprehensive regulatory program for underground storage tanks (USTs) storing petroleum and other hazardous substances. The new law enacted required owners to close, upgrade, or replace tanks to meet the secondary containment requirements no later than December 22, 1998. The USTs at SoCalGas were proactively replaced starting in 1985 with a majority of the sites (38) being completed by 1987. The tanks came with a manufacturer warranty of 30 years.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00716.0
Category: E. Fleet Projects
Category-Sub: 1. Fleet Projects
Workpaper Group: 00716C - Fleet UST Replacement Program

Forecast Methodology:

Labor - Zero-Based

Forecast based on percentage of time assigned employees will be committed to the project.

Non-Labor - Zero-Based

Estimated project costs are based upon vendor estimates for a 15,000 gallon UST and permitting, and remediation costs estimated by the Environmental Department.

NSE - Zero-Based

Not applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00716C**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00716.0
 Category: E. Fleet Projects
 Category-Sub: 1. Fleet Projects
 Workpaper Group: 00716C - Fleet UST Replacement Program
 Workpaper Detail: 00716C.001 - Fleet UST Replacement Program
 In-Service Date: Not Applicable

Description:

Fleet Underground Storage Tank (UST) Replacement Program
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Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		0	48	72
Non-Labor		0	998	1,330
NSE		0	0	0
	Total	0	1,046	1,402
FTE		0.0	0.5	0.7

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Category: F. NGV Refueling Stations
Workpaper: VARIOUS

Summary for Category: F. NGV Refueling Stations

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	0	354	797	940
Non-Labor	0	6,761	15,140	17,859
NSE	0	60	0	0
Total	0	7,175	15,937	18,799
FTE	0.0	3.8	7.9	9.4

00734A CURRENT NGV PROJECTS

Labor	0	300	33	0
Non-Labor	0	5,733	627	0
NSE	0	60	0	0
Total	0	6,093	660	0
FTE	0.0	3.3	0.3	0.0

00734B NGV REFUELING STATION 2017

Labor	0	54	0	0
Non-Labor	0	1,028	0	0
NSE	0	0	0	0
Total	0	1,082	0	0
FTE	0.0	0.5	0.0	0.0

00734C NGV REFUELING STATION 2018

Labor	0	0	764	0
Non-Labor	0	0	14,513	0
NSE	0	0	0	0
Total	0	0	15,277	0
FTE	0.0	0.0	7.6	0.0

00734D NGV REFUELING STATION 2019

Labor	0	0	0	940
Non-Labor	0	0	0	17,859
NSE	0	0	0	0
Total	0	0	0	18,799
FTE	0.0	0.0	0.0	9.4

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00734A - CURRENT NGV PROJECTS**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	300	33	0
Non-Labor	Zero-Based	0	0	0	0	0	5,733	627	0
NSE	Zero-Based	0	0	0	0	0	60	0	0
Total		0	0	0	0	0	6,093	660	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.3	0.3	0.0

Business Purpose:

To enhance the refueling reliability, capacity and response time for SoCalGas Fleet and public Compressed Natural Gas (CNG) users at SoCalGas Natural Gas Vehicle (NGV) fueling stations. SoCalGas owns and operates 27 NGV fleet refueling stations. Twelve (12) of these stations also provide for public vehicle fueling access. The requested capital will fund the following enhancements to SoCalGas' current infrastructure:

- Added fueling capacity;
- Secondary compression at select NGV Fleet/Public fueling stations;
- Standardization of critical equipment;
- Replacement of outdated NGV fuel dispensers;
- Expand SoCalGas' utilization of existing Natural Gas Vehicles.
- Further, 27% of SoCalGas' fleet is comprised of alternative fuel vehicles (AFV), an increase of 13% from 2012. Fleet's goal is to have a majority green fleet by 2020.

Physical Description:

The NGV fueling station enhancements will embody:

- Added fueling capacity at existing public accessible and heavy use stations;
- Secondary compression at select SoCalGas NGV Fleet/Public fueling stations to improve the reliability of capacity;
- Upgrade of existing public fueling station driveways and fueling islands to allow access for larger fleet vehicles;
- Replacement of outdated NGV fuel dispensers which will provide for added reliability and data security for public fueling customers who use a credit card.

Project Justification:

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734A - CURRENT NGV PROJECTS

SoCalGas is committed to operating and maintaining a reliable and effective fueling infrastructure to power its own NGV fleet to; support the use of lower emission vehicles in its operation and to provide the public with reliable fueling stations where such can be supported as a cost-effective derivative of SoCalGas' fleet fueling assets and mission. There were 27 Company fueling stations at the time this document was prepared, with 12 of these stations serving the public in the fueling of CNG powered fleet and private vehicles. Many of these stations were commissioned over 18 years ago, when vehicle fueling profiles were different and station use was not as impacted by larger capacity vehicles and fleet sizes. Routine aging and its effects on reliability has also impacted station operations in recent years. The capital outlay proposed will allow for sustained support for SoCalGas fleet operations and service to public NGV fleets. Specifically, the proposed redundant compressors at sites will increase operating reliability and effectiveness fueling capacity at the targeted stations. Limited redundancy will allow for problems associated with critical equipment to be resolved without interfering with NGV fueling operations. Upgrading the station operating and storage pressure to 4500 PSIG and installing new priority panels and incorporating direct fill features will enable NGV customer and fleet vehicles to experience a true "full-fill" at the SoCalGas NGV station each and every fueling stop (the target stations are all subject to vehicles experiencing less than full tank fillings due to capacity limitations.) In addition, it is expected the improvements will reduce the time stations are unavailable for public and fleet fueling by 90% over the next 5 years.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734A - CURRENT NGV PROJECTS

Forecast Methodology:

Labor - Zero-Based

The direct labor costs are based on SoCalGas labor requirements experienced on historical NGV station projects of similar scope and complexity. Associated costs include company labor for project management, engineering, planning, quality assurance and field commissioning of newly-installed assets.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. This method is most appropriate because each project has been estimated based on unique and specific scope and budgetary considerations. The estimates do, however, reflect SoCalGas encountered cost and vendor estimates for projects with similar scope and complexity completed over the prior three-year period.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00734A**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.001 - SAN PEDRO NGV STATION UPGRADE
 In-Service Date: 08/31/2017

Description:

SAN PEDRO NGV STATION UPGRADE

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		25	0	0
Non-Labor		480	0	0
NSE		0	0	0
	Total	505	0	0
FTE		0.3	0.0	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.002 - COMPTON NGV STATION DISPENSER
 In-Service Date: 06/30/2017

Description:

COMPTON NGV STATION DISPENSER

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		8	0	0
Non-Labor		149	0	0
NSE		0	0	0
	Total	157	0	0
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.003 - FONTANA NGV STATION INSTALLATION
 In-Service Date: 08/31/2017

Description:

FONTANA NGV STATION INSTALLATION

Forecast In 2016 \$(000)					
	Years	2017	2018	2019	
Labor		55	0	0	
Non-Labor		1,045	0	0	
NSE		0	0	0	
	Total	1,100	0	0	
FTE		0.6	0.0	0.0	

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.004 - BELVEDERE NGV STATION INSTALLATION
 In-Service Date: 06/30/2017

Description:

BELVEDERE NGV STATION INSTALLATION

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		19	0	0
Non-Labor		366	0	0
NSE		0	0	0
	Total	385	0	0
FTE		0.2	0.0	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.005 - ALHAMBRA NGV STATION INSTALLATION
 In-Service Date: 10/31/2017
 Description:

ALHAMBRA NGV STATION INSTALLATION

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		19	0	0
Non-Labor		366	0	0
NSE		0	0	0
	Total	385	0	0
FTE		0.2	0.0	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.006 - SAN BERNARDINO NGV STATION UPGRADE
 In-Service Date: 08/31/2017

Description:

SAN BERNARDINO NGV STATION UPGRADE

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		25	0	0
Non-Labor		480	0	0
NSE		60	0	0
	Total	565	0	0
FTE		0.3	0.0	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.007 - DOWNEY NGV STATION INSTALLATION
 In-Service Date: 12/31/2017

Description:

DOWNEY NGV STATION INSTALLATION

Forecast In 2016 \$(000)					
	Years	2017	2018	2019	
Labor		45	0	0	
Non-Labor		855	0	0	
NSE		0	0	0	
	Total	900	0	0	
FTE		0.5	0.0	0.0	

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.008 - BRANFORD NGV STATION INSTALLATION
 In-Service Date: 12/31/2017

Description:

BRANFORD NGV STATION INSTALLATION

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		89	0	0
Non-Labor		1,694	0	0
NSE		0	0	0
	Total	1,783	0	0
FTE		0.9	0.0	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.009 - AUTOGAS NGV DISPENSER UPGRADE
 In-Service Date: 06/30/2017

Description:

AUTOGAS NGV DISPENSER UPGRADE

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		4	0	0
Non-Labor		89	0	0
NSE		0	0	0
	Total	93	0	0
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734A - CURRENT NGV PROJECTS
 Workpaper Detail: 00734A.010 - ERC NGV STATION DISPENSER
 In-Service Date: 12/31/2018

Description:

ERC NGV STATION DISPENSER

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		11	33	0
Non-Labor		209	627	0
NSE		0	0	0
	Total	220	660	0
FTE		0.1	0.3	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00734B - NGV REFUELING STATION 2017

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734B - NGV REFUELING STATION 2017

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	54	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,028	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,082	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0

Business Purpose:

To enhance the refueling reliability, capacity and response time for SoCalGas Fleet and public Compressed Natural Gas (CNG) users at SoCalGas Natural Gas Vehicle (NGV) fueling stations. SoCalGas owns and operates 27 NGV fleet refueling stations. Twelve (12) of these stations also provide for public vehicle fueling access. The requested capital will fund the following enhancements to SoCalGas' current infrastructure:

- Added fueling capacity;
- Secondary compression at select NGV Fleet/Public fueling stations;
- Standardization of critical equipment;
- Replacement of outdated NGV fuel dispensers;
- Expand SoCalGas' utilization of existing Natural Gas Vehicles.
- Further, 27% of SoCalGas' fleet is comprised of alternative fuel vehicles (AFV), an increase of 13% from 2012. Fleet's goal is to have a majority green fleet by 2020.

Physical Description:

The NGV fueling station enhancements will embody:

- Added fueling capacity at existing public accessible and heavy use stations;
- Secondary compression at select SoCalGas NGV Fleet/Public fueling stations to improve the reliability of capacity;
- Upgrade of existing public fueling station driveways and fueling islands to allow access for larger fleet vehicles;
- Replacement of outdated NGV fuel dispensers which will provide for added reliability and data security for public fueling customers who use a credit card.

Project Justification:

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734B - NGV REFUELING STATION 2017

SoCalGas is committed to operating and maintaining a reliable and effective fueling infrastructure to power its own NGV fleet to; support the use of lower emission vehicles in its operation and to provide the public with reliable fueling stations where such can be supported as a cost-effective derivative of SoCalGas' fleet fueling assets and mission. There were 27 Company fueling stations at the time this document was prepared, with 12 of these stations serving the public in the fueling of CNG powered fleet and private vehicles. Many of these stations were commissioned over 18 years ago, when vehicle fueling profiles were different and station use was not as impacted by larger capacity vehicles and fleet sizes. Routine aging and its effects on reliability has also impacted station operations in recent years. The capital outlay proposed will allow for sustained support for SoCalGas fleet operations and service to public NGV fleets. Specifically, the proposed redundant compressors at sites will increase operating reliability and effectiveness fueling capacity at the targeted stations. Limited redundancy will allow for problems associated with critical equipment to be resolved without interfering with NGV fueling operations. Upgrading the station operating and storage pressure to 4500 PSIG and installing new priority panels and incorporating direct fill features will enable NGV customer and fleet vehicles to experience a true "full-fill" at the SoCalGas NGV station each and every fueling stop (the target stations are all subject to vehicles experiencing less than full tank fillings due to capacity limitations.) In addition, it is expected the improvements will reduce the time stations are unavailable for public and fleet fueling by 90% over the next 5 years.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734B - NGV REFUELING STATION 2017

Forecast Methodology:

Labor - Zero-Based

The direct labor costs are based on SoCalGas labor requirements experienced on historical NGV station projects of similar scope and complexity. Associated costs include company labor for project management, engineering, planning, quality assurance and field commissioning of newly-installed assets.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. This method is most appropriate because each project has been estimated based on unique and specific scope and budgetary considerations. The estimates do, however, reflect SoCalGas encountered cost and vendor estimates for projects with similar scope and complexity completed over the prior three-year period.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00734B**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734B - NGV REFUELING STATION 2017
 Workpaper Detail: 00734B.001 - NGV REFUELING STATION 2017
 In-Service Date: 12/31/2017

Description:

Construction of Natural Gas Vehicle (NGV) fueling station infrastructure in support of utility fleet operations and public service. SoCalGas is committed to the continued and expanded use of compressed natural gas (CNG) as fuel for its fleet/vehicle operations, and intends to construct new or modify fueling stations at its operating bases over the period 2017-2019 in support of this objective.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		54	0	0
Non-Labor		1,028	0	0
NSE		0	0	0
	Total	1,082	0	0
FTE		0.5	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00734C - NGV REFUELING STATION 2018

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734C - NGV REFUELING STATION 2018

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	0	764	0
Non-Labor	Zero-Based	0	0	0	0	0	0	14,513	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	15,277	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	7.6	0.0

Business Purpose:

To enhance the refueling reliability, capacity and response time for SoCalGas Fleet and public Compressed Natural Gas (CNG) users at SoCalGas Natural Gas Vehicle (NGV) fueling stations. SoCalGas owns and operates 27 NGV fleet refueling stations. Twelve (12) of these stations also provide for public vehicle fueling access. The requested capital will fund the following enhancements to SoCalGas' current infrastructure:

- Added fueling capacity;
- Secondary compression at select NGV Fleet/Public fueling stations;
- Standardization of critical equipment;
- Replacement of outdated NGV fuel dispensers;
- Expand SoCalGas' utilization of existing Natural Gas Vehicles.
- Further, 27% of SoCalGas' fleet is comprised of alternative fuel vehicles (AFV), an increase of 13% from 2012. Fleet's goal is to have a majority green fleet by 2020.

Physical Description:

The NGV fueling station enhancements will embody:

- Added fueling capacity at existing public accessible and heavy use stations;
- Secondary compression at select SoCalGas NGV Fleet/Public fueling stations to improve the reliability of capacity;
- Upgrade of existing public fueling station driveways and fueling islands to allow access for larger fleet vehicles;
- Replacement of outdated NGV fuel dispensers which will provide for added reliability and data security for public fueling customers who use a credit card.

Project Justification:

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734C - NGV REFUELING STATION 2018

SoCalGas is committed to operating and maintaining a reliable and effective fueling infrastructure to power its own NGV fleet to; support the use of lower emission vehicles in its operation and to provide the public with reliable fueling stations where such can be supported as a cost-effective derivative of SoCalGas' fleet fueling assets and mission. There were 27 Company fueling stations at the time this document was prepared, with 12 of these stations serving the public in the fueling of CNG powered fleet and private vehicles. Many of these stations were commissioned over 18 years ago, when vehicle fueling profiles were different and station use was not as impacted by larger capacity vehicles and fleet sizes. Routine aging and its effects on reliability has also impacted station operations in recent years. The capital outlay proposed will allow for sustained support for SoCalGas fleet operations and service to public NGV fleets. Specifically, the proposed redundant compressors at sites will increase operating reliability and effectiveness fueling capacity at the targeted stations. Limited redundancy will allow for problems associated with critical equipment to be resolved without interfering with NGV fueling operations. Upgrading the station operating and storage pressure to 4500 PSIG and installing new priority panels and incorporating direct fill features will enable NGV customer and fleet vehicles to experience a true "full-fill" at the SoCalGas NGV station each and every fueling stop (the target stations are all subject to vehicles experiencing less than full tank fillings due to capacity limitations.) In addition, it is expected the improvements will reduce the time stations are unavailable for public and fleet fueling by 90% over the next 5 years.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734C - NGV REFUELING STATION 2018

Forecast Methodology:

Labor - Zero-Based

The direct labor costs are based on SoCalGas labor requirements experienced on historical NGV station projects of similar scope and complexity. Associated costs include company labor for project management, engineering, planning, quality assurance and field commissioning of newly-installed assets.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. This method is most appropriate because each project has been estimated based on unique and specific scope and budgetary considerations. The estimates do, however, reflect SoCalGas encountered cost and vendor estimates for projects with similar scope and complexity completed over the prior three-year period.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00734C**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734C - NGV REFUELING STATION 2018
 Workpaper Detail: 00734C.001 - NGV REFUELING STATION 2018
 In-Service Date: 12/31/2018

Description:

Construction of Natural Gas Vehicle (NGV) fueling station infrastructure in support of utility fleet operations and public service. SoCalGas is committed to the continued and expanded use of compressed natural gas (CNG) as fuel for its fleet/vehicle operations, and intends to construct new or modify fueling stations at its operating bases over the period 2017-2019 in support of this objective.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		0	764	0
Non-Labor		0	14,513	0
NSE		0	0	0
	Total	0	15,277	0
FTE		0.0	7.6	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00734D - NGV REFUELING STATION 2019

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734D - NGV REFUELING STATION 2019

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	Zero-Based	0	0	0	0	0	0	0	940
Non-Labor	Zero-Based	0	0	0	0	0	0	0	17,859
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	18,799
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4

Business Purpose:

To enhance the refueling reliability, capacity and response time for SoCalGas Fleet and public Compressed Natural Gas (CNG) users at SoCalGas Natural Gas Vehicle (NGV) fueling stations. SoCalGas owns and operates 27 NGV fleet refueling stations. Twelve (12) of these stations also provide for public vehicle fueling access. The requested capital will fund the following enhancements to SoCalGas' current infrastructure:

- Added fueling capacity;
- Secondary compression at select NGV Fleet/Public fueling stations;
- Standardization of critical equipment;
- Replacement of outdated NGV fuel dispensers;
- Expand SoCalGas' utilization of existing Natural Gas Vehicles.
- Further, 27% of SoCalGas' fleet is comprised of alternative fuel vehicles (AFV), an increase of 13% from 2012. Fleet's goal is to have a majority green fleet by 2020.

Physical Description:

The NGV fueling station enhancements will embody:

- Added fueling capacity at existing public accessible and heavy use stations;
- Secondary compression at select SoCalGas NGV Fleet/Public fueling stations to improve the reliability of capacity;
- Upgrade of existing public fueling station driveways and fueling islands to allow access for larger fleet vehicles;
- Replacement of outdated NGV fuel dispensers which will provide for added reliability and data security for public fueling customers who use a credit card.

Project Justification:

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734D - NGV REFUELING STATION 2019

SoCalGas is committed to operating and maintaining a reliable and effective fueling infrastructure to power its own NGV fleet to; support the use of lower emission vehicles in its operation and to provide the public with reliable fueling stations where such can be supported as a cost-effective derivative of SoCalGas' fleet fueling assets and mission. There were 27 Company fueling stations at the time this document was prepared, with 12 of these stations serving the public in the fueling of CNG powered fleet and private vehicles. Many of these stations were commissioned over 18 years ago, when vehicle fueling profiles were different and station use was not as impacted by larger capacity vehicles and fleet sizes. Routine aging and its effects on reliability has also impacted station operations in recent years. The capital outlay proposed will allow for sustained support for SoCalGas fleet operations and service to public NGV fleets. Specifically, the proposed redundant compressors at sites will increase operating reliability and effectiveness fueling capacity at the targeted stations. Limited redundancy will allow for problems associated with critical equipment to be resolved without interfering with NGV fueling operations. Upgrading the station operating and storage pressure to 4500 PSIG and installing new priority panels and incorporating direct fill features will enable NGV customer and fleet vehicles to experience a true "full-fill" at the SoCalGas NGV station each and every fueling stop (the target stations are all subject to vehicles experiencing less than full tank fillings due to capacity limitations.) In addition, it is expected the improvements will reduce the time stations are unavailable for public and fleet fueling by 90% over the next 5 years.

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
Witness: Carmen L. Herrera
Budget Code: 00734.0
Category: F. NGV Refueling Stations
Category-Sub: 1. NGV Refueling Stations
Workpaper Group: 00734D - NGV REFUELING STATION 2019

Forecast Methodology:

Labor - Zero-Based

The direct labor costs are based on SoCalGas labor requirements experienced on historical NGV station projects of similar scope and complexity. Associated costs include company labor for project management, engineering, planning, quality assurance and field commissioning of newly-installed assets.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. This method is most appropriate because each project has been estimated based on unique and specific scope and budgetary considerations. The estimates do, however, reflect SoCalGas encountered cost and vendor estimates for projects with similar scope and complexity completed over the prior three-year period.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00734D**

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

Area: FACILITIES/OTHER
 Witness: Carmen L. Herrera
 Budget Code: 00734.0
 Category: F. NGV Refueling Stations
 Category-Sub: 1. NGV Refueling Stations
 Workpaper Group: 00734D - NGV REFUELING STATION 2019
 Workpaper Detail: 00734D.001 - NGV REFUELING STATION 2019
 In-Service Date: 12/31/2019

Description:

Construction of Natural Gas Vehicle (NGV) fueling station infrastructure in support of utility fleet operations and public service. SoCalGas is committed to the continued and expanded use of compressed natural gas (CNG) as fuel for its fleet/vehicle operations, and intends to construct new or modify fueling stations at its operating bases over the period 2017-2019 in support of this objective.

Forecast In 2016 \$(000)					
	Years	2017	2018	2019	
Labor		0	0	940	
Non-Labor		0	0	17,859	
NSE		0	0	0	
	Total	0	0	18,799	
FTE		0.0	0.0	9.4	

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 00734D

Southern California Gas Company
2019 GRC - APP
Capital Workpapers

SCG-23-ESRF-CLH-734 NGV Refueling Stations CONFIDENTIAL

Fleet-Public NGV Stations Upgrades	Year		
	2017	2018	2019
Azusa			
Garden Grove			
Oxnard			
ERC			
San Pedro			
Fleet NGV Station Upgrades			
Autogas			
Crenshaw			
San Bernardino			
Compton			
Chino			
Yukon			
Santa Monica			
Pasadena			
Canoga			
Santa Ana			
Santa Maria			
Misc small capital upgrades			
New Fleet-Public NGV Stations			
Murrieta			
Blythe			
Fontana			
Whittier			
Industry			
New Fleet NGV Stations			
Alhambra			
Beaumont			
Belvedere			
Branford			
Corona			
Downey			
La Jolla			
Monterey Park			
Ramona			
Redlands			
San Luis Obispo			
Simi Valley			
Valencia			
Visalia LY			

TOTAL = - - -

This supplemental document contains confidential information. Placeholder