

Application of SAN DIEGO GAS & ELECTRIC)
COMPANY for authority to update its gas and)
electric revenue requirement and base rates)
effective January 1, 2024 (U 902-M))

Application No. 22-05-___

Exhibit No.: (SDG&E-06-CWP)

CAPITAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF RICK H. CHIAPA / AARON M. BELL / STEVE A. HRUBY
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

May 2022



2024 General Rate Case - APP
INDEX OF WORKPAPERS

Exhibit SDG&E-06-CWP - GAS TRANSMISSION

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San Diego Gas & Electric Company
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Capital Workpapers

Overall Summary For Exhibit No. SDG&E-06-CWP

Area:	GAS TRANSMISSION
Witness:	Rick H. Chiapa

In 2021 \$ (000)			
Adjusted-Forecast			
	2022	2023	2024
A. PIPELINE REPLACEMENTS	19,288	1,994	1,994
B. COMPRESSOR STATIONS	6,564	6,564	6,564
C. CATHODIC PROTECTION	959	959	959
D. MEASUREMENT & REGULATION STATIONS	1,637	1,637	1,637
E. SECURITY & AUXILIARY EQUIPMENT	230	317	404
F. CAPITAL TOOLS	148	148	148
Total	28,826	11,619	11,706

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
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Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Category: A. PIPELINE REPLACEMENTS
Workpaper: 004120

Summary for Category: A. PIPELINE REPLACEMENTS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	214	1,170	121	121
Non-Labor	3,822	18,118	1,873	1,873
NSE	0	0	0	0
Total	4,036	19,288	1,994	1,994
FTE	1.9	9.7	1.0	1.0

004120 GT PIPELINE REPLACEMENTS

Labor	214	1,170	121	121
Non-Labor	3,822	18,118	1,873	1,873
NSE	0	0	0	0
Total	4,036	19,288	1,994	1,994
FTE	1.9	9.7	1.0	1.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
004120 - GT PIPELINE REPLACEMENTS

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS

Summary of Results (Constant 2021 \$ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	5-YR Average	49	96	128	116	214	1,170	121	121
Non-Labor	5-YR Average	494	1,450	1,845	1,753	3,822	18,118	1,873	1,873
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		544	1,546	1,973	1,869	4,036	19,288	1,994	1,994
FTE	5-YR Average	0.5	0.8	0.9	0.9	1.9	9.7	1.0	1.0

Business Purpose:

Natural gas transmission pipelines need to be replaced due to the condition of the pipeline or hazardous conditions affecting the existing pipeline location. Some pipeline sections need to be replaced due to erosion from agricultural activities or storm water runoff. Replacements are also required due to class location changes in the vicinity of the transmission pipeline. Pipelines with a history of leakage, poor coating, or that are difficult to cathodically protect are routinely evaluated for possible replacement.

Physical Description:

Projects in this Budget Code include the cost to plan, design, permit, acquire materials, construct, commission, and mitigate impacts for the replacement of pipelines, fittings, valves, and associated pressure regulating stations and service lines. Multiple projects are completed each year ranging in size and magnitude from a few feet to several miles of replacement. Projects can involve difficult and hazardous access with many logistical challenges caused by weather or physical terrain.

Project Justification:

Pipeline replacement projects are determined due to many factors including class location changes, exposure due to erosion, and pipeline corrosion.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00412.0
Category: A. PIPELINE REPLACEMENTS
Category-Sub: 1. PIPELINE REPLACEMENTS
Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS

Forecast Methodology:

Labor - 5-YR Average

The TY 2024 forecast was established using the five-year average methodology. 2022 was adjusted upward to account for a single collectible project. SDG&E expects to see replacement work consistent with the five-year average; thus, this methodology best reflects anticipated needs. A base year forecast methodology would have overfunded this work category.

Non-Labor - 5-YR Average

The TY 2024 forecast was established using the five-year average methodology. 2022 was adjusted upward to account for a single collectible project. SDG&E expects to see replacement work consistent with the five-year average; thus, this methodology best reflects anticipated needs. A base year forecast methodology would have overfunded this work category.

NSE - 5-YR Average

None.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS

Summary of Adjustments to Forecast

In 2021 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2022	2023	2024	2022	2023	2024	2022	2023	2024
Labor	5-YR Average	121	121	121	1,049	0	0	1,170	121	121
Non-Labor	5-YR Average	1,873	1,873	1,873	16,245	0	0	18,118	1,873	1,873
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		1,994	1,994	1,994	17,294	0	0	19,288	1,994	1,994
FTE	5-YR Average	1.0	1.0	1.0	8.7	0.0	0.0	9.7	1.0	1.0

Forecast Adjustment Details

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2022	1,049	16,245	0	17,294	8.7
Explanation: Three collectible pipeline relocation projects.					
2022 Total	1,049	16,245	0	17,294	8.7
2023 Total	0	0	0	0	0.0
2024 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00412.0
Category: A. PIPELINE REPLACEMENTS
Category-Sub: 1. PIPELINE REPLACEMENTS
Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	32	66	93	88	186
Non-Labor	369	1,146	1,528	1,524	3,822
NSE	0	0	0	0	0
Total	401	1,212	1,620	1,613	4,008
FTE	0.4	0.7	0.8	0.8	1.6
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	32	66	93	88	186
Non-Labor	369	1,146	1,528	1,524	3,822
NSE	0	0	0	0	0
Total	401	1,212	1,620	1,613	4,008
FTE	0.4	0.7	0.8	0.8	1.6
Vacation & Sick (Nominal \$)					
Labor	5	10	13	13	28
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	5	10	13	13	28
FTE	0.1	0.1	0.1	0.1	0.3
Escalation to 2021\$					
Labor	13	20	22	15	0
Non-Labor	125	304	317	229	0
NSE	0	0	0	0	0
Total	138	324	339	244	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	49	96	128	116	214
Non-Labor	494	1,450	1,845	1,753	3,822
NSE	0	0	0	0	0
Total	544	1,546	1,973	1,869	4,036
FTE	0.5	0.8	0.9	0.9	1.9

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years		2017	2018	2019	2020	2021
	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>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
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Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 004120**

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GAS STOR Wells
 Workpaper Detail: 004120.001 - Pipeline Replacements, Non-collectible RAMP C3
 In-Service Date: Not Applicable

Description:

Pipeline Replacements, Non-collectible RAMP C3
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Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		61	61	61
Non-Labor		937	937	937
NSE		0	0	0
	Total	998	998	998
FTE		0.5	0.5	0.5

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS
 Workpaper Detail: 004120.001 - Pipeline Replacements, Non-collectible RAMP C3

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)

RAMP Line Item ID: C03 T1&T2

RAMP Line Item Name: Leak Repair (HCA & Non- HCA)

Tranche(s): Tranche1: Transmission - HCA; Tranche2: Transmission - Non-HCA

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	818	818	818	818	2,454	1,943	2,353
Tranche 2 Cost Estimate	180	180	180	180	540	3,946	4,777

Cost Estimate Changes from RAMP:

GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of Projects	0.00	1.00	2.00	2.00	5.00	0.00	1.00
Tranche 2 # of Projects	0.00	0.00	2.00	1.00	3.00	0.00	2.00

Work Unit Changes from RAMP:

GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	23.000	5.600
Tranche 2	34.000	5.300

RSE Changes from RAMP:

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GAS STOR Wells
 Workpaper Detail: 004120.002 - Pipeline Replacements, Collectible RAMP C4 Pipeline Relocation/ Replacement
 In-Service Date: Not Applicable
 Description:

Pipeline Replacements, Collectible RAMP C4 Pipeline Relocation/ Replacement

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		1,049	0	0
Non-Labor		16,245	0	0
NSE		0	0	0
	Total	17,294	0	0
FTE		8.7	0.0	0.0

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS
 Workpaper Detail: 004120.002 - Pipeline Replacements, Collectible RAMP C4 Pipeline Relocation/ Replacement

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)
 RAMP Line Item ID: C04 T1&T2
 RAMP Line Item Name: Pipeline Relocation/ Replacement (HCA and Non-HCA)
 Tranche(s): Tranche1: Transmission - HCA; Tranche2: Transmission - Non-HCA

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	0	14,181	0	0	14,181	1,815	2,195
Tranche 2 Cost Estimate	0	3,113	0	0	3,113	3,683	4,459

Cost Estimate Changes from RAMP:

GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of Projects	0.00	2.00	0.00	0.00	2.00	4.00	8.00
Tranche 2 # of Projects	0.00	1.00	0.00	0.00	1.00	7.00	12.00

Work Unit Changes from RAMP:

GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	46.000	131.300
Tranche 2	96.000	62.000

RSE Changes from RAMP:

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GAS STOR Wells
 Workpaper Detail: 004120.003 - Pipeline Replacements, Non-Collectible RAMP C4
 In-Service Date: Not Applicable

Description:

Pipeline Replacements, Non-Collectible RAMP C4
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Forecast In 2021 \$(000)			
Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor	30	30	30
Non-Labor	468	468	468
NSE	0	0	0
Total	<u>498</u>	<u>498</u>	<u>498</u>
FTE	0.3	0.3	0.3

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS
 Workpaper Detail: 004120.003 - Pipeline Replacements, Non-Collectible RAMP C4

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)

RAMP Line Item ID: C04 T1&T2

RAMP Line Item Name: Pipeline relocation and replacement (HCA & Non-HCA)

Tranche(s): Tranche1: Transmission - HCA; Tranche2: Transmission - Non-HCA

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	408	408	408	408	1,224	1,943	2,353
Tranche 2 Cost Estimate	90	90	90	90	270	3,946	4,777

Cost Estimate Changes from RAMP:

Details in sub .002. GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of projects	3.00	3.00	3.00	3.00	9.00	4.00	8.00
Tranche 2 # of projects	2.00	2.00	2.00	2.00	6.00	7.00	12.00

Work Unit Changes from RAMP:

Details in sub .002. GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	46.000	131.000
Tranche 2	96.000	62.000

RSE Changes from RAMP:

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00412.0
Category: A. PIPELINE REPLACEMENTS
Category-Sub: 1. PIPELINE REPLACEMENTS
Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS
Workpaper Detail: 004120.003 - Pipeline Replacements, Non-Collectible RAMP C4

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GAS STOR Wells
 Workpaper Detail: 004120.004 - Non-collectible RAMP C5
 In-Service Date: Not Applicable

Description:

Non-collectible RAMP C5

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		30	30	30
Non-Labor		468	468	468
NSE		0	0	0
	Total	498	498	498
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00412.0
 Category: A. PIPELINE REPLACEMENTS
 Category-Sub: 1. PIPELINE REPLACEMENTS
 Workpaper Group: 004120 - GT PIPELINE REPLACEMENTS
 Workpaper Detail: 004120.004 - Non-collectible RAMP C5

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)
 RAMP Line Item ID: C05 T1 & T2
 RAMP Line Item Name: Shallow Exposure (HCA & Non-HCA)
 Tranche(s): Tranche1: Transmission - HCA; Tranche2: Transmission - Non-HCA

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	408	408	408	408	1,224	2,797	3,385
Tranche 2 Cost Estimate	90	90	90	90	270	5,678	6,874

Cost Estimate Changes from RAMP:

GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of projects	4.00	5.00	5.00	5.00	15.00	2.00	6.00
Tranche 2 # of projects	1.00	1.00	1.00	1.00	3.00	12.00	15.00

Work Unit Changes from RAMP:

NGRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	5,307.000	8.600
Tranche 2	207.000	5.900

RSE Changes from RAMP:

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Category: B. COMPRESSOR STATIONS
Workpaper: 004150

Summary for Category: B. COMPRESSOR STATIONS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	903	623	623	623
Non-Labor	9,405	5,941	5,941	5,941
NSE	0	0	0	0
Total	10,308	6,564	6,564	6,564
FTE	2.6	2.4	2.4	2.4

004150 GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS

Labor	903	623	623	623
Non-Labor	9,405	5,941	5,941	5,941
NSE	0	0	0	0
Total	10,308	6,564	6,564	6,564
FTE	2.6	2.4	2.4	2.4

Note: Totals may include rounding differences.

Beginning of Workpaper Group
004150 - GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00415.0
 Category: B. COMPRESSOR STATIONS
 Category-Sub: 1. COMPRESSOR STATIONS
 Workpaper Group: 004150 - GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS

Summary of Results (Constant 2021 \$ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	5-YR Average	640	203	611	759	903	623	623	623
Non-Labor	5-YR Average	3,824	2,557	7,676	6,242	9,405	5,941	5,941	5,941
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		4,464	2,760	8,287	7,002	10,308	6,564	6,564	6,564
FTE	5-YR Average	3.7	0.8	2.5	2.4	2.6	2.4	2.4	2.4

Business Purpose:

This category includes costs associated with the installation and replacement of compressor station equipment used in operating the transmission system. The environmental and regulations associated with the operation of compressor stations requires consistent maintenance and replacement of key engine components and controls equipment to maintain acceptable emissions levels. New air quality regulations require emissions monitoring and reporting equipment along with new catalyst and combustion technology to meet lower emission levels.

Physical Description:

Individual project scopes can consist of one or a combination of the following installations: engine control panels, oxidation catalysts, evaporative ponds, cooling tower, blowdown silencer, station auxiliary systems, turbos, station physical security, and clearance pockets.

Project Justification:

This work is required to remain compliant with environmental and other regulations associated with the operation of the compressor station.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00415.0
Category: B. COMPRESSOR STATIONS
Category-Sub: 1. COMPRESSOR STATIONS
Workpaper Group: 004150 - GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS

Forecast Methodology:

Labor - 5-YR Average

The TY 2024 forecast was determined using the five-year average methodology. It is anticipated that recent modernization work will result in fewer capital improvements needed in the forecast period. SDG&E determined that the base year recorded methodology and the other historical averages would provide excess funding during the forecast period.

Non-Labor - 5-YR Average

The TY 2024 forecast was determined using the five-year average methodology. It is anticipated that recent modernization work will result in fewer capital improvements needed in the forecast period. SDG&E determined that the base year recorded methodology and the other historical averages would provide excess funding during the forecast period.

NSE - 5-YR Average

None.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00415.0
 Category: B. COMPRESSOR STATIONS
 Category-Sub: 1. COMPRESSOR STATIONS
 Workpaper Group: 004150 - GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS

Summary of Adjustments to Forecast

In 2021 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2022	2023	2024	2022	2023	2024	2022	2023	2024
Labor	5-YR Average	623	623	623	0	0	0	623	623	623
Non-Labor	5-YR Average	5,941	5,941	5,941	0	0	0	5,941	5,941	5,941
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		6,564	6,564	6,564	0	0	0	6,564	6,564	6,564
FTE	5-YR Average	2.4	2.4	2.4	0.0	0.0	0.0	2.4	2.4	2.4

Forecast Adjustment Details

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2022 Total	0	0	0	0	0.0
2023 Total	0	0	0	0	0.0
2024 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00415.0
Category: B. COMPRESSOR STATIONS
Category-Sub: 1. COMPRESSOR STATIONS
Workpaper Group: 004150 - GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	614	349	656	1,314	1,904
Non-Labor	3,498	2,557	6,738	9,140	16,158
NSE	0	0	0	0	0
Total	4,112	2,906	7,393	10,453	18,062
FTE	3.1	0.8	2.2	2.2	2.6
Adjustments (Nominal \$)**					
Labor	-198	-210	-213	-736	-1,119
Non-Labor	-644	-536	-382	-3,713	-6,753
NSE	0	0	0	0	0
Total	-842	-746	-595	-4,449	-7,872
FTE	0.1	-0.1	-0.1	-0.1	-0.3
Recorded-Adjusted (Nominal \$)					
Labor	416	139	442	578	785
Non-Labor	2,854	2,021	6,356	5,427	9,405
NSE	0	0	0	0	0
Total	3,270	2,160	6,798	6,005	10,190
FTE	3.2	0.7	2.1	2.1	2.3
Vacation & Sick (Nominal \$)					
Labor	62	21	63	82	118
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	62	21	63	82	118
FTE	0.5	0.1	0.4	0.3	0.3
Escalation to 2021\$					
Labor	162	43	105	99	0
Non-Labor	971	536	1,320	816	0
NSE	0	0	0	0	0
Total	1,133	579	1,425	915	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	640	203	611	759	903
Non-Labor	3,824	2,557	7,676	6,242	9,405
NSE	0	0	0	0	0
Total	4,464	2,760	8,287	7,002	10,308
FTE	3.7	0.8	2.5	2.4	2.6

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00415.0
 Category: B. COMPRESSOR STATIONS
 Category-Sub: 1. COMPRESSOR STATIONS
 Workpaper Group: 004150 - GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		-198	-210	-213	-736	-1,119
Non-Labor		-644	-536	-382	-3,713	-6,753
NSE		0	0	0	0	0
	Total	-842	-746	-595	-4,449	-7,872
FTE		0.1	-0.1	-0.1	-0.1	-0.3

Detail of Adjustments to Recorded in Nominal \$:

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2017	-198	-644	0	-842	0.1
Explanation:	One-sided adjustment to remove Compressor Modernization costs				
2017 Total	-198	-644	0	-842	0.1
2018	-210	-536	0	-746	-0.1
Explanation:	One-sided adjustment to remove Compressor Modernization costs				
2018 Total	-210	-536	0	-746	-0.1
2019	-213	-382	0	-595	-0.1
Explanation:	One-sided adjustment to remove Compressor Modernization costs				
2019 Total	-213	-382	0	-595	-0.1
2020	-736	-3,713	0	-4,449	-0.1
Explanation:	One-sided adjustment to remove Compressor Modernization costs				
2020 Total	-736	-3,713	0	-4,449	-0.1
2021	-1,119	-6,753	0	-7,872	-0.3
Explanation:	One-sided adjustment to remove Compressor Modernization costs				
2021 Total	-1,119	-6,753	0	-7,872	-0.3

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 004150**

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00415.0
 Category: B. COMPRESSOR STATIONS
 Category-Sub: 1. COMPRESSOR STATIONS
 Workpaper Group: 004150 - Storage Lead Abatement
 Workpaper Detail: 004150.001 - Compressor Stations, RAMP C8
 In-Service Date: Not Applicable

Description:

Compressor Stations, RAMP C8

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		623	623	623
Non-Labor		5,941	5,941	5,941
NSE		0	0	0
	Total	6,564	6,564	6,564
FTE		2.4	2.4	2.4

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00415.0
 Category: B. COMPRESSOR STATIONS
 Category-Sub: 1. COMPRESSOR STATIONS
 Workpaper Group: 004150 - GT COMPRESSOR STATIONS ADDITIONS/REPLACEMENTS
 Workpaper Detail: 004150.001 - Compressor Stations, RAMP C8

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)

RAMP Line Item ID: C08

RAMP Line Item Name: Compressor Stations - Capital

Tranche(s): Tranche1: Transmission - Facilities

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	10,308	6,564	6,564	6,564	19,692	30,131	36,474

Cost Estimate Changes from RAMP:

None.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of Projects	23.00	24.00	25.00	27.00	76.00	73.00	88.00

Work Unit Changes from RAMP:

None.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	4.000	91.000

RSE Changes from RAMP:

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Category: C. CATHODIC PROTECTION
Workpaper: 004160

Summary for Category: C. CATHODIC PROTECTION

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	54	54	54	54
Non-Labor	905	905	905	905
NSE	0	0	0	0
Total	959	959	959	959
FTE	0.6	0.6	0.6	0.6

004160 GT CATHODIC PROTECTION

Labor	54	54	54	54
Non-Labor	905	905	905	905
NSE	0	0	0	0
Total	959	959	959	959
FTE	0.6	0.6	0.6	0.6

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
004160 - GT CATHODIC PROTECTION**

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00416.0
 Category: C. CATHODIC PROTECTION
 Category-Sub: 1. CATHODIC PROTECTION
 Workpaper Group: 004160 - GT CATHODIC PROTECTION

Summary of Results (Constant 2021 \$ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Base YR Rec	86	46	10	28	54	54	54	54
Non-Labor	Base YR Rec	210	333	162	162	905	905	905	905
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		296	379	172	190	959	959	959	959
FTE	Base YR Rec	0.7	0.4	0.1	0.2	0.6	0.6	0.6	0.6

Business Purpose:

This Budget Code includes costs associated with the installation of cathodic protection equipment used to preserve the integrity of transmission pipelines by protecting them from external corrosion. These projects are mandated by federal and state minimum pipeline safety regulations, and provide for the maintenance of adequate cathodic protection on company facilities.

Physical Description:

Typical expenditures include the replacement of surface anode beds, deep well anodes and/or rectifier systems, installation of new cathodic protection stations, and applying cathodic protection to existing steel mains and service lines. Cathodic protection projects may also include the installation of new remote satellite communication technology which allows for more efficient operation and monitoring of the cathodic protection system.

Project Justification:

The application of cathodic protection provides greater system protection against corrosion. This work SDG&E to meet Federal and State safety compliance requirements, ensuring reliability of transportation into Southern California market.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00416.0
Category: C. CATHODIC PROTECTION
Category-Sub: 1. CATHODIC PROTECTION
Workpaper Group: 004160 - GT CATHODIC PROTECTION

Forecast Methodology:

Labor - Base YR Rec

The TY 2024 forecast was determined using the base year recorded methodology. SDG&E plans to complete more CP projects than have been historically completed. The historical averages would provide insufficient funding during the forecast period and therefore were not chosen for this cost category.

Non-Labor - Base YR Rec

The TY 2024 forecast was determined using the base year recorded methodology. SDG&E plans to complete more CP projects than have been historically completed. The historical averages would provide insufficient funding during the forecast period and therefore were not chosen for this cost category.

NSE - Base YR Rec

None.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00416.0
 Category: C. CATHODIC PROTECTION
 Category-Sub: 1. CATHODIC PROTECTION
 Workpaper Group: 004160 - GT CATHODIC PROTECTION

Summary of Adjustments to Forecast

In 2021 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2022	2023	2024	2022	2023	2024	2022	2023	2024
Labor	Base YR Rec	54	54	54	0	0	0	54	54	54
Non-Labor	Base YR Rec	905	905	905	0	0	0	905	905	905
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		959	959	959	0	0	0	959	959	959
FTE	Base YR Rec	0.6	0.6	0.6	0.0	0.0	0.0	0.6	0.6	0.6

Forecast Adjustment Details

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2022 Total	0	0	0	0	0.0
2023 Total	0	0	0	0	0.0
2024 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00416.0
Category: C. CATHODIC PROTECTION
Category-Sub: 1. CATHODIC PROTECTION
Workpaper Group: 004160 - GT CATHODIC PROTECTION

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	56	31	7	21	47
Non-Labor	156	264	134	141	905
NSE	0	0	0	0	0
Total	212	295	141	162	952
FTE	0.6	0.3	0.1	0.2	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	56	31	7	21	47
Non-Labor	156	264	134	141	905
NSE	0	0	0	0	0
Total	212	295	141	162	952
FTE	0.6	0.3	0.1	0.2	0.5
Vacation & Sick (Nominal \$)					
Labor	8	5	1	3	7
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	8	5	1	3	7
FTE	0.1	0.1	0.0	0.0	0.1
Escalation to 2021\$					
Labor	22	10	2	4	0
Non-Labor	53	70	28	21	0
NSE	0	0	0	0	0
Total	75	80	30	25	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	86	46	10	28	54
Non-Labor	210	333	162	162	905
NSE	0	0	0	0	0
Total	296	379	172	190	959
FTE	0.7	0.4	0.1	0.2	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
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00416.0
 Category: C. CATHODIC PROTECTION
 Category-Sub: 1. CATHODIC PROTECTION
 Workpaper Group: 004160 - GT CATHODIC PROTECTION

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
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>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
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Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 004160**

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00416.0
 Category: C. CATHODIC PROTECTION
 Category-Sub: 1. CATHODIC PROTECTION
 Workpaper Group: 004160 - GT CATHODIC PROTECTION
 Workpaper Detail: 004160.001 - Cathodic Protection, RAMP C1
 In-Service Date: Not Applicable

Description:

Cathodic Protection, RAMP C1

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		54	54	54
Non-Labor		905	905	905
NSE		0	0	0
	Total	959	959	959
FTE		0.6	0.6	0.6

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00416.0
 Category: C. CATHODIC PROTECTION
 Category-Sub: 1. CATHODIC PROTECTION
 Workpaper Group: 004160 - GT CATHODIC PROTECTION
 Workpaper Detail: 004160.001 - Cathodic Protection, RAMP C1

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)

RAMP Line Item ID: C01 - T1&T2

RAMP Line Item Name: Cathodic Protection - Capital (HCA & Non-HCA)

Tranche(s): Tranche1: Transmission - HCA; Tranche2: Transmission - Non-HCA

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	786	786	786	786	2,358	192	234
Tranche 2 Cost Estimate	173	173	173	173	519	391	475

Cost Estimate Changes from RAMP:

GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of Projects	6.00	6.00	6.00	6.00	18.00	4.00	9.00
Tranche 2 # of Projects	1.00	1.00	1.00	1.00	3.00	12.00	15.00

Work Unit Changes from RAMP:

GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	166.000	489.200
Tranche 2	54.000	387.600

RSE Changes from RAMP:

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology, as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Category: D. MEASUREMENT & REGULATION STATIONS
 Workpaper: 004080

Summary for Category: D. MEASUREMENT & REGULATION STATIONS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	267	267	267	267
Non-Labor	1,370	1,370	1,370	1,370
NSE	0	0	0	0
Total	1,637	1,637	1,637	1,637
FTE	1.6	1.6	1.6	1.6

004080 GT M&R STATIONS ADDITIONS/REPLACEMENTS

Labor	267	267	267	267
Non-Labor	1,370	1,370	1,370	1,370
NSE	0	0	0	0
Total	1,637	1,637	1,637	1,637
FTE	1.6	1.6	1.6	1.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00408.0
 Category: D. MEASUREMENT & REGULATION STATIONS
 Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
 Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS

Summary of Results (Constant 2021 \$ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Base YR Rec	246	124	234	310	267	267	267	
Non-Labor	Base YR Rec	3,124	1,145	3,288	4,131	1,370	1,370	1,370	
NSE	Base YR Rec	0	0	0	0	0	0	0	
Total		3,371	1,269	3,523	4,441	1,637	1,637	1,637	
FTE	Base YR Rec	2.1	0.9	1.4	0.7	1.6	1.6	1.6	

Business Purpose:

This Budget Code includes costs of installing and rebuilding large meter set assemblies (MSAs) for transmission-served customers and pressure limiting stations residing on the gas transmission system. These assets require replacement for three principal reasons: aging, change in use patterns and/or population encroachment, and enhancement of the transmission system to contend with gas quality and capacity issues. The capital work sustains reliable operation of critical transmission assets to the extent that they are not compromised by equipment deployed past its useful life. This includes periodic replacement of local field measurement and control equipment directly linking with Gas Operations SCADA system via remote communications.

Physical Description:

Typical expenditures includes the instrumentation necessary for the metering or regulating of natural gas in connection with transmission operations and, in particular, costs associated with additions or replacements of station piping, valves, regulators, control and communications equipment, shelters and enclosures.

Project Justification:

Requested funding includes installation of new meter and regulation equipment associated with operation of the transmission pipeline system. This includes gas meters installed to help manage gas flows and quality on the transmission system, and to provide operating information to gas operations control personnel remotely managing the gas delivery system. Also included in this category are regulating stations used to control and limit gas pressure and the flow of gas within the gas transmission system, such as city gate stations. The installation of this equipment is associated with the safe and reliable local operation of SoCalGas pipelines in conformance with DOT and CPUC requirements for the limiting of pipeline and vessel operating pressures. All pipelines must be operated within their maximum allowable operating pressure parameters, and this equipment, whether for newly-installed pipelines or, where replacement is warranted, sustains this compliance and operating integrity.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00408.0
Category: D. MEASUREMENT & REGULATION STATIONS
Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS

Forecast Methodology:

Labor - Base YR Rec

The TY 2024 forecast was determined using the base year recorded methodology. The anticipated projects in the forecast period are expected to be similar in scale to those completed in 2021. The historical average forecast methodologies would provide excess funding for the anticipated work during the forecast period.

Non-Labor - Base YR Rec

The TY 2024 forecast was determined using the base year recorded methodology. The anticipated projects in the forecast period are expected to be similar in scale to those completed in 2021. The historical average forecast methodologies would provide excess funding for the anticipated work during the forecast period.

NSE - Base YR Rec

None.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00408.0
 Category: D. MEASUREMENT & REGULATION STATIONS
 Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
 Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS

Summary of Adjustments to Forecast

In 2021 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2022	2023	2024	2022	2023	2024	2022	2023	2024
Labor	Base YR Rec	267	267	267	0	0	0	267	267	267
Non-Labor	Base YR Rec	1,370	1,370	1,370	0	0	0	1,370	1,370	1,370
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		1,637	1,637	1,637	0	0	0	1,637	1,637	1,637
FTE	Base YR Rec	1.6	1.6	1.6	0.0	0.0	0.0	1.6	1.6	1.6

Forecast Adjustment Details

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2022 Total	0	0	0	0	0.0
2023 Total	0	0	0	0	0.0
2024 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00408.0
Category: D. MEASUREMENT & REGULATION STATIONS
Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	160	85	170	236	232
Non-Labor	2,330	905	2,723	3,591	1,370
NSE	0	0	0	0	0
Total	2,490	990	2,893	3,827	1,602
FTE	1.6	0.8	1.2	0.6	1.4
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	2	0	0	0	0
NSE	0	0	0	0	0
Total	2	0	0	0	0
FTE	0.2	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	160	85	170	236	232
Non-Labor	2,331	905	2,723	3,591	1,370
NSE	0	0	0	0	0
Total	2,491	990	2,893	3,827	1,602
FTE	1.8	0.8	1.2	0.6	1.4
Vacation & Sick (Nominal \$)					
Labor	24	13	24	33	35
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	24	13	24	33	35
FTE	0.3	0.1	0.2	0.1	0.2
Escalation to 2021\$					
Labor	62	26	40	41	0
Non-Labor	793	240	566	540	0
NSE	0	0	0	0	0
Total	855	266	606	580	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	246	124	234	310	267
Non-Labor	3,124	1,145	3,288	4,131	1,370
NSE	0	0	0	0	0
Total	3,371	1,269	3,523	4,441	1,637
FTE	2.1	0.9	1.4	0.7	1.6

* 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
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00408.0
 Category: D. MEASUREMENT & REGULATION STATIONS
 Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
 Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	0	0	0	0	0
Non-Labor	2	0	0	0	0
NSE	0	0	0	0	0
Total	2	0	0	0	0
FTE	0.2	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded in Nominal \$:

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2017	0.164	2	0	2	0.2
Explanation:	Selection Forecast Error				
2017 Total	0.164	2	0	2	0.2
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020 Total	0	0	0	0	0.0
2021 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 004080**

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00408.0
 Category: D. MEASUREMENT & REGULATION STATIONS
 Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
 Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS
 Workpaper Detail: 004080.001 - Measurement and Regulation Stations, BC 418, Non-Collectible, RAMP
 In-Service Date: Not Applicable
 Description:

Measurement & Regulation Stations, BC 418, Non-collectible, RAMP
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Forecast In 2021 \$(000)			
Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor	133	133	133
Non-Labor	685	685	685
NSE	0	0	0
Total	<u>818</u>	<u>818</u>	<u>818</u>
FTE	0.8	0.8	0.8

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00408.0
 Category: D. MEASUREMENT & REGULATION STATIONS
 Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
 Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS
 Workpaper Detail: 004080.001 - Measurement and Regulation Stations, BC 418, Non-Collectible, RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)
 RAMP Line Item ID: C10 T1&T2
 RAMP Line Item Name: Measurement & Regulation - Capital (HCA & Non-HCA)
 Tranche(s): Tranche1: Transmission - HCA; Tranche2: Transmission - Non-HCA

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	670	670	670	670	2,010	634	768
Tranche 2 Cost Estimate	148	148	148	148	444	1,288	1,560

Cost Estimate Changes from RAMP:

Split between 408.01 and 408.02. GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of Projects	3.00	3.00	3.00	3.00	9.00	8.00	13.00
Tranche 2 # of Projects	1.00	1.00	1.00	1.00	3.00	19.00	24.00

Work Unit Changes from RAMP:

Split between 408.01 and 408.02. GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	10.000	86.000
Tranche 2	1.000	57.000

RSE Changes from RAMP:

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00408.0
Category: D. MEASUREMENT & REGULATION STATIONS
Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS
Workpaper Detail: 004080.001 - Measurement and Regulation Stations, BC 418, Non-Collectible, RAMP

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00408.0
 Category: D. MEASUREMENT & REGULATION STATIONS
 Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
 Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS
 Workpaper Detail: 004080.002 - Meter & Regulator Stations, BC 438 - RAMP C10
 In-Service Date: Not Applicable

Description:

Meter & Regulator Stations, BC 438, Non-collectible, RAMP C10

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	134	134	134
Non-Labor	685	685	685
NSE	0	0	0
Total	819	819	819
FTE	0.8	0.8	0.8

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00408.0
 Category: D. MEASUREMENT & REGULATION STATIONS
 Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
 Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS
 Workpaper Detail: 004080.002 - Meter & Regulator Stations, BC 438 - RAMP C10

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)

RAMP Line Item ID: C10 T1&T2

RAMP Line Item Name: Measurement & Regulation Capital HCA & Non-HCA)

Tranche(s): Tranche1: Transmission - HCA; Tranche2: Transmission - Non-HCA

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	670	670	670	670	2,010	634	768
Tranche 2 Cost Estimate	149	149	149	149	447	1,288	1,560

Cost Estimate Changes from RAMP:

Split between 408.01 and 408.02. GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of Projects	3.00	3.00	3.00	3.00	9.00	8.00	13.00
Tranche 2 # of Projects	1.00	1.00	1.00	1.00	3.00	19.00	24.00

Work Unit Changes from RAMP:

Split between 408.01 and 408.02. GRC forecast is outside the RAMP range due to an update in allocation between HCA and non-HCA tranches.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	10.000	86.000
Tranche 2	1.000	57.000

RSE Changes from RAMP:

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00408.0
Category: D. MEASUREMENT & REGULATION STATIONS
Category-Sub: 1. MEASUREMENT & REGULATION STATIONS
Workpaper Group: 004080 - GT M&R STATIONS ADDITIONS/REPLACEMENTS
Workpaper Detail: 004080.002 - Meter & Regulator Stations, BC 438 - RAMP C10

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Workpaper: 004190

Summary for Category: E. SECURITY & AUXILIARY EQUIPMENT

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	18	18	29	41
Non-Labor	212	212	288	363
NSE	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	230	230	317	404
FTE	0.2	0.2	0.3	0.2

004190 GT AUXILIARY EQUIPMENT& INFRASTRUCTURE

Labor	18	18	29	41
Non-Labor	212	212	288	363
NSE	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	230	230	317	404
FTE	0.2	0.2	0.3	0.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
004190 - GT AUXILIARY EQUIPMENT& INFRASTRUCTURE

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00419.0
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
 Workpaper Group: 004190 - GT AUXILIARY EQUIPMENT& INFRASTRUCTURE

Summary of Results (Constant 2021 \$ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Base YR Rec	53	28	24	22	18	18	29	41
Non-Labor	Base YR Rec	356	10	133	1,757	212	212	288	363
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		409	38	158	1,779	230	230	317	404
FTE	Base YR Rec	0.5	0.2	0.2	0.2	0.2	0.2	0.3	0.2

Business Purpose:

The requested funding in this category includes new installations or upgrades of aging M&R station and pipeline system control and telemetry systems which link with and provide information to, but are not a direct part of the SDG&E centralized SCADA computer system.

Physical Description:

Included are local controls and communication devices such as programmable logic controllers (PLCs), pressure transmitters, gas quality remote sensors, communication interfaces/technologies, intrusion monitoring & alerting systems and real-time video monitoring.. This equipment is used to control the flow of gas in pipelines, valves and regulator stations both locally and through the initiation of remote commands and for enhanced security for remote sites where transmission facilities are either above ground or reside in concrete vaults.

Project Justification:

This capital work contributes to the reliable operation of critical transmission assets and ensures they are not compromised by equipment deployed past its useful life or by physical sabotage that can occur in remote settings. Some assets require replacement due to aging, change in use patterns, or enhancement of the transmission system to contend with gas quality and capacity issues. Security needs evolve due to the increasingly complex environment where exposure to risk is constantly changing.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00419.0
Category: E. SECURITY & AUXILIARY EQUIPMENT
Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
Workpaper Group: 004190 - GT AUXILIARY EQUIPMENT& INFRASTRUCTURE

Forecast Methodology:

Labor - Base YR Rec

The TY 2024 forecast was determined using the base year recorded methodology. Added to this base year forecast were the costs for ten methane sensors in 2023 and twenty additional sensors in 2024. The historical average forecast methodologies would have provided funding in excess of the anticipated work during the forecast period.

Non-Labor - Base YR Rec

The TY 2024 forecast was determined using the base year recorded methodology. Added to this base year forecast were the costs for ten methane sensors in 2023 and twenty additional sensors in 2024. The historical average forecast methodologies would have provided funding in excess of the anticipated work during the forecast period.

NSE - Base YR Rec

None.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
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 Budget Code: 00419.0
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
 Workpaper Group: 004190 - GT AUXILIARY EQUIPMENT& INFRASTRUCTURE

Summary of Adjustments to Forecast

In 2021 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2022	2023	2024	2022	2023	2024	2022	2023	2024
Labor	Base YR Rec	18	18	18	0	11	23	18	29	41
Non-Labor	Base YR Rec	212	212	212	0	76	151	212	288	363
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		230	230	230	0	87	174	230	317	404
FTE	Base YR Rec	0.2	0.2	0.2	0.0	0.1	0.0	0.2	0.3	0.2

Forecast Adjustment Details

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2022 Total	0	0	0	0	0.0
2023	11	76	0	87	0.1
Explanation:	Adjustment for the installation of 10 CCM methane detectors,				
2023 Total	11	76	0	87	0.1
2024	23	151	0	174	0.2
Explanation:	Adjustment for the installation of 20 CCM methane detectors.				
2024 Total	23	151	0	174	0.2

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00419.0
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
 Workpaper Group: 004190 - GT AUXILIARY EQUIPMENT& INFRASTRUCTURE

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	34	20	18	17	16
Non-Labor	266	8	111	1,528	212
NSE	0	0	0	0	0
Total	300	27	128	1,544	228
FTE	0.4	0.2	0.2	0.2	0.2
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	34	20	18	17	16
Non-Labor	266	8	111	1,528	212
NSE	0	0	0	0	0
Total	300	27	128	1,544	228
FTE	0.4	0.2	0.2	0.2	0.2
Vacation & Sick (Nominal \$)					
Labor	5	3	3	2	2
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	5	3	3	2	2
FTE	0.1	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	13	6	4	3	0
Non-Labor	90	2	23	230	0
NSE	0	0	0	0	0
Total	104	8	27	233	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	53	28	24	22	18
Non-Labor	356	10	133	1,757	212
NSE	0	0	0	0	0
Total	409	38	158	1,779	230
FTE	0.5	0.2	0.2	0.2	0.2

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00419.0
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
 Workpaper Group: 004190 - GT AUXILIARY EQUIPMENT& INFRASTRUCTURE

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
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>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
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Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 004190**

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00419.0
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
 Workpaper Group: 004190 - GAS STOR Aux Equip & Infrastr
 Workpaper Detail: 004190.001 - Auxiliary Equipment & Security Upgrades, RAMP C13
 In-Service Date: Not Applicable

Description:

Auxiliary Equipment & Security Upgrades, RAMP C13

Forecast In 2021 \$(000)			
Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor	18	18	18
Non-Labor	212	212	212
NSE	0	0	0
Total	<u>230</u>	<u>230</u>	<u>230</u>
FTE	0.2	0.2	0.1

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00419.0
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
 Workpaper Group: 004190 - GT AUXILIARY EQUIPMENT& INFRASTRUCTURE
 Workpaper Detail: 004190.001 - Auxiliary Equipment & Security Upgrades, RAMP C13

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-3 Incident Related to the High Pressure System (Excluding Dig-in)

RAMP Line Item ID: C13

RAMP Line Item Name: Security and Auxiliary Equipment

Tranche(s): Tranche1: Overall

GRC Forecast Cost Estimates (\$000)

	2021 Historical Embedded Costs (2021 \$)	2022 Forecast (2021 \$)	2023 Forecast (2021 \$)	2024 Forecast (2021 \$)	2022 to 2024 Forecast (2021 \$)	2022 to 2024 RAMP Range (2020 Incurred \$)	
						Low	High
Tranche 1 Cost Estimate	230	230	230	230	690	2,095	2,536

Cost Estimate Changes from RAMP:

None.

GRC Work Unit/Activity Level Estimates

Unit of Measure	2021 Historical Embedded Activities	2022 Forecast Activities	2023 Forecast Activities	2024 Forecast Activities	2022 to 2024 Forecast Activities	2022 to 2024 RAMP Range Activities	
						Low	High
Tranche 1 # of Projects	5.00	4.00	4.00	4.00	12.00	12.00	15.00

Work Unit Changes from RAMP:

2020 units used for 2021.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	4.000	1.000

RSE Changes from RAMP:

General changes to risks scores or RSE values are primarily due to changes in the MAVF and RSE methodology , as discussed in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (SDG&E-03, Chapter 2).

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00419.0
 Category: E. SECURITY & AUXILIARY EQUIPMENT
 Category-Sub: 1. SECURITY & AUXILIARY EQUIPMENT
 Workpaper Group: 004190 - GAS STOR Aux Equip & Infrastr
 Workpaper Detail: 004190.002 - CCM Methane Sensors

In-Service Date: Not Applicable

Description:

CCM Methane Sensors

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	11	23
Non-Labor		0	76	151
NSE		0	0	0
	Total	0	87	174
FTE		0.0	0.1	0.1

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Category: F. CAPITAL TOOLS
Workpaper: 004360

Summary for Category: F. CAPITAL TOOLS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	13	13	13	13
Non-Labor	356	135	135	135
NSE	0	0	0	0
Total	369	148	148	148
FTE	0.1	0.1	0.1	0.1

004360 GT CAPITAL TOOLS

Labor	13	13	13	13
Non-Labor	356	135	135	135
NSE	0	0	0	0
Total	369	148	148	148
FTE	0.1	0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
004360 - GT CAPITAL TOOLS

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00436.0
 Category: F. CAPITAL TOOLS
 Category-Sub: 1. CAPITAL TOOLS
 Workpaper Group: 004360 - GT CAPITAL TOOLS

Summary of Results (Constant 2021 \$ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	5-YR Average	13	0	20	18	13	13	13	13
Non-Labor	5-YR Average	121	23	112	63	356	135	135	135
NSE	5-YR Average	0	0	0	0	0	0	0	0
	Total	134	23	133	81	369	148	148	148
FTE	5-YR Average	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.1

Business Purpose:

The requested funding in this category includes new tools for transmission capital. Often these tools are purchased to replace broken tools or tools that have passed their expected useful life.

Physical Description:

This cost category includes tools used to work on and maintain the transmission system.

Project Justification:

These capital tools contribute to reliable operation of critical transmission assets. Some of the assets in this category require replacement due to aging, change in use patterns, or the enhancement of the transmission system.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00436.0
Category: F. CAPITAL TOOLS
Category-Sub: 1. CAPITAL TOOLS
Workpaper Group: 004360 - GT CAPITAL TOOLS

Forecast Methodology:

Labor - 5-YR Average

The TY 2024 forecast was established using the five-year average methodology. Routine tool purchase requirements are identified throughout each year as part of the regular course of maintenance and construction activities and are expected to continue during the forecast period. The base year recorded methodology would provide funding in excess of what the need will be during the forecast period.

Non-Labor - 5-YR Average

The TY 2024 forecast was established using the five-year average methodology. Routine tool purchase requirements are identified throughout each year as part of the regular course of maintenance and construction activities and are expected to continue during the forecast period. The base year recorded methodology would provide funding in excess of what the need will be during the forecast period.

NSE - 5-YR Average

None.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00436.0
 Category: F. CAPITAL TOOLS
 Category-Sub: 1. CAPITAL TOOLS
 Workpaper Group: 004360 - GT CAPITAL TOOLS

Summary of Adjustments to Forecast

In 2021 \$ (000)										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2022	2023	2024	2022	2023	2024	2022	2023	2024
Labor	5-YR Average	13	13	13	0	0	0	13	13	13
Non-Labor	5-YR Average	135	135	135	0	0	0	135	135	135
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		148	148	148	0	0	0	148	148	148
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

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2022 Total	0	0	0	0	0.0
2023 Total	0	0	0	0	0.0
2024 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
Witness: Rick H. Chiapa
Budget Code: 00436.0
Category: F. CAPITAL TOOLS
Category-Sub: 1. CAPITAL TOOLS
Workpaper Group: 004360 - GT CAPITAL TOOLS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	8	0	15	14	12
Non-Labor	91	18	93	55	356
NSE	0	0	0	0	0
Total	99	18	108	68	367
FTE	0.1	0.0	0.2	0.2	0.1
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	8	0	15	14	12
Non-Labor	91	18	93	55	356
NSE	0	0	0	0	0
Total	99	18	108	68	367
FTE	0.1	0.0	0.2	0.2	0.1
Vacation & Sick (Nominal \$)					
Labor	1	0	2	2	2
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	0	2	2	2
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	3	0	4	2	0
Non-Labor	31	5	19	8	0
NSE	0	0	0	0	0
Total	34	5	23	11	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	13	0	20	18	13
Non-Labor	121	23	112	63	356
NSE	0	0	0	0	0
Total	134	23	133	81	369
FTE	0.1	0.0	0.2	0.2	0.1

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00436.0
 Category: F. CAPITAL TOOLS
 Category-Sub: 1. CAPITAL TOOLS
 Workpaper Group: 004360 - GT CAPITAL TOOLS

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years		2017	2018	2019	2020	2021
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>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
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Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 004360**

San Diego Gas & Electric Company
2024 GRC - APP
Capital Workpapers

Area: GAS TRANSMISSION
 Witness: Rick H. Chiapa
 Budget Code: 00436.0
 Category: F. CAPITAL TOOLS
 Category-Sub: 1. CAPITAL TOOLS
 Workpaper Group: 004360 - GT CAPITAL TOOLS
 Workpaper Detail: 004360.001 - Capital Tools
 In-Service Date: Not Applicable

Description:

Capital Tools

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		13	13	13
Non-Labor		135	135	135
NSE		0	0	0
	Total	148	148	148
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.