

Application of SAN DIEGO GAS & ELECTRIC)
COMPANY for authority to update its gas and)
electric revenue requirement and base rates)
effective January 1, 2019 (U 902-M))

Application No. 17-10-___

Exhibit No.: (SDG&E-16-CWP)

CAPITAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF DANIEL S. BAERMAN
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

OCTOBER 2017



2019 General Rate Case - APP
INDEX OF WORKPAPERS

Exhibit SDG&E-16-CWP - NEW GENERATION

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San Diego Gas & Electric Company
 2019 GRC - APP
 Capital Workpapers

Overall Summary For Exhibit No. SDG&E-16-CWP

Area:	NEW GENERATION
Witness:	Daniel S. Baerman

A. Generation Capital

In 2016 \$ (000)			
Adjusted-Forecast			
	2017	2018	2019
Total	13,314	292,826	17,371

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Category: A. Generation Capital
Workpaper: VARIOUS

Summary for Category: A. Generation Capital

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	170	272	379	210
Non-Labor	22,817	13,042	292,447	17,161
NSE	0	0	0	0
Total	22,987	13,314	292,826	17,371
FTE	1.6	2.5	3.5	1.8

000060 GENERATION CAPITAL TOOLS & TEST EQPT.

Labor	0	0	0	0
Non-Labor	152	275	275	275
NSE	0	0	0	0
Total	152	275	275	275
FTE	0.0	0.0	0.0	0.0

000080 MIRAMAR PLANT OPERATIONAL ENHANCEMENTS

Labor	0	17	17	17
Non-Labor	83	2,563	2,563	2,563
NSE	0	0	0	0
Total	83	2,580	2,580	2,580
FTE	0.0	0.1	0.1	0.1

000090 PALOMAR PLANT OPERATIONAL ENHANCEMENTS

Labor	47	105	105	105
Non-Labor	4,710	5,246	5,246	5,246
NSE	0	0	0	0
Total	4,757	5,351	5,351	5,351
FTE	0.5	0.9	0.9	0.9

000100 DESERT STAR ENERGY CTR OPER. ENHANCE.

Labor	0	69	69	69
Non-Labor	3,352	3,292	3,292	3,292
NSE	0	0	0	0
Total	3,352	3,361	3,361	3,361
FTE	0.0	0.6	0.6	0.6

000110 CUYAMACA PEAK ENERGY PLANT OPER ENHANCE

Labor	54	19	19	19
Non-Labor	1,132	434	434	434
NSE	0	0	0	0
Total	1,186	453	453	453
FTE	0.5	0.2	0.2	0.2

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Category: A. Generation Capital
Workpaper: VARIOUS

	In 2016\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
00011A RAMP - Incremental Black Start - South Grid - CPEP				
Labor	0	20	169	0
Non-Labor	0	280	637	0
NSE	0	0	0	0
Total	0	300	806	0
FTE	0.0	0.2	1.7	0.0
00011C Otay Mesa Energy Center - Acquisition				
Labor	0	0	0	0
Non-Labor	0	0	280,000	0
NSE	0	0	0	0
Total	0	0	280,000	0
FTE	0.0	0.0	0.0	0.0
00011B Otay Mesa Energy Center - Ongoing Capital				
Labor	0	0	0	0
Non-Labor	0	0	0	5,351
NSE	0	0	0	0
Total	0	0	0	5,351
FTE	0.0	0.0	0.0	0.0
080300 SOLAR PHOTOVOLTAIC INITIATIVE				
Labor	69	42	0	0
Non-Labor	13,388	952	0	0
NSE	0	0	0	0
Total	13,457	994	0	0
FTE	0.6	0.5	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
000060 - GENERATION CAPITAL TOOLS & TEST EQPT.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00006.0
 Category: A. Generation Capital
 Category-Sub: 1. Capital Tools & Test Equipment
 Workpaper Group: 000060 - GENERATION CAPITAL TOOLS & TEST EQPT.

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	5-YR Average	0	0	1	-1	0	0	0	
Non-Labor	5-YR Average	747	332	-3	149	152	275	275	
NSE	5-YR Average	0	0	0	0	0	0	0	
Total		747	332	-3	148	152	275	275	
FTE	5-YR Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

Purchase of capital tools and test equipment for the generating facilities.

Physical Description:

Mechanical tools and electronic test equipment.

Project Justification:

Necessary to replace or upgrade tools for power plant inspections, maintenance and repairs. New and improved tools have the potential to increase employee safety and productivity.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00006.0
Category: A. Generation Capital
Category-Sub: 1. Capital Tools & Test Equipment
Workpaper Group: 000060 - GENERATION CAPITAL TOOLS & TEST EQPT.

Forecast Methodology:

Labor - 5-YR Average

N/A

Non-Labor - 5-YR Average

The 5-YR average method for Capital Tools & Test Equipment was selected because it represents a reasonable foundation for projecting capital project needs.

NSE - 5-YR Average

N/A

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00006.0
 Category: A. Generation Capital
 Category-Sub: 1. Capital Tools & Test Equipment
 Workpaper Group: 000060 - GENERATION CAPITAL TOOLS & TEST EQPT.

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	0	0	0	0	0	0	0	0	0
Non-Labor	5-YR Average	275	275	275	0	0	0	275	275	275
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		275	275	275	0	0	0	275	275	275
FTE	5-YR Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>RefID</u>
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.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00006.0
 Category: A. Generation Capital
 Category-Sub: 1. Capital Tools & Test Equipment
 Workpaper Group: 000060 - GENERATION CAPITAL TOOLS & TEST EQPT.

Determination of Adjusted-Recorded:

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	1	-1	0
Non-Labor	676	304	-3	145	152
NSE	0	0	0	0	0
Total	676	304	-3	144	152
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	1	-1	0
Non-Labor	676	304	-3	145	152
NSE	0	0	0	0	0
Total	676	304	-3	144	152
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2016\$					
Labor	0	0	0	0	0
Non-Labor	72	28	0	4	0
NSE	0	0	0	0	0
Total	72	28	0	4	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	0	0	1	-1	0
Non-Labor	747	332	-3	149	152
NSE	0	0	0	0	0
Total	747	332	-3	148	152
FTE	0.0	0.0	0.0	0.0	0.0

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00006.0
 Category: A. Generation Capital
 Category-Sub: 1. Capital Tools & Test Equipment
 Workpaper Group: 000060 - GENERATION CAPITAL TOOLS & TEST EQPT.

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
Total	0	0	0	0	0
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 000060**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00006.0
 Category: A. Generation Capital
 Category-Sub: 1. Capital Tools & Test Equipment
 Workpaper Group: 000060 - GENERATION CAPITAL TOOLS & TEST EQPT.
 Workpaper Detail: 000060.001 - Generation Capital Tools & Test Eqpt.
 In-Service Date: Not Applicable
 Description:

Generation Capital Tools & Test Equipment - Purchase of capital tools and test equipment for the generating facilities.

Forecast In 2016 \$(000)				
	Years	<u>2017</u>	<u>2018</u>	<u>2019</u>
Labor		0	0	0
Non-Labor		275	275	275
NSE		0	0	0
	Total	<u>275</u>	<u>275</u>	<u>275</u>
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
000080 - MIRAMAR PLANT OPERATIONAL ENHANCEMENTS

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00008.0
 Category: A. Generation Capital
 Category-Sub: 2. Miramar Energy Facility
 Workpaper Group: 000080 - MIRAMAR PLANT OPERATIONAL ENHANCEMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
	Years								
Labor	5-YR Average	6	13	62	3	0	17	17	17
Non-Labor	5-YR Average	508	991	11,210	25	83	2,563	2,563	2,563
NSE	5-YR Average	0	0	0	0	0	0	0	0
	Total	514	1,004	11,272	28	83	2,580	2,580	2,580
FTE	5-YR Average	0.0	0.1	0.6	0.0	0.0	0.1	0.1	0.1

Business Purpose:

The purpose of MEF Operational Enhancements is to provide for capital additions and improvements at the Miramar Energy Facility.

Physical Description:

Specific projects are not identified. Representative capital projects are based on projects that increase the overall reliability, operability and safety of the facility.

Project Justification:

Improvements and additions are continuous at the facility and are selected based on their ability to increase the overall reliability, operability and safety of the facility.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00008.0
Category: A. Generation Capital
Category-Sub: 2. Miramar Energy Facility
Workpaper Group: 000080 - MIRAMAR PLANT OPERATIONAL ENHANCEMENTS

Forecast Methodology:

Labor - 5-YR Average

The 5-YR average method for Miramar Plant Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

Non-Labor - 5-YR Average

The 5-YR average method for Miramar Plant Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

NSE - 5-YR Average

N/A

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00008.0
 Category: A. Generation Capital
 Category-Sub: 2. Miramar Energy Facility
 Workpaper Group: 000080 - MIRAMAR PLANT OPERATIONAL ENHANCEMENTS

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	16	16	16	1	1	1	17	17	17
Non-Labor	5-YR Average	2,563	2,563	2,563	0	0	0	2,563	2,563	2,563
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		2,579	2,579	2,579	1	1	1	2,580	2,580	2,580
FTE	5-YR Average	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

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.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00008.0
Category: A. Generation Capital
Category-Sub: 2. Miramar Energy Facility
Workpaper Group: 000080 - MIRAMAR PLANT OPERATIONAL ENHANCEMENTS

Determination of Adjusted-Recorded:

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	4	10	50	2	0
Non-Labor	459	908	10,418	24	83
NSE	0	0	0	0	0
Total	464	919	10,468	27	83
FTE	0.0	0.1	0.5	0.0	0.0
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	4	10	50	2	0
Non-Labor	459	908	10,418	24	83
NSE	0	0	0	0	0
Total	464	919	10,468	27	83
FTE	0.0	0.1	0.5	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	1	2	8	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	2	8	0	0
FTE	0.0	0.0	0.1	0.0	0.0
Escalation to 2016\$					
Labor	1	1	4	0	0
Non-Labor	49	83	791	1	0
NSE	0	0	0	0	0
Total	49	84	796	1	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	6	13	62	3	0
Non-Labor	508	991	11,210	25	83
NSE	0	0	0	0	0
Total	514	1,004	11,272	28	83
FTE	0.0	0.1	0.6	0.0	0.0

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00008.0
 Category: A. Generation Capital
 Category-Sub: 2. Miramar Energy Facility
 Workpaper Group: 000080 - MIRAMAR PLANT OPERATIONAL ENHANCEMENTS

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
Total	0	0	0	0	0
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 000080**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00008.0
 Category: A. Generation Capital
 Category-Sub: 2. Miramar Energy Facility
 Workpaper Group: 000080 - MIRAMAR PLANT OPERATIONAL ENHANCEMENTS
 Workpaper Detail: 000080.001 - Miramar

In-Service Date: Not Applicable

Description:

Miramar Plant Operational Enhancements capital projects forecast amount is based on improvements to the plant for safety and reliability of operations and also, operation and maintenance efficiencies.

Forecast In 2016 \$(000)			
Years	2017	2018	2019
Labor	17	17	17
Non-Labor	2,563	2,563	2,563
NSE	0	0	0
Total	2,580	2,580	2,580
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
000090 - PALOMAR PLANT OPERATIONAL ENHANCEMENTS

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00009.0
 Category: A. Generation Capital
 Category-Sub: 3. Palomar Energy Center
 Workpaper Group: 000090 - PALOMAR PLANT OPERATIONAL ENHANCEMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
	Years								
Labor	5-YR Average	116	84	101	178	47	105	105	105
Non-Labor	5-YR Average	11,760	2,434	4,533	2,790	4,710	5,246	5,246	5,246
NSE	5-YR Average	0	0	0	0	0	0	0	0
	Total	11,876	2,518	4,634	2,969	4,758	5,351	5,351	5,351
FTE	5-YR Average	0.9	0.7	0.8	1.4	0.5	0.9	0.9	0.9

Business Purpose:

The purpose of PEC Operational Enhancements is to provide for capital additions and improvements at the Palomar Energy Center.

Physical Description:

Specific projects are not identified. Representative capital projects are based on projects that increase the overall reliability, operability and safety of the facility.

Project Justification:

Improvements and additions are continuous at the facility and are selected based on their ability to increase the overall reliability, operability and safety of the facility.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00009.0
Category: A. Generation Capital
Category-Sub: 3. Palomar Energy Center
Workpaper Group: 000090 - PALOMAR PLANT OPERATIONAL ENHANCEMENTS

Forecast Methodology:

Labor - 5-YR Average

The 5-YR average method and adjustments for PEC Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

Non-Labor - 5-YR Average

The 5-YR average method and adjustments for PEC Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

NSE - 5-YR Average

N/A

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00009.0
 Category: A. Generation Capital
 Category-Sub: 3. Palomar Energy Center
 Workpaper Group: 000090 - PALOMAR PLANT OPERATIONAL ENHANCEMENTS

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	105	105	105	0	0	0	105	105	105
Non-Labor	5-YR Average	5,245	5,245	5,245	1	1	1	5,246	5,246	5,246
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		5,350	5,350	5,350	1	1	1	5,351	5,351	5,351
FTE	5-YR Average	0.9	0.9	0.9	0.0	0.0	0.0	0.9	0.9	0.9

Forecast Adjustment Details

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>RefID</u>
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.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00009.0
Category: A. Generation Capital
Category-Sub: 3. Palomar Energy Center
Workpaper Group: 000090 - PALOMAR PLANT OPERATIONAL ENHANCEMENTS

Determination of Adjusted-Recorded:

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	91	91	81	150	41
Non-Labor	10,629	10,162	34,213	2,711	11,320
NSE	0	0	0	0	0
Total	10,720	10,254	34,294	2,862	11,361
FTE	0.8	0.8	0.7	1.2	0.4
Adjustments (Nominal \$)**					
Labor	0	-25	0	0	0
Non-Labor	0	-7,932	-30,000	0	-6,610
NSE	0	0	0	0	0
Total	0	-7,956	-30,000	0	-6,610
FTE	0.0	-0.2	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	91	66	81	150	41
Non-Labor	10,629	2,231	4,213	2,711	4,710
NSE	0	0	0	0	0
Total	10,720	2,297	4,294	2,862	4,751
FTE	0.8	0.6	0.7	1.2	0.4
Vacation & Sick (Nominal \$)					
Labor	13	11	13	23	7
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	13	11	13	23	7
FTE	0.1	0.1	0.1	0.2	0.1
Escalation to 2016\$					
Labor	11	7	7	5	0
Non-Labor	1,131	204	320	79	0
NSE	0	0	0	0	0
Total	1,142	211	327	84	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	116	84	101	178	47
Non-Labor	11,760	2,434	4,533	2,790	4,710
NSE	0	0	0	0	0
Total	11,876	2,518	4,634	2,969	4,758
FTE	0.9	0.7	0.8	1.4	0.5

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00009.0
 Category: A. Generation Capital
 Category-Sub: 3. Palomar Energy Center
 Workpaper Group: 000090 - PALOMAR PLANT OPERATIONAL ENHANCEMENTS

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2012	2013	2014	2015	2016	
Labor	0	-25	0	0	0	
Non-Labor	0	-7,932	-30,000	0	-6,610	
NSE	0	0	0	0	0	
Total	0	-7,956	-30,000	0	-6,610	
FTE	0.0	-0.2	0.0	0.0	0.0	

Detail of Adjustments to Recorded in Nominal \$:

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	RefID
2012 Total		0	0	0	0	0.0	
2013	Other	-10	-3,084	0	-3,094	-0.1	GSTMARIE20170221154043227
Explanation:		Remove PEC Steam Turbine Generator Gantry Crane project cost as this project is a one-time event.					
2013	Other	-15	-4,848	0	-4,863	-0.1	GSTMARIE20170221154226147
Explanation:		Remove PEC Combustion Turbine Bridge Crane project cost as this project is a one-time event.					
2013 Total		-25	-7,932	0	-7,956	-0.2	
2014	Other	0	-30,000	0	-30,000	0.0	GSTMARIE20161205145943797
Explanation:		Reduction due to one-time purchase acquisition of three sets of PEC combustion turbine hot gas path hardware. Purchase was a condition of the PEC LTSA termination agreement.					
2014 Total		0	-30,000	0	-30,000	0.0	
2015 Total		0	0	0	0	0.0	
2016	Other	0	-6,610	0	-6,610	0.0	GSTMARIE20170221160119867
Explanation:		Remove PEC Steam Turbine Generator L- 0 blades project cost as this project is not expected to reoccur.					
2016 Total		0	-6,610	0	-6,610	0.0	

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 000090**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00009.0
 Category: A. Generation Capital
 Category-Sub: 3. Palomar Energy Center
 Workpaper Group: 000090 - PALOMAR PLANT OPERATIONAL ENHANCEMENTS
 Workpaper Detail: 000090.001 - Palomar Plan Operational Improvements

In-Service Date: Not Applicable

Description:

Palomar Plant Operational Improvements capital projects forecast amount is based on improvements to the plant for safety and reliability of operations and also, operation and maintenance efficiencies.

Forecast In 2016 \$(000)			
Years	2017	2018	2019
Labor	105	105	105
Non-Labor	5,246	5,246	5,246
NSE	0	0	0
Total	5,351	5,351	5,351
FTE	0.9	0.9	0.9

Note: Totals may include rounding differences.

Beginning of Workpaper Group
000100 - DESERT STAR ENERGY CTR OPER. ENHANCE.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00010.0
 Category: A. Generation Capital
 Category-Sub: 4. Desert Star Energy Center
 Workpaper Group: 000100 - DESERT STAR ENERGY CTR OPER. ENHANCE.

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
	Years								
Labor	5-YR Average	102	181	48	15	0	69	69	69
Non-Labor	5-YR Average	2,276	5,028	4,571	1,231	3,352	3,292	3,292	3,292
NSE	5-YR Average	0	0	0	0	0	0	0	0
	Total	2,378	5,209	4,620	1,246	3,352	3,361	3,361	3,361
FTE	5-YR Average	0.9	1.4	0.4	0.1	0.0	0.6	0.6	0.6

Business Purpose:

The purpose of DSEC Operational Enhancements is to provide for capital additions and improvements at the Desert Star Energy Center.

Physical Description:

Specific projects are not identified. Representative capital projects are based on projects that increase the overall reliability, operability and safety of the facility.

Project Justification:

Improvements and additions are continuous at the facility and are selected based on their ability to increase the overall reliability, operability and safety of the facility.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00010.0
Category: A. Generation Capital
Category-Sub: 4. Desert Star Energy Center
Workpaper Group: 000100 - DESERT STAR ENERGY CTR OPER. ENHANCE.

Forecast Methodology:

Labor - 5-YR Average

The 5-YR average method for DSEC Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

Non-Labor - 5-YR Average

The 5-YR average method for DSEC Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

NSE - 5-YR Average

N/A

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00010.0
 Category: A. Generation Capital
 Category-Sub: 4. Desert Star Energy Center
 Workpaper Group: 000100 - DESERT STAR ENERGY CTR OPER. ENHANCE.

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	69	69	69	0	0	0	69	69	69
Non-Labor	5-YR Average	3,291	3,291	3,291	1	1	1	3,292	3,292	3,292
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		3,360	3,360	3,360	1	1	1	3,361	3,361	3,361
FTE	5-YR Average	0.6	0.6	0.6	0.0	0.0	0.0	0.6	0.6	0.6

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.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00010.0
Category: A. Generation Capital
Category-Sub: 4. Desert Star Energy Center
Workpaper Group: 000100 - DESERT STAR ENERGY CTR OPER. ENHANCE.

Determination of Adjusted-Recorded:

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	80	143	39	13	0
Non-Labor	2,057	4,607	4,249	1,196	3,352
NSE	0	0	0	0	0
Total	2,137	4,751	4,287	1,209	3,352
FTE	0.8	1.2	0.3	0.1	0.0
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	80	143	39	13	0
Non-Labor	2,057	4,607	4,249	1,196	3,352
NSE	0	0	0	0	0
Total	2,137	4,751	4,287	1,209	3,352
FTE	0.8	1.2	0.3	0.1	0.0
Vacation & Sick (Nominal \$)					
Labor	12	23	6	2	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	12	23	6	2	0
FTE	0.1	0.2	0.1	0.0	0.0
Escalation to 2016\$					
Labor	10	15	3	0	0
Non-Labor	219	421	323	35	0
NSE	0	0	0	0	0
Total	229	436	326	35	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	102	181	48	15	0
Non-Labor	2,276	5,028	4,571	1,231	3,352
NSE	0	0	0	0	0
Total	2,378	5,209	4,620	1,246	3,352
FTE	0.9	1.4	0.4	0.1	0.0

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00010.0
 Category: A. Generation Capital
 Category-Sub: 4. Desert Star Energy Center
 Workpaper Group: 000100 - DESERT STAR ENERGY CTR OPER. ENHANCE.

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
Total	0	0	0	0	0
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 000100**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00010.0
 Category: A. Generation Capital
 Category-Sub: 4. Desert Star Energy Center
 Workpaper Group: 000100 - DESERT STAR ENERGY CTR OPER. ENHANCE.
 Workpaper Detail: 000100.001 - Desert Star Energy Ctr Oper. Enhance
 In-Service Date: Not Applicable
 Description:

Desert Star Energy Center Operational Enhancements capital projects forecast amount is based on improvements to the plant for safety and reliability of operations and also, operation and maintenance efficiencies.

Forecast In 2016 \$(000)			
Years	2017	2018	2019
Labor	69	69	69
Non-Labor	3,292	3,292	3,292
NSE	0	0	0
Total	3,361	3,361	3,361
FTE	0.6	0.6	0.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
000110 - CUYAMACA PEAK ENERGY PLANT OPER ENHANCE

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 5. Cuyamaca Peak Energy Plant
 Workpaper Group: 000110 - CUYAMACA PEAK ENERGY PLANT OPER ENHANCE

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2012	2013	2014	2015	2016	2017	2018	2019
Years									
Labor	5-YR Average	0	4	0	35	54	19	19	19
Non-Labor	5-YR Average	238	243	2	557	1,132	434	434	434
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		238	247	2	591	1,186	453	453	453
FTE	5-YR Average	0.0	0.0	0.0	0.4	0.5	0.2	0.2	0.2

Business Purpose:

The purpose of CPEP Operational Enhancements is to provide for capital additions and improvements at the Cuyamaca Peak Energy Plant.

Physical Description:

Specific projects are not identified. Representative capital projects are based on projects that increase the overall reliability, operability and safety of the facility.

Project Justification:

Improvements and additions are continuous at the facility and are selected based on their ability to increase the overall reliability, operability and safety of the facility.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00011.0
Category: A. Generation Capital
Category-Sub: 5. Cuyamaca Peak Energy Plant
Workpaper Group: 000110 - CUYAMACA PEAK ENERGY PLANT OPER ENHANCE

Forecast Methodology:

Labor - 5-YR Average

The 5-YR average method and adjustments for CPEP Plant Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

Non-Labor - 5-YR Average

The 5-YR average method and adjustments for CPEP Plant Operational Enhancements was selected because it represents a reasonable foundation for projecting capital project needs as it includes a variety of planned and unplanned capital projects, and provides the longest history of recorded spend.

NSE - 5-YR Average

N/A

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 5. Cuyamaca Peak Energy Plant
 Workpaper Group: 000110 - CUYAMACA PEAK ENERGY PLANT OPER ENHANCE

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	18	18	18	1	1	1	19	19	19
Non-Labor	5-YR Average	434	434	434	0	0	0	434	434	434
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		452	452	452	1	1	1	453	453	453
FTE	5-YR Average	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2

Forecast Adjustment Details

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>RefID</u>
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.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 5. Cuyamaca Peak Energy Plant
 Workpaper Group: 000110 - CUYAMACA PEAK ENERGY PLANT OPER ENHANCE

Determination of Adjusted-Recorded:

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	0	3	0	29	46
Non-Labor	215	223	2	541	4,561
NSE	0	0	0	0	0
Total	215	226	2	570	4,607
FTE	0.0	0.0	0.0	0.3	0.4
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	-3,429
NSE	0	0	0	0	0
Total	0	0	0	0	-3,429
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	3	0	29	46
Non-Labor	215	223	2	541	1,132
NSE	0	0	0	0	0
Total	215	226	2	570	1,178
FTE	0.0	0.0	0.0	0.3	0.4
Vacation & Sick (Nominal \$)					
Labor	0	0	0	5	8
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	5	8
FTE	0.0	0.0	0.0	0.1	0.1
Escalation to 2016\$					
Labor	0	0	0	1	0
Non-Labor	23	20	0	16	0
NSE	0	0	0	0	0
Total	23	21	0	17	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	0	4	0	35	54
Non-Labor	238	243	2	557	1,132
NSE	0	0	0	0	0
Total	238	247	2	591	1,186
FTE	0.0	0.0	0.0	0.4	0.5

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 5. Cuyamaca Peak Energy Plant
 Workpaper Group: 000110 - CUYAMACA PEAK ENERGY PLANT OPER ENHANCE

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	-3,429	
NSE	0	0	0	0	0	
Total	0	0	0	0	-3,429	
FTE	0.0	0.0	0.0	0.0	0.0	

Detail of Adjustments to Recorded in Nominal \$:

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	RefID
2012 Total		0	0	0	0	0.0	
2013 Total		0	0	0	0	0.0	
2014 Total		0	0	0	0	0.0	
2015 Total		0	0	0	0	0.0	
2016	Other	0	-3,429	0	-3,429	0.0	GSTMARIE20170221160338880
Explanation:	Remove CPEP Engine A&B Turbine Enhancement project costs as this project is not expected to reoccur.						
2016 Total		0	-3,429	0	-3,429	0.0	

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 000110**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 5. Cuyamaca Peak Energy Plant
 Workpaper Group: 000110 - CUYAMACA PEAK ENERGY PLANT OPER ENHANCE
 Workpaper Detail: 000110.001 - Cuyamaca Peak Energy Plant Oper Enhance

In-Service Date: Not Applicable

Description:

Cuyamaca Peak Energy Plant Operational Enhancements capital projects forecast amount is based on improvements to the plant for safety and reliability of operations and also, operation and maintenance efficiencies.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		19	19	19
Non-Labor		434	434	434
NSE		0	0	0
	Total	453	453	453
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00011A - RAMP - Incremental Black Start - South Grid - CPEP

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 6. South Grid - Black Start CPEP
 Workpaper Group: 00011A - RAMP - Incremental Black Start - South Grid - CPEP

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	169	0
Non-Labor	Zero-Based	0	0	0	0	0	280	637	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	300	806	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.2	1.7	0.0

Business Purpose:

This project is required to provide black start capability for the southern part of the SDG&E electric grid.

Physical Description:

This project will install a small size gas generator at the El Cajon substation to provide black start capability to the Cuyamaca Gen1 and Gen2.

Project Justification:

Needed for overall reliability, operability and safety of the SDG&E electric grid.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00011.0
Category: A. Generation Capital
Category-Sub: 6. South Grid - Black Start CPEP
Workpaper Group: 00011A - RAMP - Incremental Black Start - South Grid - CPEP

Forecast Methodology:

Labor - Zero-Based

Zero-Based Method is used as Forecasted costs are based on project plan.

Non-Labor - Zero-Based

Zero-Based Method is used as Forecasted costs are based on project plan.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 00011A**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 6. South Grid - Black Start CPEP
 Workpaper Group: 00011A - RAMP - Incremental Black Start - South Grid - CPEP
 Workpaper Detail: 00011A.001 - RAMP - Incremental Black Start - South Grid - CPEP
 In-Service Date: 12/31/2018
 Description:

Black Start - South Grid - CPEP. This project will install a small size gas generator at the El Cajon substation to provide black start capability to the Cuyamaca Gen1 and Gen2.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		20	169	0
Non-Labor		280	637	0
NSE		0	0	0
	Total	300	806	0
FTE		0.2	1.7	0.0

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 6. South Grid - Black Start CPEP
 Workpaper Group: 00011A - RAMP - Incremental Black Start - South Grid - CPEP
 Workpaper Detail: 00011A.001 - RAMP - Incremental Black Start - South Grid - CPEP

RAMP Item # 1

RAMP Chapter: SDG&E-6

Program Name: The South Grid Black-Start Project

Program Description: The South Grid Black-Start Project is proposed for Cuyamaca Peak Energy Plant (CPEP) to serve as a black-start unit for the southern part of SDG&E electrical grid. Currently, there is work in-progress for the design, procurement and construction to implement the chosen alternative. This alternative will provide a Blackstart Resource to use the Pio Pico units as target units. The project will install a small size engine generator at El Cajon substation to provide Blackstart capability to the Cuyamaca Gen-1 and Gen-2 units.

Risk/Mitigation:

Risk: Fail to Blackstart

Mitigation: Add blackstart capabilities to the southern part of the SDG&E electric system

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	821	0	0
High	907	0	0

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Construction Start Date: 07/01/2017

Work Type: Non-Mandated

Work Type Citation: NA

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 0

Explanation:

Beginning of Workpaper Group
00011C - Otay Mesa Energy Center - Acquisition

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 7. Otay Mesa Energy Center - Acquisition
 Workpaper Group: 00011C - Otay Mesa Energy Center - Acquisition

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	0
Non-Labor	Zero-Based	0	0	0	0	0	0	280,000	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	280,000	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

Purchase of the Otay Mesa Energy Center (OMEC) is to provide electric power to the bulk electric power system operated by California Independent System Operator (CAISO).

Physical Description:

OMEC is a combined-cycle power plant that was built and is currently owned by Calpine. This plant is substantially similar to the Palomar Energy Center and uses much of the same major equipment.

Project Justification:

The power plant acquisition price of \$280 million is based on the Put option that can be exercised by OMEC in 2019 as referenced in the Power Purchase Tolling Agreement (PPTA) between SDG&E and Calpine, that was approved by the CPUC (D.06.09.021).

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00011.0
Category: A. Generation Capital
Category-Sub: 7. Otay Mesa Energy Center - Acquisition
Workpaper Group: 00011C - Otay Mesa Energy Center - Acquisition

Forecast Methodology:

Labor - Zero-Based

NA

Non-Labor - Zero-Based

The Zero-Based forecast is based on the Put option acquisition price of \$280 million that can be exercised by OMEC in 2019, as referenced in the PPTA between SDG&E and Calpine, that was approved by the CPUC (D.06.09.021).

NSE - Zero-Based

NA

**Beginning of Workpaper Sub Details for
Workpaper Group 00011C**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 7. Otay Mesa Energy Center - Acquisition
 Workpaper Group: 00011C - Otay Mesa Energy Center - Acquisition
 Workpaper Detail: 00011C.001 - Otay Mesa Energy Center (OMEC) Acquisition
 In-Service Date: 12/31/2018
 Description:

OMEC is a combined-cycle power plant that was built and is currently owned by Calpine. This plant is substantially similar to the Palomar Energy Center and uses much of the same major equipment.

Forecast In 2016 \$(000)			
Years	2017	2018	2019
Labor	0	0	0
Non-Labor	0	280,000	0
NSE	0	0	0
Total	0	280,000	0
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00011B - Otay Mesa Energy Center - Ongoing Capital

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 8. Otay Mesa Energy Center - Ongoing Capital
 Workpaper Group: 00011B - Otay Mesa Energy Center - Ongoing Capital

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	
Non-Labor	Zero-Based	0	0	0	0	0	0	5,351	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	5,351	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

The purpose of Otay Mesa Energy Center (OMEC) Operational Enhancements is to provide for capital additions and improvements at the Otay Mesa Energy Center.

Physical Description:

Specific projects are not identified. Representative capital projects for OMEC are based on increasing the overall reliability, operability and safety of the facility. After the planned OMEC acquisition in 2019, necessary plant improvement projects to confirm the plant is at an acceptable level of reliability and safety, will be identified and completed.

Project Justification:

Improvements and additions are continuous at the facility and are selected based on their ability to increase the overall reliability, operability and safety of the facility.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 00011.0
Category: A. Generation Capital
Category-Sub: 8. Otay Mesa Energy Center - Ongoing Capital
Workpaper Group: 00011B - Otay Mesa Energy Center - Ongoing Capital

Forecast Methodology:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

The Zero-Based method is used as there are no historical amounts for developing forecasted amounts for OMEC. The forecasted amount for capital project needs is based on the 2019 Adjusted Forecast of the Palomar Plant Operational Enhancements. It was selected due to the similarity and comparability of Palomar Energy Center to OMEC, in regards to capital additions and improvements.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 00011B**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 00011.0
 Category: A. Generation Capital
 Category-Sub: 8. Otay Mesa Energy Center - Ongoing Capital
 Workpaper Group: 00011B - Otay Mesa Energy Center - Ongoing Capital
 Workpaper Detail: 00011B.001 - Otay Mesa Energy Center - Capital Projects

In-Service Date: Not Applicable

Description:

Otay Mesa Energy Center (OMEC) capital projects forecast amount is based on improvements to the plant for safety and reliability of operations and also, operation and maintenance efficiencies. After the planned OMEC acquisition, necessary plant improvement projects to confirm the plant is at an acceptable level of reliability and safety, will be identified and completed.

Forecast In 2016 \$(000)			
Years	2017	2018	2019
Labor	0	0	0
Non-Labor	0	0	5,351
NSE	0	0	0
Total	0	0	5,351
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
080300 - SOLAR PHOTOVOLTAIC INITIATIVE

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 08030.0
 Category: A. Generation Capital
 Category-Sub: 9. Solar Photovoltaic Plant
 Workpaper Group: 080300 - SOLAR PHOTOVOLTAIC INITIATIVE

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	18	96	0	69	42	0	0
Non-Labor	Zero-Based	781	739	569	429	13,388	952	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		781	757	665	429	13,457	994	0	0
FTE	Zero-Based	0.0	0.1	0.7	0.0	0.6	0.5	0.0	0.0

Business Purpose:

The purpose of this program was to enhance internal expertise while contributing to SDG&E's renewable energy goals.

Physical Description:

The Ramona Solar Energy Project is a utility owned 4.95 MWdc solar photovoltaic facility that was developed under the CPUC approved Solar Energy Project program.

Project Justification:

This project enabled SDG&E to develop experience with delivery logistics and requirements of renewable energy under a PPA.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 08030.0
Category: A. Generation Capital
Category-Sub: 9. Solar Photovoltaic Plant
Workpaper Group: 080300 - SOLAR PHOTOVOLTAIC INITIATIVE

Forecast Methodology:

Labor - Zero-Based

Zero-Based Method is used as Forecasted costs are based on project plan.

Non-Labor - Zero-Based

Zero-Based Method is used as Forecasted costs are based on project plan.

NSE - Zero-Based

N/A

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 08030.0
 Category: A. Generation Capital
 Category-Sub: 9. Solar Photovoltaic Plant
 Workpaper Group: 080300 - SOLAR PHOTOVOLTAIC INITIATIVE

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	Zero-Based	42	0	0	0	0	0	42	0	0
Non-Labor	Zero-Based	952	0	0	0	0	0	952	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		994	0	0	0	0	0	994	0	0
FTE	Zero-Based	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0

Forecast Adjustment Details

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>RefID</u>
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.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
Witness: Daniel S. Baerman
Budget Code: 08030.0
Category: A. Generation Capital
Category-Sub: 9. Solar Photovoltaic Plant
Workpaper Group: 080300 - SOLAR PHOTOVOLTAIC INITIATIVE

Determination of Adjusted-Recorded:

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	0	14	77	0	59
Non-Labor	706	677	529	417	13,388
NSE	0	0	0	0	0
Total	706	691	606	417	13,447
FTE	0.0	0.1	0.6	0.0	0.5
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	14	77	0	59
Non-Labor	706	677	529	417	13,388
NSE	0	0	0	0	0
Total	706	691	606	417	13,447
FTE	0.0	0.1	0.6	0.0	0.5
Vacation & Sick (Nominal \$)					
Labor	0	2	12	0	10
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	2	12	0	10
FTE	0.0	0.0	0.1	0.0	0.1
Escalation to 2016\$					
Labor	0	2	7	0	0
Non-Labor	75	62	40	12	0
NSE	0	0	0	0	0
Total	75	63	47	12	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	0	18	96	0	69
Non-Labor	781	739	569	429	13,388
NSE	0	0	0	0	0
Total	781	757	665	429	13,457
FTE	0.0	0.1	0.7	0.0	0.6

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 08030.0
 Category: A. Generation Capital
 Category-Sub: 9. Solar Photovoltaic Plant
 Workpaper Group: 080300 - SOLAR PHOTOVOLTAIC INITIATIVE

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
Total	0	0	0	0	0
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 080300**

San Diego Gas & Electric Company
2019 GRC - APP
Capital Workpapers

Area: NEW GENERATION
 Witness: Daniel S. Baerman
 Budget Code: 08030.0
 Category: A. Generation Capital
 Category-Sub: 9. Solar Photovoltaic Plant
 Workpaper Group: 080300 - SOLAR PHOTOVOLTAIC INITIATIVE
 Workpaper Detail: 080300.001 - Solar Photovoltaic Initiative
 In-Service Date: 06/30/2017

Description:

Development and construction of the Ramona Solar Energy Project consisting of a Solar Photovoltaic facility located in the SDG&E service territory in Ramona, California.

Forecast In 2016 \$(000)				
	Years	2017	2018	2019
Labor		42	0	0
Non-Labor		952	0	0
NSE		0	0	0
	Total	994	0	0
FTE		0.5	0.0	0.0

Note: Totals may include rounding differences.