

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. 22-05-016

Exhibit No.: (SDG&E-11-CWP-R)

REVISED CAPITAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF OLIVA L. REYES
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

AUGUST 2022



**2024 General Rate Case - REVISED
INDEX OF WORKPAPERS**

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

Overall Summary For Exhibit No. SDG&E-11-CWP-R

Area:	ELECTRIC DISTRIBUTION
Witness:	Oliva L. Reyes

In 2021 \$ (000)			
Adjusted-Forecast			
	2022	2023	2024
A. CAPACITY/EXPANSION	23,793	21,442	17,977
B. EQUIP/TOOLS/MISC	2,542	2,542	2,542
C. FRANCHISE	44,112	70,370	88,512
D. MANDATED	31,943	33,761	33,761
E. MATERIALS	28,827	30,255	31,755
F. NEW BUSINESS	69,603	60,381	58,435
G. OVERHEAD POOLS	169,428	196,603	152,003
H. RELIABILITY/IMPROVEMENTS	77,681	130,398	68,342
I. SAFETY & RISK MANAGEMENT	22,310	32,343	33,025
K. TRANSMISSION/FERC DRIVEN PROJECTS	12,689	12,331	11,185
Total	482,928	590,426	497,537

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

Summary for Category: A. CAPACITY/EXPANSION

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	690	1,879	2,175	1,950
Non-Labor	11,254	21,914	19,267	16,027
NSE	0	0	0	0
Total	11,944	23,793	21,442	17,977
FTE	3.8	18.3	20.4	18.3

002090 Field Shunt Capacitors

Labor	69	57	57	57
Non-Labor	1,039	638	638	638
NSE	0	0	0	0
Total	1,108	695	695	695
FTE	0.4	0.3	0.3	0.3

202600 C1154 EG Offload GE3233 DDOR 2020

Labor	0	154	0	0
Non-Labor	0	2,030	0	0
NSE	0	0	0	0
Total	0	2,184	0	0
FTE	0.0	1.8	0.0	0.0

212460 C235, CRE:Reconductor

Labor	219	31	0	0
Non-Labor	521	50	0	0
NSE	0	0	0	0
Total	740	81	0	0
FTE	1.2	0.4	0.0	0.0

212470 C50, PTL: Reco and Capacitor

Labor	0	62	0	0
Non-Labor	91	535	0	0
NSE	0	0	0	0
Total	91	597	0	0
FTE	0.0	0.7	0.0	0.0

212480 C139, VN: Cutover to C138 – DDOR 2021

Labor	2	26	0	0
Non-Labor	312	310	0	0
NSE	0	0	0	0
Total	314	336	0	0
FTE	0.0	0.3	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
002280 Reactive Small Capital Projects				
Labor	170	318	318	318
Non-Labor	799	940	940	940
NSE	0	0	0	0
Total	969	1,258	1,258	1,258
FTE	0.9	1.8	1.8	1.8
012950 Load Research/DLP Electric Metering Project				
Labor	0	92	0	0
Non-Labor	0	300	0	0
NSE	0	0	0	0
Total	0	392	0	0
FTE	0.0	0.8	0.0	0.0
082530 Substation 12kV Capacitor Upgrades				
Labor	19	86	411	412
Non-Labor	358	1,636	872	873
NSE	0	0	0	0
Total	377	1,722	1,283	1,285
FTE	0.1	0.7	3.5	3.5
082600 CHOLLAS WEST-NEW 12KV C1047				
Labor	5	77	0	0
Non-Labor	992	1,375	0	0
NSE	0	0	0	0
Total	997	1,452	0	0
FTE	0.0	0.9	0.0	0.0
182520 C724, IB: New 12kV Circuit				
Labor	29	63	0	0
Non-Labor	3,602	590	0	0
NSE	0	0	0	0
Total	3,631	653	0	0
FTE	0.2	0.8	0.0	0.0
18261A C1480, VN: New Circuit C1480				
Labor	0	308	31	0
Non-Labor	0	4,025	280	0
NSE	0	0	0	0
Total	0	4,333	311	0
FTE	0.0	3.5	0.4	0.0
192560 C1119, CH: New 12kV Circuit				
Labor	0	0	246	0
Non-Labor	0	0	2,980	0
NSE	0	0	0	0
Total	0	0	3,226	0
FTE	0.0	0.0	2.3	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
202470 PLANNED INVESTMENTS				
Labor	61	236	236	236
Non-Labor	1,216	3,300	3,300	3,300
NSE	0	0	0	0
Total	1,277	3,536	3,536	3,536
FTE	0.4	2.7	2.7	2.7
20252A C493, OT: Reconductor				
Labor	0	144	0	0
Non-Labor	0	1,600	0	0
NSE	0	0	0	0
Total	0	1,744	0	0
FTE	0.0	1.6	0.0	0.0
21251A C1162, BD: New C1162				
Labor	0	51	82	0
Non-Labor	0	638	1,035	0
NSE	0	0	0	0
Total	0	689	1,117	0
FTE	0.0	0.6	0.9	0.0
212580 C369, S: New 12kV Twin Circuit				
Labor	0	26	10	0
Non-Labor	0	591	106	0
NSE	0	0	0	0
Total	0	617	116	0
FTE	0.0	0.3	0.1	0.0
212760 FUTURE CAPACITY PROJECTS				
Labor	0	0	636	779
Non-Labor	0	0	5,760	6,920
NSE	0	0	0	0
Total	0	0	6,396	7,699
FTE	0.0	0.0	7.3	8.9
972480 Distribution System Capacity Improvement				
Labor	116	148	148	148
Non-Labor	2,324	3,356	3,356	3,356
NSE	0	0	0	0
Total	2,440	3,504	3,504	3,504
FTE	0.6	1.1	1.1	1.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
002090 - Field Shunt Capacitors**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00209.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 002090 - Field Shunt Capacitors

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	58	21	32	106	69	57	57	57
Non-Labor	5-YR Average	942	288	-7	927	1,039	638	638	638
NSE	5-YR Average	0	0	0	0	0	0	0	0
	Total	1,001	309	25	1,033	1,109	695	695	695
FTE	5-YR Average	0.4	0.1	0.2	0.5	0.4	0.3	0.3	0.3

Business Purpose:

This budget code provides funding for Shunt capacitors installed on electric distribution circuits improve power factor and reduce the ampere loading on distribution circuits, substation transformers, transmission lines, and from generators. Capacitors installed on distribution circuits also improve system voltage and voltage control on both distribution circuits and transmission lines. Shunt capacitors are required to achieve the present design standard of 0.995 (lagging) at the substation bus and to help maintain this standard in the future years.

Physical Description:

This project provides installation of overhead and underground shunt capacitors on 4kV and 12kV distribution circuits, and also replaces capacitors that do not comply with SDG&E's current standards.

The scope of this project includes 8 capacitors annually.

Project Justification:

Capacitors are needed to efficiently supply increasing reactive power associated with increased load growth . Aligning with SDG&E's design standards, these requirements include maintaining a system factor of at least 0.995 lag measured at the bus. This budget code forecast also supports relocating existing capacitors that do not comply with SDG&E current standards in capacitor placement.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00209.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. Field Shunt Capacitors
Workpaper Group: 002090 - Field Shunt Capacitors

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for Field Shunt Capacitors is a 5-year average, based on historical data. This is the most appropriate methodology, as workload can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

The forecast method used for Field Shunt Capacitors is a 5-year average, based on historical data. This is the most appropriate methodology, as workload can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 5-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00209.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 002090 - Field Shunt Capacitors

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	57	57	57	0	0	0	57	57	57
Non-Labor	5-YR Average	638	638	638	0	0	0	638	638	638
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		695	695	695	0	0	0	695	695	695
FTE	5-YR Average	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00209.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. Field Shunt Capacitors
Workpaper Group: 002090 - Field Shunt Capacitors

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	41	16	26	91	60
Non-Labor	762	252	-6	887	1,039
NSE	0	0	0	0	0
Total	802	268	19	979	1,100
FTE	0.3	0.1	0.2	0.1	0.0
Adjustments (Nominal \$)**					
Labor	2	0	0	-3	0
Non-Labor	26	0	0	-1	0
NSE	0	0	0	0	0
Total	28	0	0	-4	0
FTE	0.1	0.0	0.0	0.3	0.3
Recorded-Adjusted (Nominal \$)					
Labor	42	16	26	89	60
Non-Labor	788	252	-6	887	1,039
NSE	0	0	0	0	0
Total	830	268	19	975	1,100
FTE	0.4	0.1	0.2	0.4	0.3
Vacation & Sick (Nominal \$)					
Labor	6	2	4	13	9
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	6	2	4	13	9
FTE	0.0	0.0	0.0	0.1	0.1
Escalation to 2021\$					
Labor	10	3	3	5	0
Non-Labor	155	35	-1	41	0
NSE	0	0	0	0	0
Total	164	38	2	45	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	58	21	32	106	69
Non-Labor	942	288	-7	927	1,039
NSE	0	0	0	0	0
Total	1,001	309	25	1,033	1,109
FTE	0.4	0.1	0.2	0.5	0.4

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00209.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 002090 - Field Shunt Capacitors

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		2	0	0	-3	0
Non-Labor		26	0	0	-1	0
NSE		0	0	0	0	0
	Total	28	0	0	-4	0
FTE		0.1	0.0	0.0	0.3	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	2	26	0	28	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	2	26	0	28	0.1
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	-3	-0.903	0	-4	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-3	-0.903	0	-4	0.3
2021	0.001	0	0	0.001	0.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.3

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002090**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00209.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 002090 - Field Shunt Capacitors
 Workpaper Detail: 002090.001 - Field Shunt Capacitors
 In-Service Date: Not Applicable

Description:

Installation of overhead and underground shunt capacitors on 4kV and 12kV distribution circuits.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		57	57	57
Non-Labor		638	638	638
NSE		0	0	0
	Total	695	695	695
FTE		0.3	0.3	0.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
202600 - C1154 EG Offload GE3233 DDOR 2020

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 202600 - C1154 EG Offload GE3233 DDOR 2020

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	0	154	0	0
Non-Labor	Zero-Based	0	0	0	0	0	2,030	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	2,184	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0

Business Purpose:

This project will install a new 12kV circuit (C1154) at East Gate substation to mitigate forecast overloading on this circuit from new load growth.

Physical Description:

Install 9,900 feet of cable; trench and install 3,800 feet of conduits in 2022, install one switch and install one capacitor bank in 2022.

Project Justification:

This project mitigates forecasted overloading on 12kV circuits C272, C744, and BE3233 out of East Gate substation due to load growth in that area.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20260.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. Field Shunt Capacitors
Workpaper Group: 202600 - C1154 EG Offload GE3233 DDOR 2020

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1154,EG: New Circuit C1154 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C1154,EG: New Circuit C1154 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 202600 - C1154 EG Offload GE3233 DDOR 2020

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	Zero-Based	154	0	0	0	0	0	154	0	0
Non-Labor	Zero-Based	2,030	0	0	0	0	0	2,030	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		2,184	0	0	0	0	0	2,184	0	0
FTE	Zero-Based	1.8	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 202600 - C1154 EG Offload GE3233 DDOR 2020

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
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	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
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 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
Recorded-Adjusted (Constant 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

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 202600 - C1154 EG Offload GE3233 DDOR 2020

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 202600**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 202600 - C1154 EG Offload GE3233 DDOR 2020
 Workpaper Detail: 202600.001 - C1154 EG Offload GE3233
 In-Service Date: 12/31/2022

Description:

Install approximately 9,900 feet of cable; trench and install approximately 3,800 feet of conduits, install one switch and install one capacitor bank.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		154	0	0
Non-Labor		2,030	0	0
NSE		0	0	0
	Total	2,184	0	0
FTE		1.8	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 202600

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 20260
Estimated In Service Date: 12/31/2022

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE	Labor	Non-RAMP	ea	1.5	\$ 100,000					\$ -	Represents estimated internal labor for this specific scope of work.
2	Contractor Services	Non-Labor	Non-RAMP	ea	14	\$ 100,000					\$ -	Represents estimated contractor labor for this specific scope of work.
3	Material	Non-Labor	Non-RAMP	ea	1	\$ 630,000					\$ -	Represents cost of all material such as cable, connections, switches, capacitors, trench and conduit etc.
4	FTE	Labor	Non-RAMP	V&S	0.3	\$ 15,020					\$ -	

Summary													
Subtotal RAMP		Labor	RAMP										
Subtotal Non-RAMP		Non-Labor	Non-RAMP										
Total Project Forecast													

**Beginning of Workpaper Group
212460 - C235, CRE:Reconductor**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21246.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212460 - C235, CRE:Reconductor

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	219	31	0	0
Non-Labor	Zero-Based	0	0	0	0	521	50	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	741	81	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	1.2	0.4	0.0	0.0

Business Purpose:

This project reconductors a section of 12kV circuit to provide additional load carry capacity to address a forecast overload situation due to new load.

Physical Description:

Reconducted 850 ft of cable of Creelman circuit C235 in 2021. Remaining work in 2022 is for trailing costs to close out the project.

Project Justification:

This project mitigates forecasted overloading on 12kV circuits C235 due to load growth in that area.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21246.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. Field Shunt Capacitors
Workpaper Group: 212460 - C235, CRE:Reconductor

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C235, CRE:Reconductor is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C235, CRE:Reconductor is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21246.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212460 - C235, CRE:Reconductor

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	Zero-Based	31	0	0	0	0	0	31	0	0
Non-Labor	Zero-Based	50	0	0	0	0	0	50	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		81	0	0	0	0	0	81	0	0
FTE	Zero-Based	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21246.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212460 - C235, CRE:Reconductor

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	191
Non-Labor	0	0	0	0	521
NSE	0	0	0	0	0
Total	0	0	0	0	712
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	1.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	0	0	191
Non-Labor	0	0	0	0	521
NSE	0	0	0	0	0
Total	0	0	0	0	712
FTE	0.0	0.0	0.0	0.0	1.0
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	29
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	29
FTE	0.0	0.0	0.0	0.0	0.2
Escalation to 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	219
Non-Labor	0	0	0	0	521
NSE	0	0	0	0	0
Total	0	0	0	0	741
FTE	0.0	0.0	0.0	0.0	1.2

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21246.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212460 - C235, CRE:Reconductor

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	1.0

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 Total	0	0	0	0	0.0
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	0.001	0	0	0.001	1.0
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	1.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 212460**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21246.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212460 - C235, CRE:Reconductor
 Workpaper Detail: 212460.001 - C235, CRE:Reconductor
 In-Service Date: 05/31/2022

Description:

Reconductor 850 ft of cable of Creelman circuit C235

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		31	0	0
Non-Labor		50	0	0
NSE		0	0	0
	Total	81	0	0
FTE		0.4	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 212460

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21246
Estimated In Service Date: 5/31/2022

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE	Labor	Non-RAMP	ea	0.300	\$ 100,000					\$ -	
2	Contractors	Non-Labor	Non-RAMP	ea	0.5	\$ 100,000					\$ -	Represents estimated internal labor for this specific scope of work.
3	Material	Non-Labor	Non-RAMP	ea							\$ 50,000	Represents estimated contractor labor for this specific scope of work.
4	FTE	Labor	Non-RAMP	V&S	0.051	\$ 15,000					\$ -	Material was paid in prior years.
											\$ 769	
Summary												
		Labor	RAMP								\$ -	
		Non-Labor	RAMP								\$ -	
											\$ -	
		Labor	Non-RAMP								\$ 30,769	
		Non-Labor	Non-RAMP								\$ 50,000	
											\$ 80,769	
											\$ -	
											\$ -	
											\$ -	
											\$ 80,769	

**Beginning of Workpaper Group
212470 - C50, PTL: Reco and Capacitor**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212470 - C50, PTL: Reco and Capacitor

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	62	0	0
Non-Labor	Zero-Based	0	0	0	0	91	535	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	91	597	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0

Business Purpose:

This project reconductors a section of 12kV circuit to provide additional load carry capacity to address a forecast overload situation due to new load.

Physical Description:

all 1800 ft of cable and install one (1) capacitor bank in 2022.

Project Justification:

Increasing the circuits capacity to accomodate future load growth.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21247.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. Field Shunt Capacitors
Workpaper Group: 212470 - C50, PTL: Reco and Capacitor

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C50, PTL: Reco and Capacitor is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C50, PTL: Reco and Capacitor is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212470 - C50, PTL: Reco and Capacitor

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	Zero-Based	62	0	0	0	0	0	62	0	0
Non-Labor	Zero-Based	535	0	0	0	0	0	535	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		597	0	0	0	0	0	597	0	0
FTE	Zero-Based	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212470 - C50, PTL: Reco and Capacitor

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	91
NSE	0	0	0	0	0
Total	0	0	0	0	91
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	0	0	0
Non-Labor	0	0	0	0	91
NSE	0	0	0	0	0
Total	0	0	0	0	91
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 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	91
NSE	0	0	0	0	0
Total	0	0	0	0	91
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212470 - C50, PTL: Reco and Capacitor

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 212470**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212470 - C50, PTL: Reco and Capacitor
 Workpaper Detail: 212470.001 - C50, PTL: Reco and Capacitor
 In-Service Date: 06/30/2022

Description:

C50, PTL: Reco and Capacitor. Install 1800 ft of cable and install one (1) capacitor bank.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		62	0	0
Non-Labor		535	0	0
NSE		0	0	0
	Total	597	0	0
FTE		0.7	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 212470

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21247
Estimated In Service Date: 6/1/2022

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE	Labor	Non-RAMP	ea	0.6	\$ 100,000					\$ 60,000	Represents estimated internal labor for this specific scope of work.
2	Contractors	Non-Labor	Non-RAMP	ea	5	\$ 100,000					\$ 500,000	Represents estimated contractor labor for this specific scope of work.
3	Material	Non-Labor	Non-RAMP	ea	1	\$ 35,000					\$ 35,000	Some material was paid in prior years. Represents cost of all material such as cable, capacitors etc.
4	FTE	Labor	Non-RAMP	V&S	0.1	\$ 15,020					\$ 1,537	
Summary												
		Labor	RAMP									
		Non-Labor	RAMP									
	Subtotal RAMP											
		Labor	Non-RAMP			\$ 61,537					\$ 61,537	
		Non-Labor	Non-RAMP			\$ 535,000					\$ 535,000	
	Subtotal Non-RAMP					\$ 596,537					\$ 596,537	
	Total Project Forecast					\$ 596,537					\$ 596,537	

Beginning of Workpaper Group
212480 - C139, VN: Cutover to C138 – DDOR 2021

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212480 - C139, VN: Cutover to C138 – DDOR 2021

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	2	26	0	0
Non-Labor	Zero-Based	0	0	0	0	312	310	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	314	336	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Business Purpose:

The purpose on this project is to cut overload on Vine C 139. The new load in the area will result on overloading the existing circuit.

Physical Description:

Install 1000 ft of cable and one switch in 2022.

Project Justification:

Circuits C139 is projected to be overloaded with a new load in the area. This cut over will mitigate these new additional load.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21248.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. Field Shunt Capacitors
Workpaper Group: 212480 - C139, VN: Cutover to C138 – DDOR 2021

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C139, VN: Cutover to C138 – DDOR 2021 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C139, VN: Cutover to C138 – DDOR 2021 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212480 - C139, VN: Cutover to C138 – DDOR 2021

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	Zero-Based	26	0	0	0	0	0	26	0	0
Non-Labor	Zero-Based	310	0	0	0	0	0	310	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		336	0	0	0	0	0	336	0	0
FTE	Zero-Based	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212480 - C139, VN: Cutover to C138 – DDOR 2021

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	2
Non-Labor	0	0	0	0	312
NSE	0	0	0	0	0
Total	0	0	0	0	313
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	0	0	2
Non-Labor	0	0	0	0	312
NSE	0	0	0	0	0
Total	0	0	0	0	313
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 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	2
Non-Labor	0	0	0	0	312
NSE	0	0	0	0	0
Total	0	0	0	0	314
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212480 - C139, VN: Cutover to C138 – DDOR 2021

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 212480**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 1. Field Shunt Capacitors
 Workpaper Group: 212480 - C139, VN: Cutover to C138 – DDOR 2021
 Workpaper Detail: 212480.001 - C139, VN: Cutover to C138
 In-Service Date: 06/30/2022

Description:

C139, VN: Cutover to C138. Install 1000 ft of cable and install one switch.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	26	0	0
Non-Labor	310	0	0
NSE	0	0	0
Total	336	0	0
FTE	0.3	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 212480

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21248
Estimated In Service Date: 6/1/2022

Line Item	C139, VN: Cutover to C138	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
						# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE	Labor	Non-RAMP	ea	0.25	\$ 100,000	\$ 25,000					\$ 25,000	Represents estimated internal labor for this specific scope of work.
2	Contractor Services	Non-Labor	Non-RAMP	ea	2	\$ 100,000	\$ 225,000					\$ 225,000	Represents estimated contractor labor for this specific scope of work.
3	Material	Non-Labor	Non-RAMP	ea	1	\$ 85,000	\$ 85,000					\$ 85,000	Some material was paid in prior years. Represents cost of all material such as cable, switches etc.
4	FTE	Labor	Non-RAMP	V&S	0.04	\$ 15,020	\$ 641					\$ 641	

Summary													
		Labor	RAMP										
		Non-Labor	Non-RAMP										
Subtotal RAMP						\$ 25,641	\$ 310,000	\$ 25,641	\$ 310,000	\$ 25,641	\$ 310,000	\$ 335,641	
Subtotal Non-RAMP						\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	
Total Project Forecast						\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	\$ 395,641	

Beginning of Workpaper Group
002280 - Reactive Small Capital Projects

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00228.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 002280 - Reactive Small Capital Projects

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	47	76	215	1,080	170	318	318	318
Non-Labor	5-YR Average	1,033	447	802	1,619	799	940	940	940
NSE	5-YR Average	0	0	0	0	0	0	0	0
	Total	1,080	523	1,017	2,699	969	1,258	1,258	1,258
FTE	5-YR Average	0.2	0.4	1.4	5.9	0.9	1.8	1.8	1.8

Business Purpose:

This blanket budget provides funding for reactive small capital projects that are required to address primary distribution system overloads, voltage related issues and meeting and maintaining current SDG&E design standards that require quick modifications to the system. It is intended for projects that are not part of the distribution planning process. This type of project often requires a short turnaround time to address the system needs.

Physical Description:

These reactive based projects provides the reconstruction, extension, and cutover of overhead and underground distribution facilities to replace overloaded conductors and correct primary voltage problems.

Project Justification:

These projects address system overloads and voltage related issues that require quick modifications to the distribution system.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 002280 - Reactive Small Capital Projects

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for is a 5 year average, based on historical data. This is the most appropriate as workload can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

The forecast method used is a 5 year average, based on historical data. This is the most appropriate as workload can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 5-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00228.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 002280 - Reactive Small Capital Projects

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	318	318	318	0	0	0	318	318	318
Non-Labor	5-YR Average	940	940	940	0	0	0	940	940	940
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		1,258	1,258	1,258	0	0	0	1,258	1,258	1,258
FTE	5-YR Average	1.8	1.8	1.8	0.0	0.0	0.0	1.8	1.8	1.8

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 002280 - Reactive Small Capital Projects

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	34	58	171	904	148
Non-Labor	864	392	731	1,549	799
NSE	0	0	0	0	0
Total	898	450	902	2,453	947
FTE	0.2	0.3	0.4	1.5	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	0.8	3.6	0.7
Recorded-Adjusted (Nominal \$)					
Labor	34	58	171	904	148
Non-Labor	864	392	731	1,549	799
NSE	0	0	0	0	0
Total	898	450	902	2,453	947
FTE	0.2	0.3	1.2	5.1	0.8
Vacation & Sick (Nominal \$)					
Labor	5	9	25	128	22
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	5	9	25	128	22
FTE	0.0	0.1	0.2	0.8	0.1
Escalation to 2021\$					
Labor	8	9	19	47	0
Non-Labor	170	55	71	71	0
NSE	0	0	0	0	0
Total	177	64	90	118	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	47	76	215	1,080	170
Non-Labor	1,033	447	802	1,619	799
NSE	0	0	0	0	0
Total	1,080	523	1,017	2,699	969
FTE	0.2	0.4	1.4	5.9	0.9

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00228.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 002280 - Reactive Small Capital Projects

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	0.8	3.6	0.7

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019	0.001	0	0	0.001	0.8
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	0.8
2020	-0.070	-0.363	0	-0.433	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	3.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-0.069	-0.363	0	-0.432	3.6
2021	0.001	0	0	0.001	0.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.7

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002280**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00228.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 002280 - Reactive Small Capital Projects
 Workpaper Detail: 002280.001 - Reactive Small Capital Projects
 In-Service Date: Not Applicable

Description:

Reconstruction and extension of overhead and underground distribution facilities to replace overloaded conductors, correct primary voltage problems, and transfer load to balance circuits and substations. Other minor modifications that may be required to delay larger specific projects are also included in this budget. Additionally, this project installs remote metering equipment to monitor circuit loading.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		318	318	318
Non-Labor		940	940	940
NSE		0	0	0
	Total	1,258	1,258	1,258
FTE		1.8	1.8	1.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
012950 - Load Research/DLP Electric Metering Project

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 01295.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	92	0	0
Non-Labor	Zero-Based	7	0	0	0	0	300	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		7	0	0	0	0	392	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0

Business Purpose:

The installation of 600 Load Research Meters is necessary to conduct analysis of the impact of rooftop solar and electric vehicle charging on the SDG&E distribution circuits and grid. These non-billable meters recording solar generation output and electric vehicle charging loads will provide the necessary 15 minute interval data into the company's data repositories for reporting and analysis.

Physical Description:

Secondary meters will be installed using dual socket meter adapters at residential sites where customers consent has been received.

The scope of this project includes installing 600 meters in 2022.

Project Justification:

SDG&E has gathered data from a sample size of rooftop solar generation facilities for almost ten years to support SDG&E's strategic efforts, long-term forecasting models and procurement. This data has also been provided to the California Energy Commission for their analyses. The growth of new solar installations coupled with the deterioration of the existing sample size creates a need to supplement the existing solar system sample size. In addition, SDG&E does not currently have an Electric Vehicle representative sample, thus limiting the data available for multiple analytical, reporting and regulatory efforts including the Statewide IOU EV Load Study, Electrification analysis support, and others.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 01295.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Load Reseach Sub Metering is zero-based. While historic-based data may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method used for Load Reseach Sub Metering is zero-based. While historic-based data may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 01295.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

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	Zero-Based	92	0	0	0	0	0	92	0	0
Non-Labor	Zero-Based	300	0	0	0	0	0	300	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		392	0	0	0	0	0	392	0	0
FTE	Zero-Based	0.8	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 01295.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	6	0	0	0	0
NSE	0	0	0	0	0
Total	6	0	0	0	0
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	0	0	0
Non-Labor	6	0	0	0	0
NSE	0	0	0	0	0
Total	6	0	0	0	0
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 2021\$					
Labor	0	0	0	0	0
Non-Labor	1	0	0	0	0
NSE	0	0	0	0	0
Total	1	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	0
Non-Labor	7	0	0	0	0
NSE	0	0	0	0	0
Total	7	0	0	0	0
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 01295.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

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 012950**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 01295.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 012950 - Load Research/DLP Electric Metering Project
 Workpaper Detail: 012950.001 - Load Research/DLP Electric Metering Project
 In-Service Date: 12/31/2022

Description:

Secondary meters will be installed using dual socket meter adapters at residential sites where customers consent has been received.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		92	0	0
Non-Labor		300	0	0
NSE		0	0	0
	Total	<u>392</u>	<u>0</u>	<u>0</u>
FTE		0.8	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 012950

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 1295
Estimated In Service Date: 12/1/2022

Line Item	Load Research Sub Metering		Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
	Labor/Non-Labor	RAMP/Non-RAMP		# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	Non-Labor	Non-RAMP	ea	600	\$ 280					\$ -	One installation includes a dual socket adapter, and a meter. The cost for these materials is based on previous metering project. The numbers of installations was determined based on statistical sample design methodologies, and will be used to supplement existing samples. 300 installations will record solar generation, while the other 300 will record electric vehicle charging loads.
					\$ 168,000					\$ -	
2	Non-Labor	non-RAMP	ea	600	\$ 220					\$ -	One installation includes a dual socket adapter, and a meter. The cost for these materials is based on previous metering project. The numbers of installations was determined based on statistical sample design methodologies, and will be used to supplement existing samples. 300 installations will record solar generation, while the other 300 will record electric vehicle charging loads.
3	Labor	non-RAMP	ea	600	\$ 150					\$ -	
4	Labor	Non-RAMP	V&S	102	\$ 23					\$ -	Labor for each meter about 2 hours. Total Cost: \$ 432,000 Total Cost: \$ 90,000 Total Cost: \$ 2,306

Summary		Labor	Non-Labor	RAMP	Non-RAMP	Total Cost
Subtotal RAMP						\$ -
Subtotal Non-RAMP						\$ -
Total Project Forecast						\$ -

Beginning of Workpaper Group
082530 - Substation 12kV Capacitor Upgrades

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08253.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	10	1	0	16	19	86	411	412
Non-Labor	Zero-Based	0	-2,144	0	21	358	1,636	872	873
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		10	-2,143	0	36	377	1,722	1,283	1,285
FTE	Zero-Based	0.1	0.0	0.0	0.1	0.1	0.7	3.5	3.5

Business Purpose:

Upgrades to the 12kV substation capacitor banks will improve load power factor at the substations, decrease loading of the distribution transformers to delay future banks additions, decrease loading of the transmission system to delay line and bulk power transformer upgrades, upgrade obsolete equipment, improve transmission voltage profile during heavy load conditions, and improve customer power quality.

Physical Description:

Adding new banks, replacing obsolete banks, and adding monitoring of substation banks can all contribute to improving the electric system operation by:

- Improving the transmission voltage profile, delaying, or eliminating the need for transmission capacitors
- Improving the customer power quality by adding capacitors in 2-3600 kVAR steps in place of one 6000 kVAR step.
- Significantly decreasing the apparent power (MVA) loading the distribution transformers, transmission lines, and bulk power transformers by improving the load power factor, which delays the need for system upgrades.

Adding switched reactor banks can help correct the power factor at the substation. This equipment will help control the reactive power flow at the substation and reduce the transmission voltages under light load conditions.

The project scope includes installing 4 capacitors in 2022, 2 capacitors in 2023, and 2 capacitors in 2024.

Project Justification:

Grid Operations identified a reactive power deficiency of 245 MVAR based on the peak load in 2007. This deficiency is primarily due to the poor power factor at the distribution substations. Substation and distribution line capacitors out of service or operating improperly contributed to this situation. Adding new banks, replacing obsolete banks, and adding monitoring of substation banks can all contribute greatly to improving the electric system operation by:

- Improving the transmission voltage profile, delaying or eliminating the need for transmission capacitors.
- Greatly improving the Customer power quality by adding capacitors in 4-1800 kVAR steps in place of one 6000 kVAR step.
- Significantly decreasing the apparent power (MVA) loading of the distribution transformers, transmission lines, and bulk power transformers by improving the load power factor, which delays the need for system upgrades.

Reactive power flow from the 12 kV bus to the transmission system of over 10 MVAR was recorded at twelve substations. This significant reactive power flow into the transmission system is causing voltage regulation problems during light load conditions. Adding switched reactor banks can help correct the power factor at the substation. This equipment will help control the reactive power flow at the substation and reduce the transmission voltages under light load conditions

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 08253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

Forecast Methodology:

Labor - Zero-Based

The forecast method used for substation 12kV Capacitor upgrades is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for substation 12kV Capacitor upgrades is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08253.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

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	Zero-Based	86	411	412	0	0	0	86	411	412
Non-Labor	Zero-Based	1,636	872	873	0	0	0	1,636	872	873
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,722	1,283	1,285	0	0	0	1,722	1,283	1,285
FTE	Zero-Based	0.7	3.5	3.5	0.0	0.0	0.0	0.7	3.5	3.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08253.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	7	0	0	13	17
Non-Labor	0	-1,880	0	20	358
NSE	0	0	0	0	0
Total	7	-1,879	0	33	374
FTE	0.1	0.0	0.0	0.1	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	7	0	0	13	17
Non-Labor	0	-1,880	0	20	358
NSE	0	0	0	0	0
Total	7	-1,879	0	33	374
FTE	0.1	0.0	0.0	0.1	0.1
Vacation & Sick (Nominal \$)					
Labor	1	0	0	2	2
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	0	0	2	2
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	2	0	0	1	0
Non-Labor	0	-264	0	1	0
NSE	0	0	0	0	0
Total	2	-264	0	2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	10	1	0	16	19
Non-Labor	0	-2,144	0	21	358
NSE	0	0	0	0	0
Total	10	-2,143	0	36	377
FTE	0.1	0.0	0.0	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08253.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

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 082530**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08253.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades
 Workpaper Detail: 082530.001 - Substation 12kV Capacitor Upgrades
 In-Service Date: Not Applicable

Description:

Replace existing single-step capacitor banks at selected substations with banks of increased capacity and multiple steps. Add capacitor banks where the power factor is below minimum requirements. Add capacitor and reactor banks where the power factor is below minimum requirements.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		86	411	412
Non-Labor		1,636	872	873
NSE		0	0	0
	Total	<u>1,722</u>	<u>1,283</u>	<u>1,285</u>
FTE		0.7	3.5	3.5

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 082530

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 8253
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ex./hr./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE's	Labor	Non-RAM	hr	1,314	\$ 64	6268	\$ 64	6,276	\$ 64	\$ -401,636	Includes FTE's (1 lead SED Internal Non-Union Labor, 1 Civil, 3 Environmental, 1 SPACE, 1 Kearny) and Union labor (Kearny work for capacitors is 3 people, 3 8-hour days), utilized a blended rate of \$64/hr. Material purchased at an earlier date remaining budget includes contractor spend associated with capacitor banks (4x single step cap banks), project to continue into future years.
2	Capacitors	Non-Labor	Non-RAM	ea	4,000	\$ 409,000	7,000	\$ 435,930	2,000	\$ 496,445	\$ 873,890	
3	FTE's	Labor	Non-RAM	Y&S	224	\$ 10	1,098	\$ 10	1,071	\$ 10	\$ -10,292	
Summary												
	Subtotal RAM	Labor	BAMP									
		Non-Labor	BAMP									
	Subtotal Non-RAM	Labor	Non-RAM			\$ 86,237					\$ 411,928	\$ 909,612
		Non-Labor	Non-RAM			\$ 1,636,000					\$ 873,890	\$ 3,480,729
	Total Project Forecast					\$ 1,722,237					\$ 1,286,818	\$ 4,290,341
						\$ -1,722,237					\$ 1,349,818	\$ 4,290,341

Beginning of Workpaper Group
082600 - CHOLLAS WEST-NEW 12KV C1047

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082600 - CHOLLAS WEST-NEW 12KV C1047

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	5	77	0	0
Non-Labor	Zero-Based	0	0	0	0	992	1,375	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	997	1,452	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0

Business Purpose:

The purpose on this project is to install a new Chollas West C 1047. The project is required to mitigate heavily loaded circuits and substations. To mitigate these heavily loaded circuits, a new circuit is needed to transfer existing load from the heavily loaded circuits to the new circuit.

Physical Description:

Trenched and installed approximately 2600 ft of conduits in 2021. Install 11,000 ft of cable in 2022. Install three (3) switches and install one (1) capacitor bank in 2022.

Project Justification:

This project will mitigate forecasted overloads on C160, C166 and on Streamview Bank 3031.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 08260.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 082600 - CHOLLAS WEST-NEW 12KV C1047

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1047, CSW: New 12kV Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C1047, CSW: New 12kV Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082600 - CHOLLAS WEST-NEW 12KV C1047

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	Zero-Based	77	0	0	0	0	0	77	0	0
Non-Labor	Zero-Based	1,375	0	0	0	0	0	1,375	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,452	0	0	0	0	0	1,452	0	0
FTE	Zero-Based	0.9	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082600 - CHOLLAS WEST-NEW 12KV C1047

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	4
Non-Labor	0	0	0	0	992
NSE	0	0	0	0	0
Total	0	0	0	0	996
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	0	0	4
Non-Labor	0	0	0	0	992
NSE	0	0	0	0	0
Total	0	0	0	0	996
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	1
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	5
Non-Labor	0	0	0	0	992
NSE	0	0	0	0	0
Total	0	0	0	0	997
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
 2024 GRC - REVISED
 Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082600 - CHOLLAS WEST-NEW 12KV C1047

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 082600**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 08260.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 082600 - CHOLLAS WEST-NEW 12KV C1047
 Workpaper Detail: 082600.001 - CHOLLAS WEST-NEW 12KV C1047
 In-Service Date: 12/31/2022

Description:

The project requires trenching and installing conduit as well as 1000 kcmil cable along with a PME3 switch and a 4-Way SCADA Trayer switch. Retagging of electric distribution equipment is also planned along with a new hook stick switch.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		77	0	0
Non-Labor		1,375	0	0
NSE		0	0	0
	Total	1,452	0	0
FTE		0.9	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 082600

**Beginning of Workpaper Group
182520 - C724, IB: New 12kV Circuit**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18252.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 182520 - C724, IB: New 12kV Circuit

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	12	16	29	63	0	0
Non-Labor	Zero-Based	0	0	21	1,852	3,602	590	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	33	1,868	3,631	653	0	0
FTE	Zero-Based	0.0	0.0	0.1	0.1	0.2	0.8	0.0	0.0

Business Purpose:

The purpose of this project is to install a new Imperial Beach C724. The new load in the area will result in overloading the existing circuit. This new circuit C724 will mitigate these new additional loads.

Physical Description:

Installed 8300 ft of cable in 2021 and install approximately 200 ft of cable in 2022. Trenched and installed approximately 7600 ft of conduits in 2021 and trench and install 100 ft of conduits in 2022. Installed two (2) switches and install one (1) capacitor bank in 2021.

Project Justification:

Circuit C376 is projected to be overloaded with a new development load in the Imperial Beach/Coronado area.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 18252.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 182520 - C724, IB: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C724, IB: New 12kV Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C724, IB: New 12kV Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18252.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 182520 - C724, IB: New 12kV Circuit

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	Zero-Based	63	0	0	0	0	0	63	0	0
Non-Labor	Zero-Based	590	0	0	0	0	0	590	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		653	0	0	0	0	0	653	0	0
FTE	Zero-Based	0.8	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 18252.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 182520 - C724, IB: New 12kV Circuit

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	9	13	25
Non-Labor	0	0	19	1,771	3,602
NSE	0	0	0	0	0
Total	0	0	28	1,785	3,627
FTE	0.0	0.0	0.1	0.1	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	0.1
Recorded-Adjusted (Nominal \$)					
Labor	0	0	9	13	25
Non-Labor	0	0	19	1,771	3,602
NSE	0	0	0	0	0
Total	0	0	28	1,785	3,627
FTE	0.0	0.0	0.1	0.1	0.2
Vacation & Sick (Nominal \$)					
Labor	0	0	1	2	4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	1	2	4
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	1	1	0
Non-Labor	0	0	2	81	0
NSE	0	0	0	0	0
Total	0	0	3	82	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	12	16	29
Non-Labor	0	0	21	1,852	3,602
NSE	0	0	0	0	0
Total	0	0	33	1,868	3,631
FTE	0.0	0.0	0.1	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18252.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 182520 - C724, IB: New 12kV Circuit

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	0.1

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 Total	0	0	0	0	0.0
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	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 182520**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18252.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 182520 - C724, IB: New 12kV Circuit
 Workpaper Detail: 182520.001 - C724, IB: New 12kV Circuit
 In-Service Date: 04/30/2022

Description:

Install 8500 ft of cable. Trench and install 7700 ft of conduits. Install two (2) switches and install one (1) capacitor bank.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		63	0	0
Non-Labor		590	0	0
NSE		0	0	0
	Total	<u>653</u>	<u>0</u>	<u>0</u>
FTE		0.8	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 182520

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 18252
Estimated In Service Date: 4/30/2022

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea./ft./mils)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE	Labor	Non-RAM	ea	0.6	\$ 100,000	60,000	\$			\$ 60,000	Represents estimated internal labor for this specific scope of work.
2	Contractor Services	Non-Labor	Non-RAM	ea	6	\$ 100,000	\$ 500,000				\$ 500,000	Represents estimated contractor labor for this specific scope of work.
3	Material	Non-Labor	Non-RAM	ea	-	\$ -					\$ -	Represents cost of all material such as cable, connections, switches, capacitors, trench and conduit etc.
4	FTE	Labor	Non-RAM	V&S	0.1	\$ 15,000	\$ 1,537				\$ 1,537	
Summary												
Subtotal RAM		Labor	RAM			\$ -					\$ -	
Subtotal Non-RAM		Non-Labor	Non-RAM			\$ 61,537					\$ 61,537	
Total Project Forecast						\$ 651,537					\$ 651,537	

Beginning of Workpaper Group
18261A - C1480, VN: New Circuit C1480

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18261.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 18261A - C1480, VN: New Circuit C1480

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	308	31	0
Non-Labor	Zero-Based	0	0	0	0	0	4,025	280	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	4,333	311	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.5	0.4	0.0

Business Purpose:

The purpose on this project is to install a new 12kV circuit (C1480) at Vine substation to accomadate new load addition.

Physical Description:

install approximately 6,300 feet of cable, trench approximately 3,000 feet of conduits, and install approximately four switches, and one capacitor in 2022.

Project Justification:

Circuit C105 is projected to be overloaded with a new load in the Morena area. The installation of a new circuit in conjunction with cutting overload from another circuit is the most feasible solution to accommodating the additional new load.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 18261.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 18261A - C1480, VN: New Circuit C1480

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1480, VN: New Circuit C1480 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C1480, VN: New Circuit C1480 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 18261A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18261.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 18261A - C1480, VN: New Circuit C1480
 Workpaper Detail: 18261A.001 - C1480, VN: New Circuit C1480
 In-Service Date: 03/31/2023

Description:

Install approximately 6300ft cable, trench approximately 3000 ft for conduit, install four (4) switches, and install one (1) capacitor.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		308	31	0
Non-Labor		4,025	280	0
NSE		0	0	0
	Total	4,333	311	0
FTE		3.5	0.4	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 18261A

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 182,61
3/30/2023

Estimated In Service Date:

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE	Labor	Non-RAM	ea	3.0	\$ 100,000	0.3	\$ 100,000			\$ 300,000	Represents estimated internal labor for this specific scope of work.
2	Contractors	Non-Labor	Non-RAM	ea	27	\$ 100,000	3	\$ 100,000			\$ 2,800,000	Represents estimated contractor labor for this specific scope of work.
3	Material	Non-Labor	Non-RAM	ea	1	\$ 1,325,000					\$ 1,325,000	Represents cost of all material such as cable, connections, switches, capacitors, trench and conduit etc.
4	FTE	Labor	Non-RAM	V&S	0.5	\$ 15,020	0.1	\$ 15,020			\$ 7,687	
Summary												
		Labor	RAM			\$ -					\$ -	
		Non-Labor	RAM			\$ -					\$ -	
						\$ -					\$ -	
		Labor	Non-RAM			\$ 307,687					\$ 307,687	
		Non-Labor	Non-RAM			\$ 4,025,000					\$ 4,025,000	
						\$ 4,332,687					\$ 4,332,687	
						\$ 4,332,687					\$ 4,332,687	
						\$ 310,769					\$ 310,769	
						\$ 4,643,456					\$ 4,643,456	

Beginning of Workpaper Group
192560 - C1119, CH: New 12kV Circuit

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19256.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 192560 - C1119, CH: New 12kV Circuit

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	0	246	0
Non-Labor	Zero-Based	0	0	0	0	0	0	2,980	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	3,226	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0

Business Purpose:

The purpose on this project is to install a new Carlton Hills C 1191. The new load in the area will result on overloading the existing circuit.

Physical Description:

Install apporximately 4800 ft of cable. Trench and install approximately 3600 ft of conduits . Insall approximately three (3) switches. This equipment to be installed in 2023.

Project Justification:

Circuit C280 is projected to be overloaded. The installation of a new circuit in conjunction with cutting over load the most feasible solution to allow future growth in the area.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 19256.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 192560 - C1119, CH: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1191, CH: New 12kV Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C1191, CH: New 12kV Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19256.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 192560 - C1119, CH: New 12kV Circuit

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	Zero-Based	0	0	0	0	246	0	0	246	0
Non-Labor	Zero-Based	0	0	0	0	2,980	0	0	2,980	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	3,226	0	0	3,226	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	2.3	0.0	0.0	2.3	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19256.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 192560 - C1119, CH: New 12kV Circuit

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
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	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
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 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
Recorded-Adjusted (Constant 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

* 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 - REVISED
 Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19256.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 192560 - C1119, CH: New 12kV Circuit

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 192560**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19256.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 192560 - C1119, CH: New 12kV Circuit
 Workpaper Detail: 192560.001 - C1119, CH: New 12kV Circuit
 In-Service Date: 12/31/2023

Description:

Install 3800 ft of cable, trench and install 3600 ft of conduits, and install three (3) switches.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	246	0
Non-Labor		0	2,980	0
NSE		0	0	0
	Total	0	3,226	0
FTE		0.0	2.3	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 192560

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 19256
Estimated In Service Date: 12/31/2023

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE	Labor	Non-RAM	ea		\$ -	2.4	\$ 100,000		\$ -	\$ 240,000	Represents estimated internal labor for this specific scope of work.
2	Contractor Services	Non-Labor	Non-RAM	ea		\$ -	22	\$ 100,000		\$ -	\$ 2,150,000	Represents estimated contractor labor for this specific scope of work.
3	Material	Non-Labor	Non-RAM	ea		\$ -	1	\$ 830,000		\$ -	\$ 830,000	Represents cost of all material such as cable, connections, switches, trench and conduit etc.
4	FTE	Labor	Non-RAM	W&S		\$ -	0.4	\$ 15,020		\$ -	\$ 6,150	
Summary												
Subtotal RAM		Labor	RAM			\$ -		\$ -		\$ -	\$ -	
Subtotal Non-RAM		Non-Labor	Non-RAM			\$ -		\$ -		\$ -	\$ -	
Total Project Forecast						\$ -		\$ -		\$ -	\$ 3,226,150	

**Beginning of Workpaper Group
202470 - PLANNED INVESTMENTS**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 202470 - PLANNED INVESTMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	61	236	236	236
Non-Labor	Zero-Based	0	0	51	513	1,216	3,300	3,300	3,300
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	51	513	1,277	3,536	3,536	3,536
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.4	2.7	2.7	2.7

Business Purpose:

This blanket budget code provides funding for planned small capital projects to address systems needs that are identified through the annual planning process. These projects are required to address primary distribution system overloads, voltage related issues and meeting and maintaining current SDG&E Design Standards.

Physical Description:

These projects provides the reconstruction, extension, and cutover of overhead and underground distribution facilities to replace overloaded conductors and correct primary voltage problems.

Project Justification:

This funding supports small capital projects needed to address system needs identified as part of the annual planning process.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20247.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 202470 - PLANNED INVESTMENTS

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Planned Investments is zero-based. While historic-based data may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for Planned Investments is zero-based. While historic-based data may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 202470 - PLANNED INVESTMENTS

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	Zero-Based	236	236	236	0	0	0	236	236	236
Non-Labor	Zero-Based	3,300	3,300	3,300	0	0	0	3,300	3,300	3,300
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		3,536	3,536	3,536	0	0	0	3,536	3,536	3,536
FTE	Zero-Based	2.7	2.7	2.7	0.0	0.0	0.0	2.7	2.7	2.7

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 202470 - PLANNED INVESTMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	53
Non-Labor	0	0	47	491	1,216
NSE	0	0	0	0	0
Total	0	0	47	491	1,269
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	0.3
Recorded-Adjusted (Nominal \$)					
Labor	0	0	0	0	53
Non-Labor	0	0	47	491	1,216
NSE	0	0	0	0	0
Total	0	0	47	491	1,269
FTE	0.0	0.0	0.0	0.0	0.3
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	8
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	8
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2021\$					
Labor	0	0	0	0	0
Non-Labor	0	0	5	22	0
NSE	0	0	0	0	0
Total	0	0	5	22	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	61
Non-Labor	0	0	51	513	1,216
NSE	0	0	0	0	0
Total	0	0	51	513	1,277
FTE	0.0	0.0	0.0	0.0	0.4

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 202470 - PLANNED INVESTMENTS

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	0.3

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 Total	0	0	0	0	0.0
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	0.001	0	0	0.001	0.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.3

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 202470**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20247.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 202470 - PLANNED INVESTMENTS
 Workpaper Detail: 202470.001 - PLANNED INVESTMENTS (CAPACITY)
 In-Service Date: Not Applicable

Description:

Reconstruct, extend, and cutover overhead and underground distribution facilities to replace overloaded conductors and correct primary voltage problems.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		236	236	236
Non-Labor		3,300	3,300	3,300
NSE		0	0	0
	Total	3,536	3,536	3,536
FTE		2.7	2.7	2.7

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 202470

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 20247
Estimated In Service Date: ongoing

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE'S	Labor	Non-RAMP	ea	2	\$ 100,000	2	\$ 100,000	2	\$ 100,000	\$ 230,000	Represents estimated internal labor.
2	Contractor Services	Non-Labor	Non-RAMP	ea	28	\$ 2,800,000	28	\$ 2,800,000	28	\$ 2,800,000	\$ 2,800,000	Represents estimated contractor labor.
3	Material	Non-Labor	Non-RAMP	ea	1	\$ 500,000	1	\$ 500,000	1	\$ 500,000	\$ 1,500,000	Represents cost of all material such as cable, connections, switches, capacitors, trench and conduit etc.
4	FTE'S	Labor	Non-RAMP	WGS	0.4	\$ 15,020	0.4	\$ 15,020	0.4	\$ 15,020	\$ 5,894	
Summary												
		Labor	RAM/Non-RAMP			\$ -		\$ -		\$ -	\$ -	
		Non-Labor	RAM/Non-RAMP			\$ -		\$ -		\$ -	\$ -	
	Subtotal RAM/Non-RAMP					\$ 235,894		\$ 235,894		\$ 235,894	\$ 707,681	
		Labor	Non-RAMP			\$ 3,300,000		\$ 3,300,000		\$ 3,300,000	\$ 9,900,000	
		Non-Labor	Non-RAMP			\$ 3,535,894		\$ 3,535,894		\$ 3,535,894	\$ 10,607,681	
	Subtotal Non-RAMP					\$ 3,535,894		\$ 3,535,894		\$ 3,535,894	\$ 10,607,681	
	Total Project Forecast					\$ 3,535,894		\$ 3,535,894		\$ 3,535,894	\$ 10,607,681	

**Beginning of Workpaper Group
20252A - C493, OT: Reconductor**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20252.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 20252A - C493, OT: Reconductor

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	0	144	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,600	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	1,744	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0

Business Purpose:

This project will reconductor 12kV circuit C493 out of Old Town substation to mitigate forecasted overloading due to load growth.

Physical Description:

Install approximately 6,700 feet of cable; trench and install approximately 1,700 feet of conduits in 2022.

Project Justification:

Circuit C493 is projected to be overloaded with a new load in the area.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20252.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 20252A - C493, OT: Reconductor

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C493, OT: Reconductor is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C493, OT: Reconductor is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 20252A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20252.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 20252A - C493, OT: Reconductor
 Workpaper Detail: 20252A.001 - C493, OT: Reconductor DDOR 2021
 In-Service Date: 12/31/2022

Description:

Install 6730 ft of cable and trench and install 1700 ft of conduit.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	144	0	0
Non-Labor	1,600	0	0
NSE	0	0	0
Total	1,744	0	0
FTE	1.6	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 20252A

**Beginning of Workpaper Group
21251A - C1162, BD: New C1162**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21251.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 21251A - C1162, BD: New C1162

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	0	51	82	0
Non-Labor	Zero-Based	0	0	0	0	0	638	1,035	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	689	1,117	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.6	0.9	0.0

Business Purpose:

The purpose on this project is to install a new Border C 1162. The new load in the area will result on overloading the existing circuit.

Physical Description:

Reconductor 5700 ft of wire in 2023, trench and install 450 ft of conduits in 2022, 700ft of cable in 2022 and 650ft of wire in 2022, and install one switch in 2023.

Project Justification:

Circuit C536 is projected to be overloaded with a new load in the area. This cut over will mitigate these new additional load.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21251.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 21251A - C1162, BD: New C1162

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1162, BD: New C1162 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C1162, BD: New C1162 is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 21251A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21251.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 21251A - C1162, BD: New C1162
 Workpaper Detail: 21251A.001 - C1162, BD: New C1162
 In-Service Date: 05/31/2023

Description:

Reconductor 5700 ft of wire, trench and install 300 ft of conduit, and install one (1) switch.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		51	82	0
Non-Labor		638	1,035	0
NSE		0	0	0
	Total	689	1,117	0
FTE		0.6	0.9	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 21251A

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21251
Estimated In Service Date: 6/1/2023 (If this is an ongoing blanket or program, please input "ongoing")

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea./ft./mile)	2022			2023			2024			Total Cost	Comments
					# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost		
1	FTE	Labor	Non-RAM	ea	0.50	\$ 100,000	\$ 50,000	0.80	\$ 100,000	\$ 80,000			\$ -	\$ 430,000	Represents estimated internal labor for this specific scope of work.
2	Contractor Services	Non-Labor	Non-RAM	ea	5	\$ 100,000	\$ 500,000	7	\$ 100,000	\$ 700,000			\$ -	\$ 1,200,000	Represents estimated contractor labor for this specific scope of work.
3	Material	Non-Labor	Non-RAM	ea	1	\$ 138,000	\$ 138,000	1	\$ 335,000	\$ 335,000			\$ -	\$ 473,000	Represents cost of all material such as cable, connections, switches, trench and conduit etc.
4	FTE	Labor	Non-RAM	W&S	0.09	\$ 15,020	\$ 1,281	0.14	\$ 15,020	\$ 2,050			\$ -	\$ 3,331	
Summary															
		Labor	RAM			\$ -	\$ -		\$ -	\$ -			\$ -	\$ -	
		Non-Labor	RAM			\$ -	\$ -		\$ -	\$ -			\$ -	\$ -	
	Subtotal RAM					\$ 51,281	\$ 638,000						\$ -	\$ 133,331	
		Labor	Non-RAM			\$ 82,050	\$ 1,035,000			\$ 82,050			\$ -	\$ 1,673,000	
		Non-Labor	Non-RAM			\$ 689,281	\$ 1,117,050			\$ 1,035,000			\$ -	\$ 1,806,331	
	Subtotal Non-RAM					\$ 689,281	\$ 1,117,050			\$ 1,117,050			\$ -	\$ 1,806,331	
	Total Project Forecast					\$ 689,281	\$ 1,117,050			\$ 1,117,050			\$ -	\$ 1,806,331	

Beginning of Workpaper Group
212580 - C369, S: New 12kV Twin Circuit

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21258.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212580 - C369, S: New 12kV Twin Circuit

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	26	10	0
Non-Labor	Zero-Based	0	0	0	0	0	591	106	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	617	116	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0

Business Purpose:

The purpose on this project is to twin Sampson C369. The new load will result on overloading the existing circuit.

Physical Description:

Install 2500 ft of cable. Trench and install 100 ft of conduits. Install one (1) switch and one (1) capacitor in 2022.

Project Justification:

Circuit C369 is projected to be overloaded with a new load in the area. This additional cable will mitigate these new additional load.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21258.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 212580 - C369, S: New 12kV Twin Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C369, S: New 12kV Twin Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for C369, S: New 12kV Twin Circuit is zero-based. The forecast is based on cost estimates that were developed based on the specific scope of work for the project. SDG&E develops cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21258.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212580 - C369, S: New 12kV Twin Circuit

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	Zero-Based	0	0	0	26	10	0	26	10	0
Non-Labor	Zero-Based	0	0	0	591	106	0	591	106	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	617	116	0	617	116	0
FTE	Zero-Based	0.0	0.0	0.0	0.3	0.1	0.0	0.3	0.1	0.0

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21258.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212580 - C369, S: New 12kV Twin Circuit

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
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	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
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 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
Recorded-Adjusted (Constant 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

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21258.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212580 - C369, S: New 12kV Twin Circuit

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 212580**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21258.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212580 - C369, S: New 12kV Twin Circuit
 Workpaper Detail: 212580.001 - C369, S: New 12kV Twin Circuit
 In-Service Date: 04/30/2023

Description:

Twin Sampson circuit C369 to remove overload condition.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		26	10	0
Non-Labor		591	106	0
NSE		0	0	0
	Total	617	116	0
FTE		0.3	0.1	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 212580

Beginning of Workpaper Group
212760 - FUTURE CAPACITY PROJECTS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21276.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212760 - FUTURE CAPACITY PROJECTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	0	0	636	779
Non-Labor	Zero-Based	0	0	0	0	0	0	5,760	6,920
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	6,396	7,699
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	7.3	8.9

Business Purpose:

This blanket code provides funding for distribution system capacity improvement projects estimated to be above \$1 M and have not yet been assigned a specific budget number for an individual capital project.

Physical Description:

Installation of cable. Trench and install of conduits. Install switches and/or capacitors.

Project Justification:

This budget code will provide funding for anticipated but currently unidentified distribution capacity projects that cost of \$1M.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21276.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 212760 - FUTURE CAPACITY PROJECTS

Forecast Methodology:

Labor - Zero-Based

The forecast method used for BC21276 is zero-based. The forecast is based on cost estimates that were developed based on the anticipated scope of work for the project. SDG&E develops detailed cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method used for BC21276 is zero-based. The forecast is based on cost estimates that were developed based on the anticipated scope of work for the project. SDG&E develops detailed cost estimates based on current construction labor rates, material costs, contract pricing/quotes, and other project specific details.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21276.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212760 - FUTURE CAPACITY PROJECTS

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	Zero-Based	0	0	0	0	636	779	0	636	779
Non-Labor	Zero-Based	0	0	0	0	5,760	6,920	0	5,760	6,920
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	6,396	7,699	0	6,396	7,699
FTE	Zero-Based	0.0	0.0	0.0	0.0	7.3	8.9	0.0	7.3	8.9

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21276.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212760 - FUTURE CAPACITY PROJECTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
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	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
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 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
Recorded-Adjusted (Constant 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

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21276.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212760 - FUTURE CAPACITY PROJECTS

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 212760**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21276.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 212760 - FUTURE CAPACITY PROJECTS
 Workpaper Detail: 212760.001 - Future Capacity Projects
 In-Service Date: Not Applicable

Description:

Install cable, trench and install conduit, and install switches and/or capacitors.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	636	779
Non-Labor		0	5,760	6,920
NSE		0	0	0
	Total	0	6,396	7,699
FTE		0.0	7.3	8.9

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 212760

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21276
Estimated In Service Date: 12/31/2024

Line Item	Future Capacity Projects			2022		2023		2024		Total Cost	Comments
	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	# of units	Cost per unit*	Total cost	# of units	Cost per unit*		
1	FTE	Labor	Non-RAMP	ea	6	\$ 100,000	\$ 620,000	8	\$ 100,000	\$ 760,000	Represents estimated internal labor.
2	Contractor Services	Non-Labor	Non-RAMP	ea	42	\$ 100,000	\$ 4,200,000	50	\$ 100,000	\$ 5,000,000	Represents estimated contractor labor.
3	Material	Non-Labor	Non-RAMP	ea	1	\$ 1,560,000	\$ 1,560,000	1	\$ 1,920,000	\$ 1,920,000	Represents cost of all material such as cable, connections, switches, capacitors, trench and conduit etc.
4	FTE	Labor	Non-RAMP	V&S	1.1	\$ 15,020	\$ 15,887	1.3	\$ 15,020	\$ 19,474	
Summary											
		Labor	RAMP								
		Non-Labor	RAMP								
	Subtotal RAMP										
		Labor	Non-RAMP			\$ 635,887				\$ 779,474	\$ 1,415,361
		Non-Labor	Non-RAMP			\$ 5,760,000				\$ 6,920,000	\$ 12,860,000
	Subtotal Non-RAMP					\$ 6,395,887				\$ 7,699,474	\$ 14,695,361
	Total Project Forecast					\$ -				\$ 7,699,474	\$ 14,695,361

Beginning of Workpaper Group
972480 - Distribution System Capacity Improvement

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 97248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 972480 - Distribution System Capacity Improvement

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	348	82	113	215	116	148	148	148
Non-Labor	3-YR Average	1,274	621	3,420	4,325	2,324	3,356	3,356	3,356
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	1,622	704	3,533	4,540	2,440	3,504	3,504	3,504
FTE	3-YR Average	2.0	0.5	1.0	1.7	0.6	1.1	1.1	1.1

Business Purpose:

This blanket budget code provides additional capacity, sectionalizing capability, and benefits for small project upgrades for the distribution system. It provides additional tie capacity on the distribution system, including reducing high customer counts. Projects identified within this budget are small in cost and have a quick turnaround time. Projects identified within this budget code can consist of minor modifications or upgrades to the distribution system.

Physical Description:

Feeder and branch reconductoring, installation of appropriate switches, and other equipment as necessary to increase the tie capacity and sectionalizing of the distribution system for capacity and operating concerns. This project may also be used to install infrastructure for future circuit projects in conjunction with road improvements, transmission system upgrades, or other upgrade activities.

Project Justification:

This budget is needed to maintain sectionalizing and tie capacity.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 97248.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. Other
Workpaper Group: 972480 - Distribution System Capacity Improvement

Forecast Methodology:

Labor - 3-YR Average

The forecast method used is a 3-year average based on historical data. This is the most appropriate methodology, because work load can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget over a large period of time and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 3-YR Average

The forecast method used is a 3-year average based on historical data. This is the most appropriate methodology, because work load can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget over a large period of time and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 3-YR Average

n/a

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 97248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 972480 - Distribution System Capacity Improvement

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	3-YR Average	148	148	148	0	0	0	148	148	148
Non-Labor	3-YR Average	3,356	3,356	3,356	0	0	0	3,356	3,356	3,356
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		3,504	3,504	3,504	0	0	0	3,504	3,504	3,504
FTE	3-YR Average	1.1	1.1	1.1	0.0	0.0	0.0	1.1	1.1	1.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 97248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 972480 - Distribution System Capacity Improvement

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	253	63	90	180	101
Non-Labor	1,065	545	3,118	4,136	2,324
NSE	0	0	0	0	0
Total	1,318	608	3,208	4,316	2,425
FTE	1.7	0.4	0.5	0.8	0.4
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	0.4	0.7	0.1
Recorded-Adjusted (Nominal \$)					
Labor	253	63	90	180	101
Non-Labor	1,065	545	3,118	4,136	2,324
NSE	0	0	0	0	0
Total	1,318	608	3,208	4,316	2,425
FTE	1.7	0.4	0.9	1.5	0.5
Vacation & Sick (Nominal \$)					
Labor	38	10	13	26	15
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	38	10	13	26	15
FTE	0.3	0.1	0.1	0.2	0.1
Escalation to 2021\$					
Labor	57	10	10	9	0
Non-Labor	209	76	302	189	0
NSE	0	0	0	0	0
Total	266	87	312	198	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	348	82	113	215	116
Non-Labor	1,274	621	3,420	4,325	2,324
NSE	0	0	0	0	0
Total	1,622	704	3,533	4,540	2,440
FTE	2.0	0.5	1.0	1.7	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 97248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 972480 - Distribution System Capacity Improvement

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	0.4	0.7	0.1

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019	0.001	0	0	0.001	0.3
Explanation:	Adjust FTE to reflect labor amount.				
2019	0	-0.056	0	-0.056	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.002	-0.056	0	-0.054	0.4
2020	0.001	0	0	0.001	0.7
Explanation:	Adjust FTE to reflect labor amount.				
2020 Total	0.001	0	0	0.001	0.7
2021	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 972480**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 97248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 972480 - Distribution System Capacity Improvement
 Workpaper Detail: 972480.001 - NON COLLECTIBLE - Distribution System Capacity Improvement
 In-Service Date: Not Applicable

Description:

Feeder and branch reconductoring, installation of appropriate switches, and other equipment as necessary to increase the tie capacity and sectionalizing of the distribution system for capacity and operating concerns. This project may also be used to install infrastructure for future circuit projects in conjunction with road improvements, transmission system upgrades, or other upgrade activities.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		96	96	96
Non-Labor		2,181	2,181	2,181
NSE		0	0	0
	Total	<u>2,277</u>	<u>2,277</u>	<u>2,277</u>
FTE		0.7	0.7	0.7

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 97248.0
 Category: A. CAPACITY/EXPANSION
 Category-Sub: 2. Other
 Workpaper Group: 972480 - Distribution System Capacity Improvement
 Workpaper Detail: 972480.002 - COLLECTIBLE - Distribution System Capacity Improvement
 In-Service Date: Not Applicable

Description:

Feeder and branch reconductoring, installation of appropriate switches, and other equipment as necessary to increase the tie capacity and sectionalizing of the distribution system for capacity and operating concerns. This project may also be used to install infrastructure for future circuit projects in conjunction with road improvements, transmission system upgrades, or other upgrade activities.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		52	52	52
Non-Labor		1,175	1,175	1,175
NSE		0	0	0
	Total	<u>1,227</u>	<u>1,227</u>	<u>1,227</u>
FTE		0.4	0.4	0.4

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: B. EQUIP/TOOLS/MISC
Workpaper: VARIOUS

Summary for Category: B. EQUIP/TOOLS/MISC

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	5	0	0	0
Non-Labor	2,968	2,542	2,542	2,542
NSE	0	0	0	0
Total	2,973	2,542	2,542	2,542
FTE	0.1	0.0	0.0	0.0

001060 ELECTRIC TRANSMISSION TOOLS & EQUIPMENT

Labor	0	0	0	0
Non-Labor	443	443	443	443
NSE	0	0	0	0
Total	443	443	443	443
FTE	0.0	0.0	0.0	0.0

002060 Electric Distribution Tools/Equipment

Labor	5	0	0	0
Non-Labor	2,525	2,099	2,099	2,099
NSE	0	0	0	0
Total	2,530	2,099	2,099	2,099
FTE	0.1	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
001060 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00106.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 1. Electric Transmission Tools & Equipment
 Workpaper Group: 001060 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT

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	0	0	0	0	0	0	0	
Non-Labor	Base YR Rec	245	413	164	431	443	443	443	
NSE	Base YR Rec	0	0	0	0	0	0	0	
Total		245	413	164	431	443	443	443	
FTE	Base YR Rec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

Provides standard tools to perform inspection and maintenance activities, assure compliance with safety requirements and maintain or improve productivity levels. Tools will also be purchased for the purpose of evaluating improved technologies or procedures.

Physical Description:

Specialized tools and testing equipment for the proper inspection and operation of transmission and substation facilities. Replacement of deteriorated or obsolete tools and testing equipment.

Project Justification:

As regulatory rules change, new tools are required to maintain the highest level of safety and compliance. Acquisition of new types or additional tools will enable flexibility necessary for completing maintenance and construction activities, while insufficient or inoperable tools decrease productivity, do not take advantage of improved technologies for equipment condition monitoring or diagnosis, and may also lead to higher safety incidents and injuries.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00106.0
Category: B. EQUIP/TOOLS/MISC
Category-Sub: 1. Electric Transmission Tools & Equipment
Workpaper Group: 001060 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT

Forecast Methodology:

Labor - Base YR Rec

N/A

Non-Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.

NSE - Base YR Rec

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00106.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 1. Electric Transmission Tools & Equipment
 Workpaper Group: 001060 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT

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	0	0	0	0	0	0	0	0	0
Non-Labor	Base YR Rec	443	443	443	0	0	0	443	443	443
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		443	443	443	0	0	0	443	443	443
FTE	Base YR Rec	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>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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00106.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 1. Electric Transmission Tools & Equipment
 Workpaper Group: 001060 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	169	295	121	333	358
NSE	0	0	0	0	0
Total	169	295	121	333	358
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	36	67	29	79	85
NSE	0	0	0	0	0
Total	36	67	29	79	85
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	0	0	0
Non-Labor	205	362	150	412	443
NSE	0	0	0	0	0
Total	205	362	150	412	443
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 2021\$					
Labor	0	0	0	0	0
Non-Labor	40	51	15	19	0
NSE	0	0	0	0	0
Total	40	51	15	19	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	0
Non-Labor	245	413	164	431	443
NSE	0	0	0	0	0
Total	245	413	164	431	443
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00106.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 1. Electric Transmission Tools & Equipment
 Workpaper Group: 001060 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	0	0	0	0	0
Non-Labor	36	67	29	79	85
NSE	0	0	0	0	0
Total	36	67	29	79	85
FTE	0.0	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	36	0	36	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2017 Total	0	36	0	36	0.0
2018	0	67	0	67	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2018 Total	0	67	0	67	0.0
2019	0	29	0	29	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2019 Total	0	29	0	29	0.0
2020	0	79	0	79	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2020 Total	0	79	0	79	0.0
2021	0	85	0	85	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2021 Total	0	85	0	85	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 001060**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00106.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 1. Electric Transmission Tools & Equipment
 Workpaper Group: 001060 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT
 Workpaper Detail: 001060.001 - ELECTRIC TRANSMISSION TOOLS & EQUIPMENT
 In-Service Date: Not Applicable

Description:

Provides standard tools to perform inspection and maintenance activities, assure compliance with safety requirements and maintain or improve productivity levels. Tools will also be purchased for the purpose of evaluating improved technologies or procedures.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	0	0
Non-Labor		443	443	443
NSE		0	0	0
	Total	443	443	443
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002060 - Electric Distribution Tools/Equipment

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00206.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 2. Electric Distribution Tools & Equipment
 Workpaper Group: 002060 - Electric Distribution Tools/Equipment

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	77	75	0	0	5	0	0	0
Non-Labor	3-YR Average	9,843	3,034	1,575	2,191	2,525	2,099	2,099	2,099
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		9,920	3,109	1,575	2,191	2,530	2,099	2,099	2,099
FTE	3-YR Average	0.7	0.6	0.0	0.0	0.1	0.0	0.0	0.0

Business Purpose:

Provide new tools and equipment required by field personnel to safely construct, inspect, operate and maintain the electric distribution system.

Physical Description:

Acquisition of standard tools conducted to maintain compliance with safety regulations and ensure the highest productivity levels. Tools are purchased to evaluate the latest technological advancements and maintaining new technologies installed on the distribution system. All purchases made in accordance with individual user needs and collaborated with affected operational districts who will be utilizing the tools.

Project Justification:

Provides the necessary tools and equipment to economically, reliable and safety inspect, operate and maintain the electric distribution facilities. Failure to replace outdated, obsolete, no longer vendor supported, and worn out tools would result in decreased crew productivity, incorrect inspections and system reliability while also leading to potential injuries or safety incidents.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00206.0
Category: B. EQUIP/TOOLS/MISC
Category-Sub: 2. Electric Distribution Tools & Equipment
Workpaper Group: 002060 - Electric Distribution Tools/Equipment

Forecast Methodology:

Labor - 3-YR Average

N/A

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00206.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 2. Electric Distribution Tools & Equipment
 Workpaper Group: 002060 - Electric Distribution Tools/Equipment

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	3-YR Average	2	2	2	-2	-2	-2	0	0	0
Non-Labor	3-YR Average	2,097	2,097	2,097	2	2	2	2,099	2,099	2,099
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		2,099	2,099	2,099	0	0	0	2,099	2,099	2,099
FTE	3-YR Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	1	0	0	1	0.1
Explanation:	Reflecting FTE amount for labor costs				
2022	-3	2	0	-1	-0.1
Explanation:	Shifting costs from labor to non-labor				
2022 Total	-2	2	0	0	0.0
2023	1	0	0	1	0.1
Explanation:	Reflecting FTE amount for labor costs				
2023	-3	2	0	-1	-0.1
Explanation:	Shifting costs from labor to non-labor				
2023 Total	-2	2	0	0	0.0
2024	1	0	0	1	0.1
Explanation:	Reflecting FTE amount for labor costs				
2024	-3	2	0	-1	-0.1
Explanation:	Shifting costs from labor to non-labor				
2024 Total	-2	2	0	0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00206.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 2. Electric Distribution Tools & Equipment
 Workpaper Group: 002060 - Electric Distribution Tools/Equipment

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	56	57	0	0	4
Non-Labor	6,851	2,229	1,156	1,694	2,041
NSE	0	0	0	0	0
Total	6,907	2,286	1,156	1,694	2,045
FTE	0.6	0.5	0.0	0.0	0.0
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	1,376	432	279	401	484
NSE	0	0	0	0	0
Total	1,376	432	279	401	484
FTE	0.0	0.0	0.0	0.0	0.1
Recorded-Adjusted (Nominal \$)					
Labor	56	57	0	0	5
Non-Labor	8,227	2,660	1,436	2,096	2,525
NSE	0	0	0	0	0
Total	8,283	2,717	1,436	2,096	2,529
FTE	0.6	0.5	0.0	0.0	0.1
Vacation & Sick (Nominal \$)					
Labor	8	9	0	0	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	8	9	0	0	1
FTE	0.1	0.1	0.0	0.0	0.0
Escalation to 2021\$					
Labor	13	9	0	0	0
Non-Labor	1,616	373	139	96	0
NSE	0	0	0	0	0
Total	1,629	383	139	96	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	77	75	0	0	5
Non-Labor	9,843	3,034	1,575	2,191	2,525
NSE	0	0	0	0	0
Total	9,920	3,109	1,575	2,191	2,530
FTE	0.7	0.6	0.0	0.0	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00206.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 2. Electric Distribution Tools & Equipment
 Workpaper Group: 002060 - Electric Distribution Tools/Equipment

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	0	0	0	0	0
Non-Labor	1,376	432	279	401	484
NSE	0	0	0	0	0
Total	1,376	432	279	401	484
FTE	0.0	0.0	0.0	0.0	0.1

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	1,376	0	1,376	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2017 Total	0	1,376	0	1,376	0.0
2018	0	432	0	432	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2018 Total	0	432	0	432	0.0
2019	0	279	0	279	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2019 Total	0	279	0	279	0.0
2020	0	401	0	401	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2020 Total	0	401	0	401	0.0
2021	0.460	484	0	484	0.1
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2021 Total	0.460	484	0	484	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002060**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00206.0
 Category: B. EQUIP/TOOLS/MISC
 Category-Sub: 2. Electric Distribution Tools & Equipment
 Workpaper Group: 002060 - Electric Distribution Tools/Equipment
 Workpaper Detail: 002060.001 - Electric Distribution Tools/Equipment
 In-Service Date: Not Applicable

Description:

Provides new tools and equipment required by field personnel to inspect, operate, and maintain the electric distribution system.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	0	0
Non-Labor		2,099	2,099	2,099
NSE		0	0	0
	Total	<u>2,099</u>	<u>2,099</u>	<u>2,099</u>
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: C. FRANCHISE
Workpaper: VARIOUS

Summary for Category: C. FRANCHISE

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	206	440	434	430
Non-Labor	21,357	43,672	69,936	88,082
NSE	0	0	0	0
Total	21,563	44,112	70,370	88,512
FTE	1.1	2.6	2.6	2.4

002050 ELECTRIC DIST. STREET/HWY RELOCATIONS

Labor	56	115	115	115
Non-Labor	5,460	6,243	6,243	6,243
NSE	0	0	0	0
Total	5,516	6,358	6,358	6,358
FTE	0.2	0.5	0.5	0.5

202570 Electric - Conversion from OH to UG Rule 20B

Labor	1	0	0	0
Non-Labor	4	3,116	29,072	47,596
NSE	0	0	0	0
Total	5	3,116	29,072	47,596
FTE	0.0	0.0	0.0	0.0

002100 CONVERSION FROM OH TO UG RULE 20A

Labor	74	161	161	161
Non-Labor	12,207	15,375	15,375	15,375
NSE	0	0	0	0
Total	12,281	15,536	15,536	15,536
FTE	0.3	0.8	0.8	0.8

002130 CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Labor	75	154	154	154
Non-Labor	3,686	18,868	18,868	18,868
NSE	0	0	0	0
Total	3,761	19,022	19,022	19,022
FTE	0.6	1.1	1.1	1.1

21125A 21125 - TL681 ESCONDIDO TRAILS CUSTOMER RELOCATION

Labor	0	4	1	0
Non-Labor	0	36	210	0
NSE	0	0	0	0
Total	0	40	211	0
FTE	0.0	0.1	0.1	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Category: C. FRANCHISE
 Workpaper: VARIOUS

In 2021\$ (000)			
Adjusted-Recorded	Adjusted-Forecast		
2021	2022	2023	2024

21139A TL634 JUNIPER STREET CUSTOMER RELOCATION

Labor	0	6	3	0
Non-Labor	0	34	168	0
NSE	0	0	0	0
Total	0	40	171	0
FTE	0.0	0.1	0.1	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00205.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	3-YR Average	77	67	131	157	56	115	115	115
Non-Labor	3-YR Average	3,503	6,230	2,333	10,935	5,460	6,243	6,243	6,243
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		3,580	6,296	2,465	11,091	5,517	6,358	6,358	6,358
FTE	3-YR Average	0.3	0.3	0.7	0.7	0.2	0.5	0.5	0.5

Business Purpose:

This project relocates existing distribution facilities for public improvements under the terms of franchise agreements with municipalities and the provisions of the street and highway codes with respect to state highways as well as additional agencies including Metropolitan Transit System, North County Transit District, and the Port of San Diego.

Physical Description:

Relocations of electric distribution facilities, including both overhead and underground, that are in conflict with public street and highway improvements and other infrastructure improvement projects having rights superior to those of SDG&E.

Project Justification:

Relocations required for public improvements under the terms of franchise agreements with municipalities, and the provisions of the street and highway codes with respect to state highways as well as additional agencies including Metropolitan Transit System, North County Transit District, and the Port of San Diego.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. Electric Street & Highway Relocations
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.?

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.?

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00205.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

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	3-YR Average	115	115	115	0	0	0	115	115	115
Non-Labor	3-YR Average	6,243	6,243	6,243	0	0	0	6,243	6,243	6,243
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		6,358	6,358	6,358	0	0	0	6,358	6,358	6,358
FTE	3-YR Average	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00205.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	44	51	105	131	49
Non-Labor	2,840	5,463	2,128	10,464	5,460
NSE	0	0	0	0	0
Total	2,884	5,514	2,232	10,595	5,509
FTE	0.2	0.2	0.2	0.3	0.1
Adjustments (Nominal \$)**					
Labor	12	0	0	0	0
Non-Labor	88	0	-1	-7	0
NSE	0	0	0	0	0
Total	100	0	-1	-7	0
FTE	0.1	0.1	0.4	0.3	0.1
Recorded-Adjusted (Nominal \$)					
Labor	56	51	105	131	49
Non-Labor	2,928	5,463	2,127	10,457	5,460
NSE	0	0	0	0	0
Total	2,984	5,514	2,232	10,588	5,509
FTE	0.3	0.3	0.6	0.6	0.2
Vacation & Sick (Nominal \$)					
Labor	8	8	15	19	7
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	8	8	15	19	7
FTE	0.0	0.0	0.1	0.1	0.0
Escalation to 2021\$					
Labor	13	8	12	7	0
Non-Labor	575	767	206	478	0
NSE	0	0	0	0	0
Total	588	775	218	485	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	77	67	131	157	56
Non-Labor	3,503	6,230	2,333	10,935	5,460
NSE	0	0	0	0	0
Total	3,580	6,296	2,465	11,091	5,517
FTE	0.3	0.3	0.7	0.7	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00205.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	12	0	0	0	0	
Non-Labor	88	0	-1	-7	0	
NSE	0	0	0	0	0	
Total	100	0	-1	-7	0	
FTE	0.1	0.1	0.4	0.3	0.1	

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	12	88	0	100	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	12	88	0	100	0.1
2018	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	0.001	0	0	0.001	0.1
2019	0	-0.654	0	-0.654	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	0.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	-0.654	0	-0.653	0.4
2020	-0.025	-7	0	-7	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-0.024	-7	0	-7	0.3
2021	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002050**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00205.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS
 Workpaper Detail: 002050.001 - ELECTRIC DIST. STREET/HWY RELOCATIONS
 In-Service Date: Not Applicable

Description:

Relocate existing distribution facilities for public improvements under the terms of franchise agreements with municipalities and the provisions of the street and highway codes with respect to state highways as well as additional agencies.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		115	115	115
Non-Labor		6,243	6,243	6,243
NSE		0	0	0
	Total	6,358	6,358	6,358
FTE		0.5	0.5	0.5

Note: Totals may include rounding differences.

Beginning of Workpaper Group
202570 - Electric - Conversion from OH to UG Rule 20B

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20257.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 202570 - Electric - Conversion from OH to UG Rule 20B

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	1	0	0	0
Non-Labor	Zero-Based	0	0	0	0	4	3,116	29,072	47,596
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	4	3,116	29,072	47,596
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

Convert overhead facilities to underground based on requirements of our conversion rule 20B.

Physical Description:

This budget provides for, at the governing body's expense, but with certain ratepayer credits for an equivalent overhead system and for existing overhead to be removed at ratepayer expense, the replacement of existing overhead electric facilities with new comparable underground electric facilities. Replacement is effected at the request of the governing body in the city or county in which such electric facilities are located. This is provided that the conversion area selected by the governing body meets the criteria as set forth in Rule 20B.

Project Justification:

SDG&E is responsible for a portion of the costs associated with converting overhead distribution lines to underground to comply with the "Rules for the Sale of Electric Energy."

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20257.0
Category: C. FRANCHISE
Category-Sub: 1. Electric Street & Highway Relocations
Workpaper Group: 202570 - Electric - Conversion from OH to UG Rule 20B

Forecast Methodology:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20257.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 202570 - Electric - Conversion from OH to UG Rule 20B

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	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	3,116	29,072	47,596	0	0	0	3,116	29,072	47,596
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		3,116	29,072	47,596	0	0	0	3,116	29,072	47,596
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20257.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 202570 - Electric - Conversion from OH to UG Rule 20B

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	4
NSE	0	0	0	0	0
Total	0	0	0	0	4
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	0	0	1
Non-Labor	0	0	0	0	4
NSE	0	0	0	0	0
Total	0	0	0	0	4
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 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	4
NSE	0	0	0	0	0
Total	0	0	0	0	4
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20257.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 202570 - Electric - Conversion from OH to UG Rule 20B

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 202570**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20257.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 202570 - Electric - Conversion from OH to UG Rule 20B
 Workpaper Detail: 202570.001 - NON COLLECTIBLE - Conversion from OH to UG Rule 20B
 In-Service Date: Not Applicable
 Description:

Install new underground facilities to replace existing overhead facilities for projects meeting the criteria of Rule 20B.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		405	3,779	6,188
NSE		0	0	0
	Total	405	3,779	6,188
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20257.0
 Category: C. FRANCHISE
 Category-Sub: 1. Electric Street & Highway Relocations
 Workpaper Group: 202570 - Electric - Conversion from OH to UG Rule 20B
 Workpaper Detail: 202570.002 - COLLECTIBLE - Conversion from OH to UG Rule 20B
 In-Service Date: Not Applicable

Description:

Install new underground facilities to replace existing overhead facilities for projects meeting the criteria of Rule 20B (portion of costs paid by customer).

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	0	0
Non-Labor		2,711	25,293	41,408
NSE		0	0	0
	Total	<u>2,711</u>	<u>25,293</u>	<u>41,408</u>
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 202570

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

TY2024 GRC FORECAST - DETAILS
Budget Code:
Estimated In Service Date:

2023
Ongoing

If this is an ongoing blanked or program, please input "ongoing"

Line Item	Unit Description	Labor/Non-Labor	EA/MP/Non-RAMP	Unit Metric (ea./ft./mile)	# of units	2023 Cost per unit	Total cost	# of units	2023 Cost per unit	Total cost	2024 Cost per unit	Total cost	Comments
San Marcos Discovery/Crestside 208 - PH 1 (1)	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 262,008	\$ 262,008	1	\$ 262,008	\$ 262,008	\$ -	\$ -	OH Equivalent Costs derived from Appendix A (OH Equivalent)
San Marcos Discovery/Crestside 208 - PH 1 (1)	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 26,000	\$ 26,000	1	\$ 26,000	\$ 26,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
San Marcos Discovery/Crestside 208 - PH 1 (1)	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 264,268	\$ 264,268	1	\$ 264,268	\$ 264,268	\$ -	\$ -	Materials Costs derived from the SAP Cost Analysis Report
San Marcos Discovery/Crestside 208 - PH 1 (1)	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 2,303,230	\$ 2,303,230	1	\$ 2,303,230	\$ 2,303,230	\$ -	\$ -	Collectible labor costs derived from Appendix A
San Marcos Discovery/Crestside 208 - PH 2	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 274,815	\$ 274,815	1	\$ 274,815	\$ 274,815	\$ -	\$ -	Estimated at 10% of total project cost, from SDG&E conversion cost calculator.
San Marcos Discovery/Crestside 208 - PH 2	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 60,000	\$ 60,000	1	\$ 60,000	\$ 60,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
San Marcos Discovery/Crestside 208 - PH 2	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 247,333	\$ 247,333	1	\$ 247,333	\$ 247,333	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
San Marcos Discovery/Crestside 208 - PH 2	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 2,165,999	\$ 2,165,999	1	\$ 2,165,999	\$ 2,165,999	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Oceanside Fire Mountain 208	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 295,157	\$ 295,157	1	\$ 295,157	\$ 295,157	\$ -	\$ -	Estimated at 10% of total project cost, from SDG&E conversion cost calculator.
Oceanside Fire Mountain 208	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 78,000	\$ 78,000	1	\$ 78,000	\$ 78,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Oceanside Fire Mountain 208	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 265,641	\$ 265,641	1	\$ 265,641	\$ 265,641	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Oceanside Fire Mountain 208	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 2,315,773	\$ 2,315,773	1	\$ 2,315,773	\$ 2,315,773	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Soana Beach Pacific Ave 208 - PH 2 (1)	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 46,693	\$ 46,693	1	\$ 46,693	\$ 46,693	\$ -	\$ -	OH Equivalent Costs derived from Appendix A (OH Equivalent)
Soana Beach Pacific Ave 208 - PH 2 (1)	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 26,000	\$ 26,000	1	\$ 26,000	\$ 26,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Soana Beach Pacific Ave 208 - PH 2 (1)	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 265,121	\$ 265,121	1	\$ 265,121	\$ 265,121	\$ -	\$ -	Materials Costs derived from the SAP Cost Analysis Report
Soana Beach Pacific Ave 208 - PH 2 (1)	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 2,892,805	\$ 2,892,805	1	\$ 2,892,805	\$ 2,892,805	\$ -	\$ -	Collectible labor costs derived from Appendix A
Soana Beach Glenmont El Al 208	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 1,216,839	\$ 1,216,839	1	\$ 1,216,839	\$ 1,216,839	\$ -	\$ -	Estimated at 10% of total project cost, from SDG&E conversion cost calculator.
Soana Beach Glenmont El Al 208	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 230,000	\$ 230,000	1	\$ 230,000	\$ 230,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Soana Beach Glenmont El Al 208	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 1,095,955	\$ 1,095,955	1	\$ 1,095,955	\$ 1,095,955	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Soana Beach Glenmont El Al 208	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 8,277,308	\$ 8,277,308	1	\$ 8,277,308	\$ 8,277,308	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Soana Beach Nardo Granados Rios 208	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 1,392,664	\$ 1,392,664	1	\$ 1,392,664	\$ 1,392,664	\$ -	\$ -	Estimated at 10% of total project cost, from SDG&E conversion cost calculator.
Soana Beach Nardo Granados Rios 208	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 175,000	\$ 175,000	1	\$ 175,000	\$ 175,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Soana Beach Nardo Granados Rios 208	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 1,253,397	\$ 1,253,397	1	\$ 1,253,397	\$ 1,253,397	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Soana Beach Nardo Granados Rios 208	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 10,105,576	\$ 10,105,576	1	\$ 10,105,576	\$ 10,105,576	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Encinitas Birmingham 208 (1)	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 163,823	\$ 163,823	1	\$ 163,823	\$ 163,823	\$ -	\$ -	OH Equivalent Costs derived from Appendix A (OH Equivalent)
Encinitas Birmingham 208 (1)	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 80,000	\$ 80,000	1	\$ 80,000	\$ 80,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Encinitas Birmingham 208 (1)	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 1,526,629	\$ 1,526,629	1	\$ 1,526,629	\$ 1,526,629	\$ -	\$ -	Materials Costs derived from the SAP Cost Analysis Report
Encinitas Birmingham 208 (1)	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 2,526,629	\$ 2,526,629	1	\$ 2,526,629	\$ 2,526,629	\$ -	\$ -	Collectible labor costs derived from Appendix A
Cononado Silver Strand 208	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 945,397	\$ 945,397	1	\$ 945,397	\$ 945,397	\$ -	\$ -	Estimated at 10% of total project cost, from SDG&E conversion cost calculator.
Cononado Silver Strand 208	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 105,000	\$ 105,000	1	\$ 105,000	\$ 105,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Cononado Silver Strand 208	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 860,857	\$ 860,857	1	\$ 860,857	\$ 860,857	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Cononado Silver Strand 208	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 7,552,719	\$ 7,552,719	1	\$ 7,552,719	\$ 7,552,719	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Cononado Adelia/Vnez 208	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 234,511	\$ 234,511	1	\$ 234,511	\$ 234,511	\$ -	\$ -	OH Equivalent Costs derived from Appendix A (OH Equivalent)
Cononado Adelia/Vnez 208	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 55,000	\$ 55,000	1	\$ 55,000	\$ 55,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Cononado Adelia/Vnez 208	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 211,059	\$ 211,059	1	\$ 211,059	\$ 211,059	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Cononado Adelia/Vnez 208	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 1,844,535	\$ 1,844,535	1	\$ 1,844,535	\$ 1,844,535	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Del Mar Tewa Court 208 (1)	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 16,045	\$ 16,045	1	\$ 16,045	\$ 16,045	\$ -	\$ -	OH Equivalent Costs derived from Appendix A (OH Equivalent)
Del Mar Tewa Court 208 (1)	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 55,000	\$ 55,000	1	\$ 55,000	\$ 55,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Del Mar Tewa Court 208 (1)	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 57,779	\$ 57,779	1	\$ 57,779	\$ 57,779	\$ -	\$ -	Materials Costs derived from the SAP Cost Analysis Report
Del Mar Tewa Court 208 (1)	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 183,929	\$ 183,929	1	\$ 183,929	\$ 183,929	\$ -	\$ -	Collectible labor costs derived from Appendix A
Del Mar Crest Canyon 208 - PH 1	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 757,363	\$ 757,363	1	\$ 757,363	\$ 757,363	\$ -	\$ -	Estimated at 10% of total project cost, from SDG&E conversion cost calculator.
Del Mar Crest Canyon 208 - PH 1	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 120,000	\$ 120,000	1	\$ 120,000	\$ 120,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Del Mar Crest Canyon 208 - PH 1	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 955,227	\$ 955,227	1	\$ 955,227	\$ 955,227	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Del Mar Crest Canyon 208 - PH 1	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 4,737,045	\$ 4,737,045	1	\$ 4,737,045	\$ 4,737,045	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Del Mar Crest Canyon 208 - PH 2	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 761,863	\$ 761,863	1	\$ 761,863	\$ 761,863	\$ -	\$ -	OH Equivalent Costs derived from Appendix A (OH Equivalent)
Del Mar Crest Canyon 208 - PH 2	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 120,000	\$ 120,000	1	\$ 120,000	\$ 120,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Del Mar Crest Canyon 208 - PH 2	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 955,227	\$ 955,227	1	\$ 955,227	\$ 955,227	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Del Mar Crest Canyon 208 - PH 2	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 4,737,045	\$ 4,737,045	1	\$ 4,737,045	\$ 4,737,045	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Del Mar Crest Canyon 208 - PH 3	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$ 661,363	\$ 661,363	1	\$ 661,363	\$ 661,363	\$ -	\$ -	OH Equivalent Costs derived from Appendix A (OH Equivalent)
Del Mar Crest Canyon 208 - PH 3	Contractor Labor (POE Removal)	Non-Labor	Non-RAMP	ea	1	\$ 120,000	\$ 120,000	1	\$ 120,000	\$ 120,000	\$ -	\$ -	Pole removal costs estimated at \$5,000 / pole
Del Mar Crest Canyon 208 - PH 3	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$ 955,227	\$ 955,227	1	\$ 955,227	\$ 955,227	\$ -	\$ -	Estimated at 9% of total project cost, from SDG&E conversion cost calculator.
Del Mar Crest Canyon 208 - PH 3	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$ 4,162,825	\$ 4,162,825	1	\$ 4,162,825	\$ 4,162,825	\$ -	\$ -	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)

San Diego Gas & Electric Company
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Capital Workpapers

Del Mar Stratford Court 208 - PH 1	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	328,910	\$	328,910	\$	298,910	Estimated at 10% of total project costs, from SD&E Conversion cost calculator.
Del Mar Stratford Court 208 - PH 1	Contractor Labor (Pole Removals)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	9,000	\$	9,000	\$	9,000	Pole removal costs estimated at \$5,000 / pole
Del Mar Stratford Court 208 - PH 1	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	298,019	\$	298,019	\$	298,019	Cost calculated at 9% of total project cost, from SD&E Conversion cost calculator.
Del Mar Stratford Court 208 - PH 1	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	2,569,173	\$	2,569,173	\$	2,569,173	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Del Mar Stratford Court 208 - PH 2	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	478,910	\$	478,910	\$	478,910	Estimated at 10% of total project costs, from SD&E Conversion cost calculator.
Del Mar Stratford Court 208 - PH 2	Contractor Labor (Pole Removals)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	90,000	\$	90,000	\$	90,000	Pole removal costs estimated at \$5,000 / pole
Del Mar Stratford Court 208 - PH 2	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	298,019	\$	298,019	\$	298,019	Cost calculated at 9% of total project cost, from SD&E Conversion cost calculator.
Del Mar Stratford Court 208 - PH 2	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	2,574,173	\$	2,574,173	\$	2,574,173	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
Del Mar Stratford Court 208 - PH 3	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	528,910	\$	528,910	\$	528,910	Estimated at 10% of total project costs, from SD&E Conversion cost calculator.
Del Mar Stratford Court 208 - PH 3	Contractor Labor (Pole Removals)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	90,000	\$	90,000	\$	90,000	Pole removal costs estimated at \$5,000 / pole
Del Mar Stratford Court 208 - PH 3	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	298,019	\$	298,019	\$	298,019	Cost calculated at 9% of total project cost, from SD&E Conversion cost calculator.
Del Mar Stratford Court 208 - PH 3	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	1,999,688	\$	1,999,688	\$	1,999,688	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
GLSD Grossmont High School 208	Contractor Labor (OH Equivalent)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	944,653	\$	944,653	\$	944,653	Estimated at 10% of total project costs, from SD&E Conversion cost calculator.
GLSD Grossmont High School 208	Contractor Labor (Pole Removals)	Non-Labor	Non-RAMP	ea	1	\$	1	\$	30,000	\$	30,000	\$	30,000	Pole removal costs estimated at \$5,000 / pole
GLSD Grossmont High School 208	Materials - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	108,362	\$	108,362	\$	108,362	Estimated at 9% of total project costs, from SD&E Conversion cost calculator.
GLSD Grossmont High School 208	Contractor Labor - Collectible	Collectible	Non-RAMP	ea	1	\$	1	\$	944,766	\$	944,766	\$	944,766	Estimated as remainder of costs (total less OH equivalent, less pole removals, less materials)
*Costs should be reported in direct costs only (no overheads)														
Summary														
Subtotal RAMP														
Labor														
Non-Labor														
Collectible														
Non-RAMP														
Non-Labor														
Non-RAMP														
Total Project Forecast														

Beginning of Workpaper Group
002100 - CONVERSION FROM OH TO UG RULE 20A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00210.0
 Category: C. FRANCHISE
 Category-Sub: 2. Conversion of Overhead to Underground Rule 20A
 Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	228	217	203	207	74	161	161	161
Non-Labor	3-YR Average	20,164	7,368	9,767	24,149	12,207	15,375	15,375	15,375
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		20,392	7,585	9,970	24,356	12,281	15,536	15,536	15,536
FTE	3-YR Average	1.3	1.1	1.2	0.9	0.3	0.8	0.8	0.8

Business Purpose:

Convert overhead facilities to underground based on requirements of conversion rule 20a; a CPUC mandated program defined in case 8209 dated 09-27-67 (effective 01-01-68) and franchise agreements with the cities of San Diego and Chula Vista. The significant other customers that participate in the program are the cities of: Carlsbad, Coronado, Dana Point, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, Laguna Beach, Laguna Hills, Laguna Niguel, La Mesa, Lemon Grove, Mission Viejo, National City, Oceanside, Poway, Solana Beach, San Clemente, San Juan Capistrano, San Marcos, Santee and the Counties Of Orange and San Diego

Physical Description:

Replacement of existing overhead electric facilities with new comparable underground electric facilities. Replacement is effected at the request of the governing body in the city or county in which such electric facilities are located . This is provided that the conversion area selected by the governing body meets the criteria as set forth in Rule 20A.

Project Justification:

This is a CPUC-mandated program and is also incorporated into the SDG&E Franchises with the cities of San Diego and Chula Vista. Total program allocations (e.g., promises to spend) are based on the San Diego Agreement, with each other City/County receiving an amount proportional to their electric meter count in accordance with the methodology specified in Rule 20A. Expenditures in San Diego are also mandated by the MOU.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00210.0
Category: C. FRANCHISE
Category-Sub: 2. Conversion of Overhead to Underground Rule 20A
Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00210.0
 Category: C. FRANCHISE
 Category-Sub: 2. Conversion of Overhead to Underground Rule 20A
 Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

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	3-YR Average	161	161	161	0	0	0	161	161	161
Non-Labor	3-YR Average	15,375	15,375	15,375	0	0	0	15,375	15,375	15,375
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		15,536	15,536	15,536	0	0	0	15,536	15,536	15,536
FTE	3-YR Average	0.8	0.8	0.8	0.0	0.0	0.0	0.8	0.8	0.8

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00210.0
 Category: C. FRANCHISE
 Category-Sub: 2. Conversion of Overhead to Underground Rule 20A
 Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	166	165	162	173	64
Non-Labor	16,557	6,461	8,904	23,103	12,207
NSE	0	0	0	0	0
Total	16,723	6,626	9,065	23,276	12,271
FTE	1.1	0.9	1.0	0.9	0.3
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	295	0	0	-9	0
NSE	0	0	0	0	0
Total	295	0	0	-9	0
FTE	0.0	0.0	0.0	-0.1	0.0
Recorded-Adjusted (Nominal \$)					
Labor	166	165	162	173	64
Non-Labor	16,853	6,461	8,904	23,094	12,207
NSE	0	0	0	0	0
Total	17,019	6,626	9,065	23,267	12,271
FTE	1.1	0.9	1.0	0.8	0.3
Vacation & Sick (Nominal \$)					
Labor	25	25	23	25	10
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	25	25	23	25	10
FTE	0.2	0.2	0.2	0.1	0.0
Escalation to 2021\$					
Labor	37	27	18	9	0
Non-Labor	3,311	907	863	1,055	0
NSE	0	0	0	0	0
Total	3,348	934	881	1,064	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	228	217	203	207	74
Non-Labor	20,164	7,368	9,767	24,149	12,207
NSE	0	0	0	0	0
Total	20,392	7,585	9,970	24,356	12,281
FTE	1.3	1.1	1.2	0.9	0.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00210.0
 Category: C. FRANCHISE
 Category-Sub: 2. Conversion of Overhead to Underground Rule 20A
 Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		0	0	0	0	0
Non-Labor		295	0	0	-9	0
NSE		0	0	0	0	0
	Total	295	0	0	-9	0
FTE		0.0	0.0	0.0	-0.1	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	295	0	295	0.0
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	0	295	0	295	0.0
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	-0.009	-9	0	-9	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020 Total	-0.009	-9	0	-9	-0.1
2021 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002100**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00210.0
 Category: C. FRANCHISE
 Category-Sub: 2. Conversion of Overhead to Underground Rule 20A
 Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A
 Workpaper Detail: 002100.001 - Conversion of Overhead to Underground Rule 20A
 In-Service Date: Not Applicable

Description:

Replacement of existing overhead electric facilities with new comparable underground electric facilities at the request of the governing body in the city or county in which the electric facilities are located provided that the conversion area selected by the governing body meets the criteria set forth in Rule 20A.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		161	161	161
Non-Labor		15,375	15,375	15,375
NSE		0	0	0
	Total	15,536	15,536	15,536
FTE		0.8	0.8	0.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00213.0
 Category: C. FRANCHISE
 Category-Sub: 3. City of San Diego Surcharge Program (20SD)
 Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	208	124	288	99	75	154	154	154
Non-Labor	3-YR Average	13,771	11,240	35,080	17,840	3,686	18,868	18,868	18,868
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		13,979	11,364	35,368	17,938	3,761	19,022	19,022	19,022
FTE	3-YR Average	1.6	0.8	2.1	0.7	0.6	1.1	1.1	1.1

Business Purpose:

This Program is unique to the City of San Diego and provided for at their expense. The City of San Diego has a goal to convert, as much as possible, existing electric distribution and transmission facilities from overhead to underground within the bounds of the City's territory.

Physical Description:

Replaces existing overhead electric facilities with comparable new underground electric facilities (transmission and distribution). Replacement is effected at the request of San Diego. This is a separate and distinct Program from and unrelated to the Rule 20A Undergrounding Program.

Project Justification:

This Program is associated with SDG&E Franchise Agreement with the City of San Diego and is required by that Agreement. All expenses associated with this Program will be reimbursed to SDG&E by the City from the proceeds of a surcharge collected from each electric meter account in the City of San Diego. No net capital or O&M expenditures are anticipated.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. City of San Diego Surcharge Program (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00213.0
 Category: C. FRANCHISE
 Category-Sub: 3. City of San Diego Surcharge Program (20SD)
 Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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	3-YR Average	154	154	154	0	0	0	154	154	154
Non-Labor	3-YR Average	18,868	18,868	18,868	0	0	0	18,868	18,868	18,868
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		19,022	19,022	19,022	0	0	0	19,022	19,022	19,022
FTE	3-YR Average	1.1	1.1	1.1	0.0	0.0	0.0	1.1	1.1	1.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00213.0
 Category: C. FRANCHISE
 Category-Sub: 3. City of San Diego Surcharge Program (20SD)
 Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	152	95	229	83	65
Non-Labor	11,510	9,856	31,979	17,060	3,686
NSE	0	0	0	0	0
Total	11,661	9,951	32,208	17,142	3,751
FTE	1.4	0.7	1.8	0.7	0.3
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	-0.1	0.2
Recorded-Adjusted (Nominal \$)					
Labor	152	95	229	82	65
Non-Labor	11,510	9,856	31,979	17,060	3,686
NSE	0	0	0	0	0
Total	11,661	9,951	32,208	17,142	3,751
FTE	1.4	0.7	1.8	0.6	0.5
Vacation & Sick (Nominal \$)					
Labor	22	14	33	12	10
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	22	14	33	12	10
FTE	0.2	0.1	0.3	0.1	0.1
Escalation to 2021\$					
Labor	34	15	25	4	0
Non-Labor	2,261	1,384	3,101	780	0
NSE	0	0	0	0	0
Total	2,295	1,399	3,126	784	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	208	124	288	99	75
Non-Labor	13,771	11,240	35,080	17,840	3,686
NSE	0	0	0	0	0
Total	13,979	11,364	35,368	17,938	3,761
FTE	1.6	0.8	2.1	0.7	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00213.0
 Category: C. FRANCHISE
 Category-Sub: 3. City of San Diego Surcharge Program (20SD)
 Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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	-0.1	0.2

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	-0.044	0	0	-0.044	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020 Total	-0.044	0	0	-0.044	-0.1
2021	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002130**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00213.0
 Category: C. FRANCHISE
 Category-Sub: 3. City of San Diego Surcharge Program (20SD)
 Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)
 Workpaper Detail: 002130.001 - COLLECTIBLE- City of San Diego Surcharge Program (20SD)
 In-Service Date: Not Applicable

Description:

This Program is unique to the City of San Diego and provided for at their expense. The City of San Diego has a goal to convert, as much as possible, existing electric distribution and transmission facilities from overhead to underground within the bounds of the City's territory.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		154	154	154
Non-Labor		18,868	18,868	18,868
NSE		0	0	0
	Total	19,022	19,022	19,022
FTE		1.1	1.1	1.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
21125A - 21125 - TL681 ESCONDIDO TRAILS CUSTOMER RELOCATION

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21125.0
 Category: C. FRANCHISE
 Category-Sub: 4. Other Franchises
 Workpaper Group: 21125A - 21125 - TL681 ESCONDIDO TRAILS CUSTOMER RELOCATION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	4	1	0
Non-Labor	Zero-Based	0	0	0	0	0	36	210	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	40	211	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0

Business Purpose:

The City of Escondido has requested SDG&E to relocate a transmission structure that is in franchise since it is in a location that hinders the city's ability to install a new sidewalk.

Physical Description:

The current scope of work includes: Removing one existing wood pole and installing one pre-engineered steel structure, and possibly reconductoring 0.75 miles of transmission and distribution conductors.

Project Justification:

This project is per a request from the City of Escondido, and this request is allowed per language in the city's franchise agreement with SDG&E.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21125.0
Category: C. FRANCHISE
Category-Sub: 4. Other Franchises
Workpaper Group: 21125A - 21125 - TL681 ESCONDIDO TRAILS CUSTOMER RELOCATION

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

n/a

**Beginning of Workpaper Sub Details for
Workpaper Group 21125A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21125.0
 Category: C. FRANCHISE
 Category-Sub: 4. Other Franchises
 Workpaper Group: 21125A - 21125 - TL681 ESCONDIDO TRAILS CUSTOMER RELOCATION
 Workpaper Detail: 21125A.001 - TL681 ESCONDIDO TRAILS CUSTOMER RELOCATION
 In-Service Date: 03/31/2024

Description:

Relocate pole Z314039 at City of Escondido request to allow for them to install a new sidewalk.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		4	1	0
Non-Labor		36	210	0
NSE		0	0	0
	Total	40	211	0
FTE		0.1	0.1	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 21125A

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21125
 Estimated in Service Date: 3/27/2024

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ev./ft./mile)	2022		2023		2024		Total Cost	Comments	
					# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost			# of units
1	FTEs	Labor	Non-RAMP	ea	0.04	\$ 100,000	\$ 4,225	0.01	\$ 100,000	\$ 1,408	\$ -	\$ 5,633	Estimated cost for internal SDG&E labor for management and ancillary support.
2	Contract Engineering	Non-Labor	Non-RAMP	hours	105	\$ 150	\$ 15,750	35	\$ 150	\$ 5,250	\$ -	\$ 21,022	Estimated cost for contracted engineering labor for distribution underbuild relocation work.
3	Contract Construction	Non-Labor	Non-RAMP	hours				1,365	\$ 150	\$ 204,807	\$ -	\$ 204,807	Estimated cost for contracted construction labor for distribution underbuild relocation work.
4	Transmission poles replaced with distribution underbuild	Non-Labor	Non-RAMP	poles	1	\$ 20,000	\$ 20,000			\$ -	\$ -	\$ 20,000	Estimated cost for distribution underbuild materials and distribution equipment associated with the transmission relocation project.
5	FTEs	Labor	Non-RAMP	V&S	0.007	\$ 15,020	\$ 108	0.002	\$ 15,020	\$ 36	\$ -	\$ 144	
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

*Costs should be reported in direct costs only (no overheads)

Summary		Labor	Non-Labor	RAMP	Non-RAMP	Total
Subtotal RAMP		\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Non-RAMP		\$ -	\$ -	\$ 1,444	\$ 210,063	\$ 211,507
Total Project Forecast		\$ -	\$ -	\$ 1,444	\$ 210,063	\$ 211,507

Beginning of Workpaper Group
21139A - TL634 JUNIPER STREET CUSTOMER RELOCATION

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21139.0
 Category: C. FRANCHISE
 Category-Sub: 4. Other Franchises
 Workpaper Group: 21139A - TL634 JUNIPER STREET CUSTOMER RELOCATION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	6	3	0
Non-Labor	Zero-Based	0	0	0	0	0	34	168	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	40	171	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0

Business Purpose:

Relocate four transmission poles with distribution underbuild and three distribution inset poles. This is a franchise relocation at the request of the City of Escondido to accommodate the Juniper Street Improvements project.

Physical Description:

Current scope includes removing 4 transmission poles with distribution underbuild and 3 distribution poles; installing 4 new steel transmission poles with distribution underbuild and 3 new steel distribution poles.

Project Justification:

This project is per a request from the City of Escondido, and this request is allowed per language in the city's franchise agreement with SDG&E.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21139.0
Category: C. FRANCHISE
Category-Sub: 4. Other Franchises
Workpaper Group: 21139A - TL634 JUNIPER STREET CUSTOMER RELOCATION

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 21139A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21139.0
 Category: C. FRANCHISE
 Category-Sub: 4. Other Franchises
 Workpaper Group: 21139A - TL634 JUNIPER STREET CUSTOMER RELOCATION
 Workpaper Detail: 21139A.001 - TL634 JUNIPER STREET CUSTOMER RELOCATION
 In-Service Date: 07/31/2024

Description:

Relocate four (4) transmission structures with distribution underbuild and three (3) distribution inset structures on the TL634 Transmission Line at the request of the City of Escondido to accommodate the Juniper Street Improvements project.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		6	3	0
Non-Labor		34	168	0
NSE		0	0	0
	Total	40	171	0
FTE		0.1	0.1	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 21139A

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21139
 Estimated In Service Date: 7/31/2024

21139 - T1634 Juniper Street Customer Relocation														
Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ev./ft./mile)	# of units	Cost per unit*	Total cost	2023 # of units	2023 Cost per unit*	Total cost	2024 # of units	2024 Cost per unit*	Total cost	Comments
1	FTEs	Labor	Non-RAMP	ea	0.06	\$ 100,000	\$ 6,284	0.03	\$ 100,000	\$ 3,043			\$ -	Estimated cost for internal SDG&E labor for management and ancillary support.
2	Contract Engineering	Non-Labor	Non-RAMP	hours	225	\$ 150	\$ 33,686	84	\$ 150	\$ 12,638			\$ -	Estimated cost for contracted engineering labor for distribution relocation work.
3	Contract Construction	Non-Labor	Non-RAMP	hours				265	\$ 150	\$ 39,750			\$ -	Estimated cost for contracted construction labor for distribution relocation work.
4	Distribution Poles Replaced	Non-Labor	Non-RAMP	ea				3	\$ 12,000	\$ 36,000			\$ -	Estimated cost for contracted engineering labor for distribution relocation work.
5	Transmission poles with distribution underbuild	Non-Labor	Non-RAMP	ea				4	\$ 20,000	\$ 80,000			\$ -	Estimated cost for contracted construction labor for distribution relocation work.
6	FTEs	Labor	Non-RAMP	V&S	0.011	\$ 15,020	\$ 161	0.005	\$ 15,020	\$ 78			\$ -	Replace three (3) inset distribution poles.
7													\$ -	Replace underbuilt distribution facilities on four (4) transmission structures.
8													\$ -	
9													\$ -	
10													\$ -	
11													\$ -	
12													\$ -	
13													\$ -	
14													\$ -	
15													\$ -	

*Costs should be reported in direct costs only (no overheads)

Summary										
	Labor	Non-Labor	RAMP	Non-RAMP	Total	2023 Total	2024 Total	2023 Total	2024 Total	Comments
Subtotal RAMP					\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotal Non-RAMP					\$ 6,445	\$ 31,121	\$ 3,121	\$ 168,368	\$ 9,566	
Total Project Forecast					\$ 40,131	\$ 171,489	\$ 171,489	\$ 211,619	\$ 211,619	

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: D. MANDATED
Workpaper: VARIOUS

Summary for Category: D. MANDATED

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	10,652	10,718	10,723	10,723
Non-Labor	18,911	21,225	23,038	23,038
NSE	0	0	0	0
Total	29,563	31,943	33,761	33,761
FTE	66.9	61.5	61.5	61.5

002290 RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Labor	5,050	5,027	5,027	5,027
Non-Labor	5,542	6,198	6,198	6,198
NSE	0	0	0	0
Total	10,592	11,225	11,225	11,225
FTE	30.1	23.2	23.2	23.2

002890 RAMP - Manhole, Handhole, and Vault Restoration

Labor	794	794	794	794
Non-Labor	3,517	3,517	3,517	3,517
NSE	0	0	0	0
Total	4,311	4,311	4,311	4,311
FTE	5.8	5.8	5.8	5.8

102650 RAMP- Avian Protection

Labor	298	20	25	25
Non-Labor	1,465	129	162	162
NSE	0	0	0	0
Total	1,763	149	187	187
FTE	2.0	0.2	0.2	0.2

132640 DISTRIBUTED GENERATION INTERCONNECT. PRO

Labor	2	369	369	369
Non-Labor	6	1,400	1,400	1,400
NSE	0	0	0	0
Total	8	1,769	1,769	1,769
FTE	0.0	3.3	3.3	3.3

172620 STREET LIGHT MODERNIZATION

Labor	0	0	0	0
Non-Labor	180	1,780	3,560	3,560
NSE	0	0	0	0
Total	180	1,780	3,560	3,560
FTE	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Category: D. MANDATED
 Workpaper: VARIOUS

In 2021\$ (000)			
Adjusted-Recorded	Adjusted-Forecast		
2021	2022	2023	2024

872320 RAMP - Pole Replacement And Reinforcement

Labor	4,508	4,508	4,508	4,508
Non-Labor	8,201	8,201	8,201	8,201
NSE	0	0	0	0
Total	12,709	12,709	12,709	12,709
FTE	29.0	29.0	29.0	29.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00229.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

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	4,066	5,056	5,028	5,936	5,050	5,027	5,027	5,027
Non-Labor	5-YR Average	5,545	5,435	5,758	8,712	5,542	6,198	6,198	6,198
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		9,611	10,491	10,787	14,647	10,592	11,225	11,225	11,225
FTE	5-YR Average	23.4	27.7	16.3	18.7	30.1	23.2	23.2	23.2

Business Purpose:

Repair of overhead and underground electric distribution facilities to correct conditions found during inspection. This program is mandated under CPUC General Orders 165, 95, and 128 to ensure safe, high quality electrical service and compliance with SDG&E and CPUC construction standards. Inspections are performed on a cyclical basis and conditions found during inspections are repaired in a timely manner. This program has been ongoing since January 1998.

Physical Description:

All electric distribution facilities are visually patrolled on an annual basis in urban and rural areas and inspected in detail every three, five, or ten years depending on equipment type. Conditions found during the inspections may require only labor to repair equipment or may require replacement of equipment that is no longer serviceable. Inspections and some repair work are captured under O&M budgets. There are approximately 230,000 overhead poles and 154,000 underground facilities to inspect on the following cycles:

- Overhead Detail: 5 years
- Above Ground Internal: 5 years
- Above Ground External 5 years
- Subsurface 3 year: 3 years
- Subsurface 10 year: 10 years
- Oil & Gas Switches: 3 years (replacements on 00290 budget)
- Wood Pole Integrity: 10/15/20 years (replacements and restoration on 87232 budget)

The scope of this project includes 1,695 jobs per year.

Project Justification:

This program is mandated by the CPUC. It is also incumbent on SDG&E to ensure a safe environment for workers and the public and to provide reliable electric service. Failure to perform the inspections and repairs under this program would subject SDG&E to regulatory sanctions, fines, and legal liability. With the CPUC citation program rolled out in 2015, it is vital the CMP follow-up work is completed as required and in a timely manner.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00229.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Forecast Methodology:

Labor - 5-YR Average

The forecast method selected is a 5-year average based on historical spend. This is the most appropriate methodology, as work load can vary from year to year while remaining relatively consistent. The 5-year average levels out the peaks and valleys in this blanket budget code over a longer period of time, and still provides for the necessary level of funding for the work that falls within this budget code.

Non-Labor - 5-YR Average

The forecast method selected is a 5-year average based on historical spend. This is the most appropriate methodology, as work load can vary from year to year while remaining relatively consistent. The 5-year average levels out the peaks and valleys in this blanket budget code over a longer period of time, and still provides for the necessary level of funding for the work that falls within this budget code.

NSE - 5-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00229.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

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	5,027	5,027	5,027	0	0	0	5,027	5,027	5,027
Non-Labor	5-YR Average	6,198	6,198	6,198	0	0	0	6,198	6,198	6,198
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		11,225	11,225	11,225	0	0	0	11,225	11,225	11,225
FTE	5-YR Average	23.2	23.2	23.2	0.0	0.0	0.0	23.2	23.2	23.2

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00229.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	561	4,241	5,355	6,643	4,391
Non-Labor	1,792	4,827	5,513	8,736	5,542
NSE	0	0	0	0	0
Total	2,353	9,068	10,869	15,379	9,933
FTE	4.3	2.8	1.6	1.4	0.4
Adjustments (Nominal \$)**					
Labor	2,398	-390	-1,346	-1,671	0
Non-Labor	2,842	-61	-264	-405	0
NSE	0	0	0	0	0
Total	5,240	-451	-1,610	-2,076	0
FTE	15.8	20.9	12.4	14.7	25.3
Recorded-Adjusted (Nominal \$)					
Labor	2,959	3,850	4,010	4,971	4,391
Non-Labor	4,634	4,766	5,249	8,331	5,542
NSE	0	0	0	0	0
Total	7,593	8,616	9,259	13,302	9,933
FTE	20.1	23.7	14.0	16.1	25.7
Vacation & Sick (Nominal \$)					
Labor	439	583	574	705	659
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	439	583	574	705	659
FTE	3.3	4.0	2.3	2.6	4.4
Escalation to 2021\$					
Labor	668	622	445	259	0
Non-Labor	910	669	509	381	0
NSE	0	0	0	0	0
Total	1,578	1,291	954	640	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	4,066	5,056	5,028	5,936	5,050
Non-Labor	5,545	5,435	5,758	8,712	5,542
NSE	0	0	0	0	0
Total	9,611	10,491	10,787	14,647	10,592
FTE	23.4	27.7	16.3	18.7	30.1

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00229.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		2,398	-390	-1,346	-1,671	0
Non-Labor		2,842	-61	-264	-405	0
NSE		0	0	0	0	0
	Total	5,240	-451	-1,610	-2,076	0
FTE		15.8	20.9	12.4	14.7	25.3

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	2,398	2,842	0	5,240	15.8
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	2,398	2,842	0	5,240	15.8
2018	-390	-61	0	-451	-3.3
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	24.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-390	-61	0	-451	20.9
2019	-1,346	-264	0	-1,610	-11.2
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	23.6
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-1,346	-264	0	-1,610	12.4
2020	-1,671	-405	0	-2,076	-13.9
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	28.6
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-1,671	-405	0	-2,076	14.7
2021	0.001	0	0	0.001	25.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00229.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	25.3

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002290**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00229.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)
 Workpaper Detail: 002290.001 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)
 In-Service Date: Not Applicable
 Description:

Repair of overhead and underground electric distribution facilities to correct conditions found during inspection.
--

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		5,027	5,027	5,027
Non-Labor		6,198	6,198	6,198
NSE		0	0	0
	Total	11,225	11,225	11,225
FTE		23.2	23.2	23.2

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00229.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002290 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)
 Workpaper Detail: 002290.001 - RAMP - CORRECTIVE MAINTENANCE PROGRAM (CMP)

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C15
 RAMP Line Item Name: GO165 Corrective Maintenance Program Underground
 Tranche(s): Tranche1: UG Distribution

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	10,592	11,225	11,225	11,225	33,675	37,937	46,865

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 jobs completed	1,603.00	1,695.00	1,695.00	1,695.00	5,085.00	5,448.00	6,729.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	3.000	61.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Beginning of Workpaper Group
002890 - RAMP - Manhole, Handhole, and Vault Restoration

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00289.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002890 - RAMP - Manhole, Handhole, and Vault Restoration

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	799	687	384	862	794	794	794	
Non-Labor	Base YR Rec	5,129	3,819	2,603	4,145	3,517	3,517	3,517	
NSE	Base YR Rec	0	0	0	0	0	0	0	
Total		5,929	4,506	2,987	5,008	4,311	4,311	4,311	
FTE	Base YR Rec	4.4	3.8	2.8	5.7	5.8	5.8	5.8	

Business Purpose:

This project replaces or repairs underground structures, which impact system integrity, and may pose a risk to employee and public safety. Substructures, such as manholes, contain critical pieces of distribution equipment. Their structural integrity is important to prevent cave-ins and falling debris, which could injure crews, damage equipment, and threaten surface traffic. The result of this project will be improved operational safety, reliability, and a reduction in maintenance and operational costs, and decreased public safety and reliability risk.

Physical Description:

This project repairs or replaces 771 electric distribution underground structures, such as manholes, handholes, and vaults, annually.

Project Justification:

The primary objectives of this program are to maintain underground distribution equipment and facilities for the safety and well-being of both employees and the general public and to comply with General Orders 95, 128 and 165. Failure to implement this program will significantly reduce reliability, limit operational flexibility, and may subject SDG&E to possible fines from the CPUC. Without implementing such a program SDG&E may increase the risk of equipment failure and prolonged outages.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00289.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 002890 - RAMP - Manhole, Handhole, and Vault Restoration

Forecast Methodology:

Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.?

Non-Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.?

NSE - Base YR Rec

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00289.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002890 - RAMP - Manhole, Handhole, and Vault Restoration

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	794	794	794	0	0	0	794	794	794
Non-Labor	Base YR Rec	3,517	3,517	3,517	0	0	0	3,517	3,517	3,517
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		4,311	4,311	4,311	0	0	0	4,311	4,311	4,311
FTE	Base YR Rec	5.8	5.8	5.8	0.0	0.0	0.0	5.8	5.8	5.8

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00289.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 002890 - RAMP - Manhole, Handhole, and Vault Restoration

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	181	525	306	726	690
Non-Labor	2,822	3,349	2,373	3,964	3,517
NSE	0	0	0	0	0
Total	3,003	3,874	2,679	4,690	4,208
FTE	0.9	0.4	0.1	0.0	0.1
Adjustments (Nominal \$)**					
Labor	400	-2	0	-3	0
Non-Labor	1,465	0	0	0	0
NSE	0	0	0	0	0
Total	1,866	-2	0	-3	0
FTE	2.8	2.8	2.3	4.9	4.9
Recorded-Adjusted (Nominal \$)					
Labor	582	524	306	722	690
Non-Labor	4,287	3,349	2,373	3,964	3,517
NSE	0	0	0	0	0
Total	4,869	3,872	2,679	4,686	4,208
FTE	3.7	3.2	2.4	4.9	5.0
Vacation & Sick (Nominal \$)					
Labor	86	79	44	102	104
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	86	79	44	102	104
FTE	0.7	0.6	0.4	0.8	0.8
Escalation to 2021\$					
Labor	131	85	34	38	0
Non-Labor	842	470	230	181	0
NSE	0	0	0	0	0
Total	974	555	264	219	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	799	687	384	862	794
Non-Labor	5,129	3,819	2,603	4,145	3,517
NSE	0	0	0	0	0
Total	5,929	4,506	2,987	5,008	4,311
FTE	4.4	3.8	2.8	5.7	5.8

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00289.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002890 - RAMP - Manhole, Handhole, and Vault Restoration

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	400	-2	0	-3	0
Non-Labor	1,465	0	0	0	0
NSE	0	0	0	0	0
Total	1,866	-2	0	-3	0
FTE	2.8	2.8	2.3	4.9	4.9

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	400	1,465	0	1,866	2.8
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	400	1,465	0	1,866	2.8
2018	-2	-0.012	0	-2	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	2.9
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-2	-0.012	0	-2	2.8
2019	0.001	0	0	0.001	2.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	2.3
2020	-3	-0.036	0	-3	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	5.0
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-3	-0.036	0	-3	4.9
2021	0.001	0	0	0.001	4.9
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	4.9

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002890**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00289.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002890 - RAMP - Manhole, Handhole, and Vault Restoration
 Workpaper Detail: 002890.001 - RAMP - Manhole, Handhole, and Vault Restoration
 In-Service Date: Not Applicable

Description:

This projects repairs or replaces electric distribution underground structures, such as manholes, handholes, and vaults.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		794	794	794
Non-Labor		3,517	3,517	3,517
NSE		0	0	0
	Total	4,311	4,311	4,311
FTE		5.8	5.8	5.8

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00289.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 002890 - RAMP - Manhole, Handhole, and Vault Restoration
 Workpaper Detail: 002890.001 - RAMP - Manhole, Handhole, and Vault Restoration

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C16
 RAMP Line Item Name: GO 165 Manhole, Vault Restoration Program
 Tranche(s): Tranche1: Manhole/Handhole

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	4,311	4,311	4,311	4,311	12,933	8,220	10,153

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 manhole restoration completed / lid replaced	758.00	771.00	771.00	771.00	2,313.00	1,386.00	1,710.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	34.000	27.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

**Beginning of Workpaper Group
102650 - RAMP- Avian Protection**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 10265.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 102650 - RAMP- Avian Protection

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	-19	0	0	102	298	20	25	25
Non-Labor	Zero-Based	0	0	0	116	1,465	129	162	162
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	-19	0	0	218	1,762	149	187	187
FTE	Zero-Based	-0.2	0.0	0.0	0.6	2.0	0.2	0.2	0.2

Business Purpose:

Identify and retro-fit, rearrange, or build-to-standard distribution poles in the SDG&E service territory to prevent electrocution of birds in compliance with:

1. Migratory Bird Treaty Act
2. Bald and Golden Eagle Protection Act
3. Codes defined by California Department of Fish and Game

The project will also:

1. Harden the system and reduce fire risk associated with avian electrocutions
2. Improve SDG&E reliability and customer service
3. Will align with Avian Power Line Interaction Committee (APLIC) Guidelines

Physical Description:

Systematically assess all distribution lines and poles in the overhead distribution system that either 1) lie within the Avian Protection Zone, or 2) have associated known bird contacts, in which case we will identify and resolve potential avian risks

Project scope includes 40 poles protected in 2022, 50 in 2023, and 50 in 2024.

Project Justification:

To ensure SDG&E is in compliance with State and Federal laws:

1. Migratory Bird Treaty Act
2. Bald and Golden Eagle Protection Act
3. Codes defined by California Department of Fish and Game

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 10265.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 102650 - RAMP- Avian Protection

Forecast Methodology:

Labor - Zero-Based

The forecast method used is zero-based. While historic-based data (e.g. an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this funding request. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details as applicable.

Non-Labor - Zero-Based

The forecast method used is zero-based. While historic-based data (e.g. an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this funding request. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 10265.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 102650 - RAMP- Avian 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	Zero-Based	20	25	25	0	0	0	20	25	25
Non-Labor	Zero-Based	129	162	162	0	0	0	129	162	162
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		149	187	187	0	0	0	149	187	187
FTE	Zero-Based	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 10265.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 102650 - RAMP- Avian Protection

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	-14	0	0	86	259
Non-Labor	0	0	0	111	1,465
NSE	0	0	0	0	0
Total	-14	0	0	197	1,724
FTE	-0.2	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	0.5	1.7
Recorded-Adjusted (Nominal \$)					
Labor	-14	0	0	86	259
Non-Labor	0	0	0	111	1,465
NSE	0	0	0	0	0
Total	-14	0	0	197	1,724
FTE	-0.2	0.0	0.0	0.5	1.7
Vacation & Sick (Nominal \$)					
Labor	-2	0	0	12	39
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	-2	0	0	12	39
FTE	0.0	0.0	0.0	0.1	0.3
Escalation to 2021\$					
Labor	-3	0	0	4	0
Non-Labor	0	0	0	5	0
NSE	0	0	0	0	0
Total	-3	0	0	10	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	-19	0	0	102	298
Non-Labor	0	0	0	116	1,465
NSE	0	0	0	0	0
Total	-19	0	0	218	1,762
FTE	-0.2	0.0	0.0	0.6	2.0

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 10265.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 102650 - RAMP- Avian 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	0.5	1.7	

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	0.001	0	0	0.001	0.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	0	0	0.001	0.5
2021	0.001	0	0	0.001	1.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	1.7

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 102650**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 10265.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 102650 - RAMP- Avian Protection
 Workpaper Detail: 102650.001 - RAMP- Avian Protection
 In-Service Date: Not Applicable

Description:

Systematically assess all distribution lines and poles in the overhead distribution system that either 1) lie within the Avian Protection Zone, or 2) have associated known bird contacts, in which case we will identify and resolve potential avian risks

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		20	25	25
Non-Labor		129	162	162
NSE		0	0	0
	Total	149	187	187
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 10265.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 102650 - RAMP- Avian Protection
 Workpaper Detail: 102650.001 - RAMP- Avian Protection

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C08
 RAMP Line Item Name: Avian Protection Program
 Tranche(s): Tranche1: OH Distribution

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	1,762	149	187	187	523	1,591	1,967

Cost Estimate Changes from RAMP:

The GRC forecast for this mitigation is split with another witness area (SDG&E-13 Wildfire Mitigation and Vegetation Management).

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 poles protected	965.00	40.00	50.00	50.00	140.00	255.00	315.00

Work Unit Changes from RAMP:

Change in units from RAMP filing (poles protected vs avian covers).

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	39.000	409.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 102650

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 10265
Estimated In Service Date: ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments	
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*			
1	Materials	Non-Labor	RAMP	poles protected	40	\$866	50	\$866	50	\$866	\$ 43,300	\$ 121,640	The unit forecast for 2022 is based on actual projects set up for the year. Roughly the same number of projects are expected in 2023 and 2024. The contract / service costs mainly come from 4 contractor companies. This estimate is based on 2021's historical costs for this program. This estimate is based on 2021's historical costs and hours.
2	Contractors	Non-Labor	RAMP	each	4	\$23,700	4	\$29,600	4	\$29,600	\$ 118,400	\$ 331,600	
3	FTE Labor	Labor	RAMP	hours	280	\$71	350	\$71	350	\$71	\$ 24,850	\$ 69,850	
4	FTE Labor	Labor	RAMP	V&S	48	\$11	60	\$11	60	\$11	\$ 637	\$ 1,728	
Summary													
		Labor	RAMP			\$ 20,389		\$ 25,487		\$ 25,487	\$ 71,863		
		Non-Labor	RAMP			\$ 129,440		\$ 161,700		\$ 161,700	\$ 452,840		
						\$ 149,829		\$ 187,187		\$ 187,187	\$ 524,203		
		Labor	Non-RAMP			\$ -		\$ -		\$ -	\$ -		
		Non-Labor	Non-RAMP			\$ -		\$ -		\$ -	\$ -		
						\$ -		\$ -		\$ -	\$ -		
						\$ -		\$ -		\$ -	\$ -		
						\$ 149,829		\$ 187,187		\$ 187,187	\$ 524,203		

Beginning of Workpaper Group
132640 - DISTRIBUTED GENERATION INTERCONNECT. PRO

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13264.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 132640 - DISTRIBUTED GENERATION INTERCONNECT. PRO

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	7	0	0	0	2	369	369	369
Non-Labor	Zero-Based	9	-7	0	48	6	1,400	1,400	1,400
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		16	-7	0	48	8	1,769	1,769	1,769
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.3	3.3	3.3

Business Purpose:

Interconnection of customer or developer owned generation to SDG&E's electric distribution system.

Physical Description:

Engineering, design, and construction of interconnection facilities from generator switchgear to the point of interconnection on SDG&E's distribution system. Most customer or developer generators interconnected under this budget are 0.5 to 10 MW in size. Each projects requires the installation of a new SCADA switch to interconnect with SDG&E's distribuion system.

The scope of this workpaper includes 8 customer project annually.

Project Justification:

SDG&E is mandated by Electric Rule 21 and the Wholesale Distribution Open Access Tariff (WDAT) to perform applicable studies and system upgrades to enable the interconnection of non-utility owned distributed generation.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 13264.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 132640 - DISTRIBUTED GENERATION INTERCONNECT. PRO

Forecast Methodology:

Labor - Zero-Based

The forecast method used is zero-based. While historic-based data (e.g. an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this funding request. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details as applicable.

Non-Labor - Zero-Based

The forecast method used is zero-based. While historic-based data (e.g. an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this funding request. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13264.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 132640 - DISTRIBUTED GENERATION INTERCONNECT. PRO

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	Zero-Based	369	369	369	0	0	0	369	369	369
Non-Labor	Zero-Based	1,400	1,400	1,400	0	0	0	1,400	1,400	1,400
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,769	1,769	1,769	0	0	0	1,769	1,769	1,769
FTE	Zero-Based	3.3	3.3	3.3	0.0	0.0	0.0	3.3	3.3	3.3

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13264.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 132640 - DISTRIBUTED GENERATION INTERCONNECT. PRO

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	5	0	0	0	2
Non-Labor	8	-6	0	46	6
NSE	0	0	0	0	0
Total	13	-6	0	46	8
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	5	0	0	0	2
Non-Labor	8	-6	0	46	6
NSE	0	0	0	0	0
Total	13	-6	0	46	8
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	1	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	1	0	0	0	0
Non-Labor	2	-1	0	2	0
NSE	0	0	0	0	0
Total	3	-1	0	2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	7	0	0	0	2
Non-Labor	9	-7	0	48	6
NSE	0	0	0	0	0
Total	16	-7	0	48	8
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13264.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 132640 - DISTRIBUTED GENERATION INTERCONNECT. PRO

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 132640**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13264.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 132640 - DISTRIBUTED GENERATION INTERCONNECT. PRO
 Workpaper Detail: 132640.001 - COLLECTIBLE - DISTRIBUTED GENERATION INTERCONNECT
 In-Service Date: Not Applicable
 Description:

Engineering, design, and construction of interconnection facilities from generator switchgear to the point of interconnection on SDG&E's distribution system. Most customer or developer generators interconnected under this budget are 0.5 to 10 MW in size. Each projects requires the installation of a new SCADA switch to interconnect with SDG&E's distribuion system.

		Forecast In 2021 \$(000)		
Years		<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		369	369	369
Non-Labor		1,400	1,400	1,400
NSE		0	0	0
	Total	<u>1,769</u>	<u>1,769</u>	<u>1,769</u>
FTE		3.3	3.3	3.3

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 132640

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

TV2024 GRC FORECAST - DETAILS

Budget Code: 13264
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (sq./ft./mile)	2022			2023			2024			Total Cost	Comments
					# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost		
1	DIAC (Labor)	Collectable Labor	Non-RAM	hours	5900	\$ 61.00	\$ 359,500	5900	\$ 61.00	\$ 359,500	5900	\$ 61.00	\$ 359,500	This forecast is based off of a 4 person crew working a 60-hour work week for 24 weeks with 8 customer projects that last 2 weeks each. Customer generation is currently seeing an upward trend in the number of projects requesting interconnection under Rule 21 and WDAY SDG&E tariffs, therefore the increase in projects per year compared to previous years. This project involves a new SCADA switch (6 customer projects yearly). This forecast is based on the number of projects per year for the SCADA switch. The project requires the installation of a new SCADA switch to interconnect with SDG&E's distribution system.	
2	DIAC (SCADA Switch)	Collectable Non-Labor	Non-RAM	ea	8	\$ 175,000	\$ 1,400,000	8	\$ 175,000	\$ 1,400,000	8	\$ 175,000	\$ 1,400,000		
3	DIAC (Labor)	Collectable Labor	Non-RAM	V&S	1,007	\$ 9	\$ 9,223	1,007	\$ 9	\$ 9,223	1,007	\$ 9	\$ 9,223		
Summary															
		Labor	RAM				\$ -						\$ -		
		Non-Labor	RAM				\$ -						\$ -		
		Collectable Labor	Non-RAM				\$ 369,122						\$ 369,122	\$ 1,107,366	
		Collectable Non-Labor	Non-RAM				\$ 1,400,000						\$ 1,400,000	\$ 4,200,000	
		Labor	Non-RAM				\$ -						\$ -		
		Non-Labor	Non-RAM				\$ -						\$ -		
		Subtotal Non-RAM					\$ -						\$ -		
		Total Project Forecast					\$ 1,769,122						\$ 1,769,122	\$ 5,307,366	

Beginning of Workpaper Group
172620 - STREET LIGHT MODERNIZATION

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17262.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 172620 - STREET LIGHT MODERNIZATION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	3	0	0	0	0	0	0	
Non-Labor	Zero-Based	193	195	4	0	180	1,780	3,560	3,560
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		195	195	4	0	180	1,780	3,560	3,560
FTE	Zero-Based	0.1	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

Many of SDG&E's existing street lighting systems are failing at a high rate, operate inefficiently and replacement components are becoming obsolete. This program modernizes the existing system with highly-efficient LED technology and aligns with new compliance requirements to move forward with LED technology captured in Assembly Bill 719. This program will also allow for increased partnership and collaboration with local municipalities who are also striving to increase the number of LED street light conversions.

Physical Description:

This project targets modernizing street lighting system owned by SDG&E to LEDs. In addition, based on location and current condition of poles, pole replacement might be required with replacement. The current scope will cover every operational district and allow for a block per block approach rather than the existing plan of failure replacing the existing light with LEDs.

The scope of this project includes installation of 1,000 LED lights in 2022, 2,000 in 2023 and 2,000 in 2024.

Project Justification:

The replacement will lower consumption of power charged to customers, increase public safety by reducing street light outages because of the longer expected lifespan and allow for a lower energy provided by SDG&E. Existing typical lifespan of some lighting technology currently utilizing is 2-3 year lifespan compared to the modern LED technology which is 20+ year lifespan. This project is also mandated through the CPUC's Decision (D.21-07-0130) in response to SDG&E's Advice Letter (3263-E-B) for Assembly Bill 719.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17262.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 172620 - STREET LIGHT MODERNIZATION

Forecast Methodology:

Labor - Zero-Based

The forecast method used is zero-based. While historic-based data (e.g. an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this funding request. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details as applicable.

Non-Labor - Zero-Based

The forecast method used is zero-based. While historic-based data (e.g. an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this funding request. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17262.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 172620 - STREET LIGHT MODERNIZATION

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	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	1,780	3,560	3,560	0	0	0	1,780	3,560	3,560
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,780	3,560	3,560	0	0	0	1,780	3,560	3,560
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17262.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 172620 - STREET LIGHT MODERNIZATION

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	2	0	0	0	0
Non-Labor	161	171	3	0	0
NSE	0	0	0	0	0
Total	163	171	3	0	0
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	180
NSE	0	0	0	0	0
Total	0	0	0	0	180
FTE	0.1	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	2	0	0	0	0
Non-Labor	161	171	3	0	180
NSE	0	0	0	0	0
Total	163	171	3	0	180
FTE	0.1	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 2021\$					
Labor	0	0	0	0	0
Non-Labor	32	24	0	0	0
NSE	0	0	0	0	0
Total	32	24	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	3	0	0	0	0
Non-Labor	193	195	4	0	180
NSE	0	0	0	0	0
Total	195	195	4	0	180
FTE	0.1	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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17262.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 172620 - STREET LIGHT MODERNIZATION

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	180
NSE	0	0	0	0	0
Total	0	0	0	0	180
FTE	0.1	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	0.001	0	0	0.001	0.1
Explanation:	Adjustment to match dollar values				
2017 Total	0.001	0	0	0.001	0.1
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	0	180	0	180	0.0
Explanation:	Two way transfer to reflect LED streetlight replacements from workpaper 002260 to 0172620.				
2021 Total	0	180	0	180	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 172620**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17262.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 172620 - STREET LIGHT MODERNIZATION
 Workpaper Detail: 172620.001 - STREET LIGHT MODERNIZATION
 In-Service Date: Not Applicable

Description:

Replace existing streetlights with modern LED technology.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,780	3,560	3,560
NSE		0	0	0
	Total	1,780	3,560	3,560
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 172620

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 17262
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Comments
					# of units	Total cost	# of units	Total cost	# of units	Total cost	
1	LED LIGHT	Non-Labor	Non-RAMP	ea	1,000	\$ 1,500	2,000	\$ 3,000,000	2,000	\$ 3,000,000	Based on historical average cost of LED light fixtures.
2	Contractor Services	Non-Labor	Non-RAMP	ea	1,000	\$ 280	2,000	\$ 560,000	2,000	\$ 560,000	Based on historical average of 2 hours of installation work per LED light fixture at \$140/hr.
Street Light Modernization											
Summary											
		Labor	RAMP			\$		\$		\$	
		Non-Labor	RAMP			\$		\$		\$	
	Subtotal RAMP	Labor	Non-RAMP			\$		\$		\$	
		Non-Labor	Non-RAMP			\$		\$		\$	
	Subtotal Non-RAMP					\$ 1,780,000		\$ 3,560,000		\$ 8,900,000	
	Total Project Forecast					\$ 1,780,000		\$ 3,560,000		\$ 8,900,000	

Beginning of Workpaper Group
872320 - RAMP - Pole Replacement And Reinforcement

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 87232.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement

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	5,419	6,290	3,763	3,658	4,508	4,508	4,508	4,508
Non-Labor	Base YR Rec	8,388	10,015	4,041	3,872	8,201	8,201	8,201	8,201
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		13,807	16,305	7,804	7,529	12,709	12,709	12,709	12,709
FTE	Base YR Rec	35.0	40.0	23.6	24.1	29.0	29.0	29.0	29.0

Business Purpose:

This budget code provides funding to continue the pole restoration and replacement program for in service distribution poles. Steel and fiberglass pole implementation has been incorporated into these routine Corrective Maintenance Program (CMP) pole replacements as well. Wood pole damage is attributed to numerous factors including, but not limited to, the loss of original preservation treatment, the presence of fungi decay, and bird and/or termite damage.

Physical Description:

This program involves restoring, replacing, and removing existing wooden electric distribution poles with either other wooden poles or with steel or fiberglass poles. Pole replacement candidates are identified through the CMP Overhead Visual Program, failed pole loading calculations, and contracted wood pole intrusive inspections. Work associated with candidate poles confirmed for replacement or reinforcement is performed by either SDG&E or a contracted crew. Approximately 2% of the poles inspected are identified as candidates for replacements and approximately 1% of the poles inspected are identified as candidates for reinforcements.

Project scope includes 600 poles annually.

Project Justification:

The pole inspection / restoration / replacement program is designed to comply with General Order 165 and 95.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 87232.0
Category: D. MANDATED
Category-Sub: 1. MANDATED
Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement

Forecast Methodology:

Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.?

Non-Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.?

NSE - Base YR Rec

n/a

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 87232.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement

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	4,508	4,508	4,508	0	0	0	4,508	4,508	4,508
Non-Labor	Base YR Rec	8,201	8,201	8,201	0	0	0	8,201	8,201	8,201
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		12,709	12,709	12,709	0	0	0	12,709	12,709	12,709
FTE	Base YR Rec	29.0	29.0	29.0	0.0	0.0	0.0	29.0	29.0	29.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 87232.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	3,575	4,498	2,848	3,034	3,832
Non-Labor	6,024	7,589	3,415	3,694	6,711
NSE	0	0	0	0	0
Total	9,599	12,087	6,264	6,728	10,543
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$)**					
Labor	369	292	153	29	87
Non-Labor	986	1,193	269	8	1,489
NSE	0	0	0	0	0
Total	1,356	1,485	421	38	1,577
FTE	30.0	34.2	20.4	20.8	24.8
Recorded-Adjusted (Nominal \$)					
Labor	3,944	4,790	3,001	3,064	3,919
Non-Labor	7,010	8,782	3,684	3,702	8,201
NSE	0	0	0	0	0
Total	10,954	13,572	6,685	6,766	12,120
FTE	30.0	34.2	20.4	20.8	24.8
Vacation & Sick (Nominal \$)					
Labor	585	726	430	434	589
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	585	726	430	434	589
FTE	5.0	5.8	3.2	3.3	4.2
Escalation to 2021\$					
Labor	890	774	333	160	0
Non-Labor	1,377	1,233	357	169	0
NSE	0	0	0	0	0
Total	2,267	2,007	690	329	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	5,419	6,290	3,763	3,658	4,508
Non-Labor	8,388	10,015	4,041	3,872	8,201
NSE	0	0	0	0	0
Total	13,807	16,305	7,804	7,529	12,709
FTE	35.0	40.0	23.6	24.1	29.0

* 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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 87232.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	369	292	153	29	87
Non-Labor	986	1,193	269	8	1,489
NSE	0	0	0	0	0
Total	1,356	1,485	421	38	1,577
FTE	30.0	34.2	20.4	20.8	24.8

Detail of Adjustments to Recorded in Nominal \$:

Year	Labor	NLbr	NSE	Total	FTE
2017	-21	-5	0	-26	-0.2
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2017	0.001	0	0	0.001	27.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2017	390	991	0	1,382	2.5
Explanation:	Two sided adjustment to transfer incorrectly mapped workpaper 87232. from workpaper 002320				
2017 Total	369	986	0	1,356	30.0
2018	-8	-9	0	-16	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	32.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018	300	1,202	0	1,502	1.8
Explanation:	Two sided adjustment to transfer incorrectly mapped workpaper 87232. from workpaper 002320				
2018 Total	292	1,193	0	1,485	34.2
2019	0.001	0	0	0.001	19.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019	153	269	0	421	0.9
Explanation:	Two sided adjustment to transfer incorrectly mapped workpaper 87232. from workpaper 002320				
2019 Total	153	269	0	421	20.4
2020	-9	-8	0	-17	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 87232.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2020	0.001	0	0	0.001	20.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020	38	17	0	55	0.2
Explanation:	Two sided adjustment to transfer incorrectly mapped workpaper 87232. from workpaper 002320				
2020 Total	29	8	0	38	20.8
2021	0.001	0	0	0.001	24.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021	87	1,489	0	1,577	0.7
Explanation:	Two sided adjustment to transfer incorrectly mapped workpaper 87232. from workpaper 002320				
2021 Total	87	1,489	0	1,577	24.8

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 872320**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 87232.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement
 Workpaper Detail: 872320.001 - RAMP - Pole Replacement And Reinforcement
 In-Service Date: Not Applicable

Description:

Pole restoration, replacement, and removal program for electric distribution poles identified through the corrective maintenance program (CMP).

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		4,508	4,508	4,508
Non-Labor		8,201	8,201	8,201
NSE		0	0	0
	Total	12,709	12,709	12,709
FTE		29.0	29.0	29.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 87232.0
 Category: D. MANDATED
 Category-Sub: 1. MANDATED
 Workpaper Group: 872320 - RAMP - Pole Replacement And Reinforcement
 Workpaper Detail: 872320.001 - RAMP - Pole Replacement And Reinforcement

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C02
 RAMP Line Item Name: GO165 Pole Replacement Reinforcement
 Tranche(s): Tranche1: N/A

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	12,708	12,709	12,709	12,709	38,127	22,103	27,304

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 poles replaced	711.00	600.00	600.00	600.00	1,800.00	1,350.00	1,665.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: E. MATERIALS
Workpaper: VARIOUS

Summary for Category: E. MATERIALS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	71	256	256	256
Non-Labor	24,376	28,571	29,999	31,499
NSE	0	0	0	0
Total	24,447	28,827	30,255	31,755
FTE	0.5	2.3	2.3	2.3

002020 ELECTRIC METERS & REGULATORS

Labor	0	0	0	0
Non-Labor	7,613	4,802	5,042	5,294
NSE	0	0	0	0
Total	7,613	4,802	5,042	5,294
FTE	0.0	0.0	0.0	0.0

002140 TRANSFORMERS

Labor	71	256	256	256
Non-Labor	16,763	23,769	24,957	26,205
NSE	0	0	0	0
Total	16,834	24,025	25,213	26,461
FTE	0.5	2.3	2.3	2.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002020 - ELECTRIC METERS & REGULATORS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00202.0
 Category: E. MATERIALS
 Category-Sub: 1. Electric Meters & Regulators
 Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	0	0	
Non-Labor	Zero-Based	3,619	3,813	4,211	2,604	7,613	4,802	5,042	5,294
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		3,619	3,813	4,211	2,604	7,613	4,802	5,042	5,294
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This budget code is for an ongoing project to purchase new meters and regulators used to measure service to electric distribution customers. The funds are used to maintain inventory levels at each of the electric distribution service centers.

Physical Description:

These electric meter units measure watt-hour electric distribution service to SDG&E customers.

Project scope includes purchasing 8,630 meters and regulators in 2022, 9,062 in 2023, and 9,515 in 2024.

Project Justification:

This budget code provides funding to purchase distribution meters and regulators necessary to operate and maintain SDG&E's electric distribution system.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00202.0
Category: E. MATERIALS
Category-Sub: 1. Electric Meters & Regulators
Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

Forecast Methodology:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00202.0
 Category: E. MATERIALS
 Category-Sub: 1. Electric Meters & Regulators
 Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

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	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	4,802	5,042	5,294	0	0	0	4,802	5,042	5,294
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		4,802	5,042	5,294	0	0	0	4,802	5,042	5,294
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00202.0
 Category: E. MATERIALS
 Category-Sub: 1. Electric Meters & Regulators
 Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	3,025	3,343	3,839	2,490	7,613
NSE	0	0	0	0	0
Total	3,025	3,343	3,839	2,490	7,613
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	0	0	0
Non-Labor	3,025	3,343	3,839	2,490	7,613
NSE	0	0	0	0	0
Total	3,025	3,343	3,839	2,490	7,613
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 2021\$					
Labor	0	0	0	0	0
Non-Labor	594	469	372	114	0
NSE	0	0	0	0	0
Total	594	469	372	114	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	0
Non-Labor	3,619	3,813	4,211	2,604	7,613
NSE	0	0	0	0	0
Total	3,619	3,813	4,211	2,604	7,613
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00202.0
 Category: E. MATERIALS
 Category-Sub: 1. Electric Meters & Regulators
 Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

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 002020**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00202.0
 Category: E. MATERIALS
 Category-Sub: 1. Electric Meters & Regulators
 Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS
 Workpaper Detail: 002020.001 - ELECTRIC METERS & REGULATORS
 In-Service Date: Not Applicable

Description:

New meters and regulators to service electric distribution customers.

Forecast In 2021 \$(000)			
Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor	0	0	0
Non-Labor	4,802	5,042	5,294
NSE	0	0	0
Total	<u>4,802</u>	<u>5,042</u>	<u>5,294</u>
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002020

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

202 Electric Meter and Regulator Budget Projections for 2022

Material	Description	UOM	AMU6	AMU12	Usage Aug-Dec 2022	Annual Usage (> of AMU)	Unstr. Qty	Quality Insp	Open PO Qty for 2022	Projected Additional PO Qty for 2022	Inv. Carryover into 2022	2022 Forecast	Net trans required in 2022	Net trans 2022 X unit price	Additional 6 Month Inventory	Total Columns Q.R
5482846	METER, C250D12 (IRON TYPE C250D) 25	EA	831	952	4,758	11,419	3,947	384	5,696	0	5,269	11,419	6,150	\$589,526	\$547,311	\$1,136,836
5599042	RING, STAINLESS STEEL RED-RING,	AS	19	103	514	1,233	3,500	0	200	0	3,186	1,233	(1,953)	\$0	\$6,936	\$0
5482842	METER, CINSODL2 (IRON TYPE CINSOD) 125	EA	648	595	3,242	7,780	2,564	0	4,355	0	1,083	7,780	4,103	\$477,010	\$452,288	\$929,298
5482310	METER, C250SAL3 (FORM 35, CL20, 120-480)	EA	34	19	171	410	1,670	0	1,099	0	1,499	410	(1,089)	\$0	\$60,864	\$0
5482312	METER, C250SAL3 (FORM 35, CL20, 120-480)	EA	62	67	336	806	906	0	288	0	856	806	(52)	\$0	\$119,645	\$0
5482844	METER, C250D12 (IRON TYPE C250D) 15	EA	10	12	62	149	852	0	145	0	935	149	(786)	\$0	\$8,664	\$0
5482852	METER, C250L2E (FORM 25, CL200, 120-480)	EA	14	8	357	856	730	0	489	0	460	856	(6)	\$0	\$14,274	\$0
5482776	RING, LOCKING, STAINLESS STEEL	EA	14	8	71	170	521	0	100	0	184	170	(280)	\$0	\$41,272	\$0
5599098	METER, C250L2E (IRON TYPE C250L2E)	EA	13	20	99	238	398	0	11	0	795	238	(62)	\$0	\$19,663	\$25,365
5482400	METER, C250L2E (IRON TYPE C250L2E)	EA	48	41	206	495	386	0	241	0	592	495	(1,087)	\$0	\$41,548	\$0
5482766	METER, C250L2E (IRON TYPE C250L2E)	EA	48	32	241	578	386	0	433	0	178	578	433	\$128,512	\$85,801	\$214,313
5482150	DO NOT BUY METER, WATTHOUR, STRAIGHT REG	EA	33	25	167	400	345	0	222	0	178	400	222	\$3,324	\$3,000	\$6,324
5482764	METER, C250SAL3 (TYPE C250SAL3) 120-240	EA	143	72	716	1,718	336	0	600	0	244	1,718	1,498	\$444,679	\$255,017	\$699,696
5483170	METER, C250L2E (IRON TYPE C250L2E)	EA	90	102	508	1,218	201	550	288	0	532	1,218	687	\$48,570	\$43,087	\$91,657
5758150	TRANSFORMER, METERING CURRENT, TYPE CRT-5	EA	1	1	6	14	147	0	0	0	14	14	(132)	\$0	\$140	\$0
5482742	METER, KVC2 (PLUS), ANSI C1219, FORM 25	EA	59	5	295	708	147	0	192	0	44	708	664	\$118,451	\$63,150	\$181,601
5481600	METER, ANSI C1219 FORM 35 SOLID STATE	EA	0	2	10	25	133	0	0	0	140	25	(98)	\$0	\$50	\$0
5482452	METER, C250L2E (FORM 25, CL20, 120-480, KYZ)	EA	84	89	443	1,064	119	0	149	320	123	1,064	919	\$154,338	\$89,310	\$243,648
5482432	METER, C250L2E (IRON TYPE C250L2E)	EA	0	0	0	0	117	0	0	0	117	0	(117)	\$0	\$0	\$0
5483172	METER, KVCZC-W/TRILLIANT FORM 35 CLASS 20	EA	0	-1	-5	-11	111	0	0	0	116	-11	(127)	\$0	\$0	\$0
5482464	METER, C250L2E (IRON TYPE C250L2E)	EA	2	-1	-6	-14	94	0	0	0	100	-14	(114)	\$0	\$0	\$0
5482466	METER, C250L2E (IRON TYPE C250L2E)	EA	3	20	133	300	93	0	30	30	81	300	(51)	\$0	\$5,353	\$0
5482450	METER, C250L2E (IRON TYPE C250L2E)	EA	26	27	135	323	84	288	0	0	79	323	86	\$8,387	\$15,818	\$24,204
5758154	TRANSFORMER, METERING CURRENT, TYPE CIVV-5	EA	0	0	0	0	79	0	0	0	79	0	(79)	\$0	\$0	\$0
5483178	METER, KVCZC-W/TRILLIANT FORM 45 CLASS 20	EA	0	0	0	0	71	0	0	0	71	0	(71)	\$0	\$0	\$0
5482778	METER, C250L2E (FORM 25, CL20, 240 VOLT)	EA	4	-5	-26	-43	48	0	96	0	124	-43	(150)	\$0	\$0	\$0
5482730	METER, ANSI C1219 FOR 125 SOLID STATE	EA	1	1	6	15	43	0	0	0	37	15	(22)	\$0	\$0	\$0
5482972	METER, RELAY CELL COLLAR, C250R2C,	EA	0	0	0	0	35	0	0	0	35	0	(35)	\$0	\$0	\$0
5762770	TRANSFORMER, METERING, TYPE PPW, 600V,	EA	0	0	0	0	35	0	0	0	35	0	(35)	\$0	\$0	\$0
5483174	METER, KVCZC-W/TRILLIANT FORM 35 CLASS 20	EA	0	0	0	0	35	0	0	0	35	0	(35)	\$0	\$0	\$0
5483180	METER, KVCZC-W/TRILLIANT FORM 35 CLASS 20	EA	0	0	0	0	35	0	0	0	35	0	(35)	\$0	\$0	\$0
5482378	METER, RELAY CELL COLLAR, C250R2C,	EA	3	7	36	87	33	0	0	10	80	87	80	\$80,250	\$43,500	\$123,750
5758152	TRANSFORMER, METERING CURRENT, TYPE CLC-5	EA	12	13	67	161	33	201	0	0	167	161	(6)	\$0	\$0	\$0
5483176	REGULATOR, GH VR-32, 34, 47, 38, 32, 3 KVA	EA	3	2	13	30	28	0	0	0	16	30	15	\$191,131	\$197,722	\$388,853
5581250	REGULATOR, POWER-LINE SINGLE PHASE	EA	1	1	6	14	20	0	0	0	1	14	(19)	\$0	\$0	\$0
5581490	REGULATOR, VOLTAGE, PAD-MOUNTED, PREFIX	EA	0	0	0	0	15	0	0	0	15	0	(15)	\$0	\$0	\$0
5481558	METER, ANSI C1219 FORM 35S OR 45S SOLID	EA	0	0	0	0	14	0	0	0	14	0	(14)	\$0	\$0	\$0
5758282	DEPLETE INV TRANSFORMER, METERING CORR	EA	0	0	0	0	14	0	0	0	14	0	(14)	\$0	\$0	\$0
5758286	TRANSFORMER, METERING VOLTAGE, TYPE VIZ,	EA	0	0	0	0	12	0	0	0	12	0	(12)	\$0	\$0	\$0
5581505	REGULATOR, (GH PREFIX) 100 AMP, PLUS/	EA	0	0	0	0	11	0	0	0	11	0	(11)	\$0	\$0	\$0
5758196	TRANSFORMER, METERING CURRENT, TYPE JMW-5	EA	0	0	0	0	10	0	0	0	10	0	(10)	\$0	\$0	\$0
5481834	METER, MAXSYS ELITE, FM 9 CL 20 HIGH VLT	EA	1	0	3	6	9	0	0	0	7	6	(1)	\$0	\$5,550	\$0
5581472	REGULATOR, VOLTAGE, PREFIX G, 75 KVA	EA	1	0	3	6	9	0	0	0	7	6	(1)	\$0	\$32,243	\$0
5758252	TRANSFORMER, METERING CURRENT, KIR-60, 5	EA	0	0	0	0	9	0	0	0	9	0	(9)	\$0	\$0	\$0
5758954	TRANSFORMER, METERING TYPE KOB-11, 25/50	EA	0	0	0	0	9	0	0	0	9	0	(9)	\$0	\$0	\$0
5762712	TRANSFORMER, METERING VOLT, TYPE VIT-60	EA	0	0	0	0	9	0	0	0	9	0	(9)	\$0	\$0	\$0
5762708	TRANSFORMER, METERING VOLT, TYPE VIT-60	EA	0	0	0	0	8	0	0	0	8	0	(8)	\$0	\$0	\$0
5758238	TRANSFORMER, METERING CURRENT, 100-5,	EA	0	0	0	0	7	0	0	0	7	0	(7)	\$0	\$0	\$0
5481832	METER, MAXSYS ELITE, FM 9, CL 20 LOW VLT	EA	1	1	3	8	6	0	0	0	8	8	(6)	\$0	\$7,437	\$0
5581280	REGULATOR, STEP VOLTAGE, SINGLE PH, 25KVA	EA	0	0	0	0	6	0	0	0	6	0	(6)	\$0	\$0	\$0
5758260	TRANSFORMER, METERING INSTRUMENT CURRENT	EA	0	0	0	0	6	0	0	0	6	0	(6)	\$0	\$0	\$0
5758266	TRANSFORMER, METERING CURRENT, KIR-60 3K	EA	0	0	0	0	6	0	0	0	6	0	(6)	\$0	\$0	\$0
5758288	TRANSFORMER, METERING VOLT, TYPE VOY-60	EA	0	0	1	3	6	7	0	0	12	3	(9)	\$0	\$924	\$0
5482260	METER, KVICC- FORM 9, CLASS 20, 57-120V	EA	0	0	0	0	5	0	0	0	5	0	(5)	\$0	\$0	\$0
5581408	REGULATOR, STEP VOLTAGE, SINGLE PHASE	EA	1	0	3	6	5	0	0	0	3	6	4	\$26,513	\$22,725	\$49,238
5758216	TRANSFORMER, METERING CURRENT, 400/800/5	EA	1	0	3	6	5	8	0	0	11	6	(5)	\$0	\$2,171	\$0
5758234	TRANSFORMER, METERING CURRENT, KIR60 50-	EA	0	0	0	0	4	0	0	0	4	0	(4)	\$0	\$0	\$0
5765032	TRANSFORMER, METERING CURRENT, JKW-5C	EA	0	0	0	0	4	0	0	0	4	0	(4)	\$0	\$0	\$0
5481830	METER, MAXSYS ELITE, SHORT SWITCHBOARD	EA	0	0	0	0	3	0	0	0	3	0	(3)	\$0	\$0	\$0
5581714	REGULATOR, GR, 10DAMP, +/- 10%	EA	0	0	0	0	3	0	0	0	3	0	(3)	\$0	\$0	\$0
5758158	TRANSFORMER, METERING CURRENT, TYPE JAD-AC	EA	0	0	0	0	3	0	0	0	3	0	(3)	\$0	\$0	\$0
5758190	TRANSFORMER, METERING VOLTAGE, TYPE VIZ-11	EA	0	0	0	0	3	0	0	0	3	0	(3)	\$0	\$0	\$0
5758212	TRANSFORMER, METERING TYPE KIR-11, 15KV	EA	0	0	0	0	3	0	0	0	12	0	(12)	\$0	\$0	\$0
5758290	TRANSFORMER, METERING VOLT, TYPE VOY-60	EA	0	0	0	0	3	0	0	0	6	0	(6)	\$0	\$0	\$0
5762714	TRANSFORMER, METERING TYPE VIZ-11,	EA	0	0	0	0	3	0	0	0	3	0	(3)	\$0	\$0	\$0
5758194	TRANSFORMER, METERING CORR KIR-11, 15KV,	EA	0	0	0	0	2	0	0	0	8	0	(8)	\$0	\$0	\$0

Beginning of Workpaper Group
002140 - TRANSFORMERS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00214.0
 Category: E. MATERIALS
 Category-Sub: 2. Transformers
 Workpaper Group: 002140 - TRANSFORMERS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	88	50	64	97	71	256	256	256
Non-Labor	Zero-Based	18,630	18,131	24,844	22,459	16,763	23,769	24,957	26,205
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	18,718	18,181	24,908	22,556	16,834	24,025	25,213	26,461
FTE	Zero-Based	0.7	0.4	0.6	0.7	0.5	2.3	2.3	2.3

Business Purpose:

Provide distribution transformers necessary to operate and maintain SDG&E's electric distribution system.

Physical Description:

These underground and overhead transformer units provide electric distribution power to SDG&E customers.

Project scope includes purchasing 6,348 transformers in 2022, 6,665 in 2023, and 6,999 in 2024.

Project Justification:

The funding for this ongoing project supports purchasing new distribution transformers that will provide service to SDG&E's electric distribution customers. These purchases are required to maintain inventory levels at SDG&E's electric distribution service centers.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00214.0
Category: E. MATERIALS
Category-Sub: 2. Transformers
Workpaper Group: 002140 - TRANSFORMERS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable. The inspection of inventory as it comes in is done by internal labor, the equivalent of two full time employee with an average annual salary of \$125k.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable. The inspection of inventory as it comes in is done by internal labor, the equivalent of two full time employee with an average annual salary of \$125k.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00214.0
 Category: E. MATERIALS
 Category-Sub: 2. Transformers
 Workpaper Group: 002140 - TRANSFORMERS

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	Zero-Based	256	256	256	0	0	0	256	256	256
Non-Labor	Zero-Based	23,769	24,957	26,205	0	0	0	23,769	24,957	26,205
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		24,025	25,213	26,461	0	0	0	24,025	25,213	26,461
FTE	Zero-Based	2.3	2.3	2.3	0.0	0.0	0.0	2.3	2.3	2.3

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00214.0
Category: E. MATERIALS
Category-Sub: 2. Transformers
Workpaper Group: 002140 - TRANSFORMERS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	64	38	51	82	62
Non-Labor	15,571	15,899	22,648	21,478	16,763
NSE	0	0	0	0	0
Total	15,635	15,937	22,699	21,559	16,825
FTE	0.6	0.3	0.5	0.6	0.4
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	64	38	51	82	62
Non-Labor	15,571	15,899	22,648	21,478	16,763
NSE	0	0	0	0	0
Total	15,635	15,937	22,699	21,559	16,825
FTE	0.6	0.3	0.5	0.6	0.4
Vacation & Sick (Nominal \$)					
Labor	9	6	7	12	9
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	9	6	7	12	9
FTE	0.1	0.1	0.1	0.1	0.1
Escalation to 2021\$					
Labor	14	6	6	4	0
Non-Labor	3,059	2,232	2,196	981	0
NSE	0	0	0	0	0
Total	3,073	2,238	2,202	986	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	88	50	64	97	71
Non-Labor	18,630	18,131	24,844	22,459	16,763
NSE	0	0	0	0	0
Total	18,718	18,181	24,908	22,556	16,834
FTE	0.7	0.4	0.6	0.7	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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00214.0
 Category: E. MATERIALS
 Category-Sub: 2. Transformers
 Workpaper Group: 002140 - TRANSFORMERS

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 002140**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00214.0
 Category: E. MATERIALS
 Category-Sub: 2. Transformers
 Workpaper Group: 002140 - TRANSFORMERS
 Workpaper Detail: 002140.001 - TRANSFORMERS
 In-Service Date: Not Applicable

Description:

Overhead and underground distribution transformers necessary to operate and maintain the electric distribution system.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		256	256	256
Non-Labor		23,769	24,957	26,205
NSE		0	0	0
	Total	24,025	25,213	26,461
FTE		2.3	2.3	2.3

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002140

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: F. NEW BUSINESS
Workpaper: VARIOUS

Summary for Category: F. NEW BUSINESS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	6,706	7,411	7,451	7,497
Non-Labor	60,370	62,192	52,930	50,938
NSE	0	0	0	0
Total	67,076	69,603	60,381	58,435
FTE	25.7	52.2	52.3	52.6

002040 ELECTRIC DISTRIBUTION EASEMENTS

Labor	708	680	680	680
Non-Labor	2,058	1,583	1,583	1,583
NSE	0	0	0	0
Total	2,766	2,263	2,263	2,263
FTE	7.0	6.7	6.7	6.7

002350 TRANSFORMER & METER INSTALLATIONS

Labor	4,220	4,620	4,667	4,714
Non-Labor	6,983	4,551	4,591	4,632
NSE	0	0	0	0
Total	11,203	9,171	9,258	9,346
FTE	6.9	32.5	32.7	33.1

181430 3 ROOTS TL6906,TL677,TL668 CUST RELO

Labor	6	1	1	0
Non-Labor	-28	48	168	1
NSE	0	0	0	0
Total	-22	49	169	1
FTE	0.1	0.1	0.1	0.0

182420 PURE WATER ELECTRIC

Labor	17	7	0	0
Non-Labor	1,135	1,815	0	0
NSE	0	0	0	0
Total	1,152	1,822	0	0
FTE	0.1	0.1	0.0	0.0

202560 COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING

Labor	0	0	0	0
Non-Labor	101	10,254	2,262	0
NSE	0	0	0	0
Total	101	10,254	2,262	0
FTE	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: F. NEW BUSINESS
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
212520 CONVERSION FROM OH-UG RULE 20B NEW BUSIN				
Labor	26	61	61	61
Non-Labor	3,971	2,305	2,325	2,346
NSE	0	0	0	0
Total	3,997	2,366	2,386	2,407
FTE	0.2	0.3	0.3	0.3
212530 CONVERSION FROM OH-UG RULE 20C				
Labor	10	76	76	76
Non-Labor	1,726	1,927	1,944	1,961
NSE	0	0	0	0
Total	1,736	2,003	2,020	2,037
FTE	0.1	0.5	0.5	0.5
002150 OH RESIDENTIAL NB				
Labor	29	37	37	37
Non-Labor	773	787	794	801
NSE	0	0	0	0
Total	802	824	831	838
FTE	0.2	0.2	0.2	0.2
002160 OH NON-RESIDENTIAL NB				
Labor	24	41	41	41
Non-Labor	826	961	970	979
NSE	0	0	0	0
Total	850	1,002	1,011	1,020
FTE	0.1	0.1	0.1	0.1
002170 UG RESIDENTIAL NB				
Labor	177	209	209	209
Non-Labor	7,157	6,920	6,980	7,043
NSE	0	0	0	0
Total	7,334	7,129	7,189	7,252
FTE	1.1	1.2	1.2	1.2
002180 UG NON-RESIDENTIAL NB				
Labor	335	288	288	288
Non-Labor	9,303	7,314	7,378	7,444
NSE	0	0	0	0
Total	9,638	7,602	7,666	7,732
FTE	1.9	1.5	1.5	1.5
002190 NEW BUSINESS INFRASTRUCTURE				
Labor	167	130	130	130
Non-Labor	6,684	4,939	4,983	5,027
NSE	0	0	0	0
Total	6,851	5,069	5,113	5,157
FTE	1.3	0.9	0.9	0.9

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Category: F. NEW BUSINESS
 Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
002240 NEW SERVICE INSTALLATIONS				
Labor	323	414	414	414
Non-Labor	6,750	6,426	6,482	6,540
NSE	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	7,073	6,840	6,896	6,954
FTE	2.2	2.6	2.6	2.6
002250 CUSTOMER REQUESTED UPGRADES AND SERVICES				
Labor	664	847	847	847
Non-Labor	12,931	12,362	12,470	12,581
NSE	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	13,595	13,209	13,317	13,428
FTE	4.5	5.5	5.5	5.5

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002040 - ELECTRIC DISTRIBUTION EASEMENTS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00204.0
 Category: F. NEW BUSINESS
 Category-Sub: 1. Electric Distribution Easements
 Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	757	703	650	681	708	680	680	680
Non-Labor	3-YR Average	994	1,176	1,380	1,311	2,058	1,583	1,583	1,583
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	1,751	1,878	2,030	1,992	2,766	2,263	2,263	2,263
FTE	3-YR Average	7.7	7.0	6.5	6.6	7.0	6.7	6.7	6.7

Business Purpose:

Obtain new electric distribution easements necessary and required to provide service to new customers, accommodate street and highway relocations, underground conversions and other capital projects required to improve electrical service.

Physical Description:

The work required includes the documentation, interpretation, feasibility assessment, surveys and mapping functions, document preparation, and negotiation, coordination and administration of the processes associated with acquiring land rights necessary to provide electrical service. The process involves negotiating with private and governmental property owners for the acquisition of real property rights to allow the installation of new electrical distribution facilities on private, public, and tribal lands.

Project Justification:

Providing electrical service to new and/or existing customers at times requires the installation of electrical assets on, over and/or under private property, public and tribal lands. In those instances there are no reasonable alternatives to acquiring the necessary real property easements rights.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00204.0
Category: F. NEW BUSINESS
Category-Sub: 1. Electric Distribution Easements
Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.?

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.?

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00204.0
 Category: F. NEW BUSINESS
 Category-Sub: 1. Electric Distribution Easements
 Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS

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	3-YR Average	680	680	680	0	0	0	680	680	680
Non-Labor	3-YR Average	1,583	1,583	1,583	0	0	0	1,583	1,583	1,583
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		2,263	2,263	2,263	0	0	0	2,263	2,263	2,263
FTE	3-YR Average	6.7	6.7	6.7	0.0	0.0	0.0	6.7	6.7	6.7

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00204.0
 Category: F. NEW BUSINESS
 Category-Sub: 1. Electric Distribution Easements
 Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	551	535	518	570	616
Non-Labor	831	1,031	1,258	1,254	2,058
NSE	0	0	0	0	0
Total	1,382	1,566	1,776	1,824	2,674
FTE	6.6	6.0	5.6	5.7	6.0
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	551	535	518	570	616
Non-Labor	831	1,031	1,258	1,254	2,058
NSE	0	0	0	0	0
Total	1,382	1,566	1,776	1,824	2,674
FTE	6.6	6.0	5.6	5.7	6.0
Vacation & Sick (Nominal \$)					
Labor	82	81	74	81	92
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	82	81	74	81	92
FTE	1.1	1.0	0.9	0.9	1.0
Escalation to 2021\$					
Labor	124	86	57	30	0
Non-Labor	163	145	122	57	0
NSE	0	0	0	0	0
Total	288	231	179	87	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	757	703	650	681	708
Non-Labor	994	1,176	1,380	1,311	2,058
NSE	0	0	0	0	0
Total	1,751	1,878	2,030	1,992	2,766
FTE	7.7	7.0	6.5	6.6	7.0

* 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
 2024 GRC - REVISED
 Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00204.0
 Category: F. NEW BUSINESS
 Category-Sub: 1. Electric Distribution Easements
 Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS

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 002040**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00204.0
 Category: F. NEW BUSINESS
 Category-Sub: 1. Electric Distribution Easements
 Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS
 Workpaper Detail: 002040.001 - ELECTRIC DISTRIBUTION EASEMENTS
 In-Service Date: Not Applicable
 Description:

Obtain new electric distribution easements necessary to provide service to new customers, accommodate street and highway relocations, underground conversions and other capital projects to improve electrical service.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		680	680	680
Non-Labor		1,583	1,583	1,583
NSE		0	0	0
	Total	<u>2,263</u>	<u>2,263</u>	<u>2,263</u>
FTE		6.7	6.7	6.7

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
002150 - OH RESIDENTIAL NB**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00215.0
 Category: F. NEW BUSINESS
 Category-Sub: 3. Overhead Residential New Business
 Workpaper Group: 002150 - OH RESIDENTIAL NB

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	8	17	35	46	29	37	37	37
Non-Labor	3-YR Average	504	597	718	852	773	787	794	801
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		512	615	753	898	802	824	831	838
FTE	3-YR Average	0.1	0.1	0.3	0.1	0.2	0.2	0.2	0.2

Business Purpose:

Extends new overhead electric distribution systems to new residential electric customers requesting service from the Utility.

Physical Description:

This project provides for the extension of the overhead distribution system, including third wire bring ups and transmission under builds, to serve new residential customers.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 3. Overhead Residential New Business
Workpaper Group: 002150 - OH RESIDENTIAL NB

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00215.0
 Category: F. NEW BUSINESS
 Category-Sub: 3. Overhead Residential New Business
 Workpaper Group: 002150 - OH RESIDENTIAL NB

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	3-YR Average	37	37	37	0	0	0	37	37	37
Non-Labor	3-YR Average	781	781	781	6	13	20	787	794	801
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		818	818	818	6	13	20	824	831	838
FTE	3-YR Average	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	6	0	6	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	6	0	6	0.0
2023	0	13	0	13	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	13	0	13	0.0
2024	0	20	0	20	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	20	0	20	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 3. Overhead Residential New Business
Workpaper Group: 002150 - OH RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	4	13	28	38	26
Non-Labor	29	525	655	815	773
NSE	0	0	0	0	0
Total	33	538	683	853	798
FTE	0.0	0.1	0.1	0.0	0.0
Adjustments (Nominal \$)**					
Labor	3	0	0	0	0
Non-Labor	392	-1	-1	0	0
NSE	0	0	0	0	0
Total	394	-1	-1	0	0
FTE	0.1	0.0	0.2	0.1	0.2
Recorded-Adjusted (Nominal \$)					
Labor	6	13	28	38	26
Non-Labor	421	524	654	815	773
NSE	0	0	0	0	0
Total	427	537	683	853	798
FTE	0.1	0.1	0.3	0.1	0.2
Vacation & Sick (Nominal \$)					
Labor	1	2	4	5	4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	2	4	5	4
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	1	2	3	2	0
Non-Labor	83	74	63	37	0
NSE	0	0	0	0	0
Total	84	76	67	39	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	8	17	35	46	29
Non-Labor	504	597	718	852	773
NSE	0	0	0	0	0
Total	512	615	753	898	802
FTE	0.1	0.1	0.3	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00215.0
 Category: F. NEW BUSINESS
 Category-Sub: 3. Overhead Residential New Business
 Workpaper Group: 002150 - OH RESIDENTIAL NB

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		3	0	0	0	0
Non-Labor		392	-1	-1	0	0
NSE		0	0	0	0	0
	Total	394	-1	-1	0	0
FTE		0.1	0.0	0.2	0.1	0.2

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	3	392	0	394	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	3	392	0	394	0.1
2018	0	-1	0	-1	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018 Total	0	-1	0	-1	0.0
2019	0	-0.673	0	-0.673	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	-0.673	0	-0.672	0.2
2020	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	0	0	0.001	0.1
2021	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002150**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00215.0
 Category: F. NEW BUSINESS
 Category-Sub: 3. Overhead Residential New Business
 Workpaper Group: 002150 - OH RESIDENTIAL NB
 Workpaper Detail: 002150.001 - NON-COLLECTIBLE - OH RESIDENTIAL NB
 In-Service Date: Not Applicable

Description:

Extends new overhead electric distribution systems to new residential electric customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		33	33	33
Non-Labor		708	715	721
NSE		0	0	0
	Total	<u>741</u>	<u>748</u>	<u>754</u>
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00215.0
 Category: F. NEW BUSINESS
 Category-Sub: 3. Overhead Residential New Business
 Workpaper Group: 002150 - OH RESIDENTIAL NB
 Workpaper Detail: 002150.002 - COLLECTIBLE - OH RESIDENTIAL NB
 In-Service Date: Not Applicable

Description:

Extends new overhead electric distribution systems to new residential electric customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		4	4	4
Non-Labor		79	79	80
NSE		0	0	0
	Total	83	83	84
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
002160 - OH NON-RESIDENTIAL NB**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00216.0
 Category: F. NEW BUSINESS
 Category-Sub: 4. Overhead Non-Residential New Business
 Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	37	20	62	36	24	41	41	41
Non-Labor	3-YR Average	589	868	1,442	595	826	961	970	979
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	626	888	1,503	631	851	1,002	1,011	1,020
FTE	3-YR Average	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1

Business Purpose:

Extends the overhead electric distribution system, including third wire bring-ups and transmission underbuilds, to serve new non-residential customers requesting service from the Utility.

Physical Description:

This project provides for the extension of the overhead electric distribution system, including third wire bring ups and transmission under builds, to serve new non-residential customers requesting service from the Utility.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 4. Overhead Non-Residential New Business
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00216.0
 Category: F. NEW BUSINESS
 Category-Sub: 4. Overhead Non-Residential New Business
 Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

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	3-YR Average	41	41	41	0	0	0	41	41	41
Non-Labor	3-YR Average	954	954	954	7	16	25	961	970	979
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		995	995	995	7	16	25	1,002	1,011	1,020
FTE	3-YR Average	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	7	0	7	0.0
Explanation:	Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)				
2022 Total	0	7	0	7	0.0
2023	0	16	0	16	0.0
Explanation:	Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)				
2023 Total	0	16	0	16	0.0
2024	0	25	0	25	0.0
Explanation:	Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)				
2024 Total	0	25	0	25	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 4. Overhead Non-Residential New Business
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	25	15	49	30	21
Non-Labor	441	764	1,314	570	826
NSE	0	0	0	0	0
Total	466	779	1,363	600	848
FTE	0.1	0.0	0.1	0.0	0.0
Adjustments (Nominal \$)**					
Labor	2	0	0	0	0
Non-Labor	51	-3	0	0	0
NSE	0	0	0	0	0
Total	53	-3	0	-1	0
FTE	0.1	0.1	0.1	0.1	0.1
Recorded-Adjusted (Nominal \$)					
Labor	27	15	49	30	21
Non-Labor	492	761	1,314	569	826
NSE	0	0	0	0	0
Total	519	776	1,363	599	848
FTE	0.2	0.1	0.2	0.1	0.1
Vacation & Sick (Nominal \$)					
Labor	4	2	7	4	3
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	4	2	7	4	3
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	6	2	5	2	0
Non-Labor	97	107	127	26	0
NSE	0	0	0	0	0
Total	103	109	133	28	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	37	20	62	36	24
Non-Labor	589	868	1,442	595	826
NSE	0	0	0	0	0
Total	626	888	1,503	631	851
FTE	0.2	0.1	0.2	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00216.0
 Category: F. NEW BUSINESS
 Category-Sub: 4. Overhead Non-Residential New Business
 Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	2	0	0	0	0
Non-Labor	51	-3	0	0	0
NSE	0	0	0	0	0
Total	53	-3	0	-1	0
FTE	0.1	0.1	0.1	0.1	0.1

Detail of Adjustments to Recorded in Nominal \$:

Year	Labor	NLbr	NSE	Total	FTE
2017	2	51	0	53	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	2	51	0	53	0.1
2018	0	-3	0	-3	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	0.001	-3	0	-3	0.1
2019	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	0.1
2020	-0.259	-0.479	0	-0.738	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-0.258	-0.479	0	-0.737	0.1
2021	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002160**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00216.0
 Category: F. NEW BUSINESS
 Category-Sub: 4. Overhead Non-Residential New Business
 Workpaper Group: 002160 - OH NON-RESIDENTIAL NB
 Workpaper Detail: 002160.001 - NON-COLLECTIBLE - OH NON-RESIDENTIAL NB
 In-Service Date: Not Applicable
 Description:

Extends the overhead electric distribution system, including third wire bring-ups and transmission underbuilds, to serve new non-residential customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		41	41	41
Non-Labor		894	902	910
NSE		0	0	0
	Total	935	943	951
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00216.0
 Category: F. NEW BUSINESS
 Category-Sub: 4. Overhead Non-Residential New Business
 Workpaper Group: 002160 - OH NON-RESIDENTIAL NB
 Workpaper Detail: 002160.002 - COLLECTIBLE- OH NON-RESIDENTIAL NB
 In-Service Date: Not Applicable

Description:

Extends the overhead electric distribution system, including third wire bring-ups and transmission underbuilds, to serve new non-residential customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	0	0
Non-Labor		67	68	69
NSE		0	0	0
	Total	67	68	69
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
002170 - UG RESIDENTIAL NB**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00217.0
 Category: F. NEW BUSINESS
 Category-Sub: 5. Underground Residential New Business
 Workpaper Group: 002170 - UG RESIDENTIAL NB

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	246	408	410	40	177	209	209	209
Non-Labor	3-YR Average	9,297	8,992	7,700	5,740	7,157	6,920	6,980	7,043
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	9,544	9,400	8,109	5,780	7,333	7,129	7,189	7,252
FTE	3-YR Average	1.3	2.8	2.4	0.1	1.1	1.2	1.2	1.2

Business Purpose:

Extends new underground electric distribution systems to new residential electric customers requesting service from the Utility.

Physical Description:

Extension of the underground electric distribution system to serve new residential customers.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 5. Underground Residential New Business
Workpaper Group: 002170 - UG RESIDENTIAL NB

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00217.0
 Category: F. NEW BUSINESS
 Category-Sub: 5. Underground Residential New Business
 Workpaper Group: 002170 - UG RESIDENTIAL NB

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	3-YR Average	209	209	209	0	0	0	209	209	209
Non-Labor	3-YR Average	6,866	6,866	6,866	54	114	177	6,920	6,980	7,043
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		7,075	7,075	7,075	54	114	177	7,129	7,189	7,252
FTE	3-YR Average	1.2	1.2	1.2	0.0	0.0	0.0	1.2	1.2	1.2

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	54	0	54	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	54	0	54	0.0
2023	0	114	0	114	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	114	0	114	0.0
2024	0	177	0	177	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	177	0	177	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 5. Underground Residential New Business
Workpaper Group: 002170 - UG RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	169	317	332	35	154
Non-Labor	7,279	7,941	7,125	5,709	7,157
NSE	0	0	0	0	0
Total	7,448	8,258	7,457	5,744	7,310
FTE	1.0	1.7	1.5	0.1	0.4
Adjustments (Nominal \$)**					
Labor	10	-6	-5	-1	0
Non-Labor	492	-56	-106	-220	0
NSE	0	0	0	0	0
Total	502	-63	-111	-221	0
FTE	0.1	0.7	0.6	0.0	0.5
Recorded-Adjusted (Nominal \$)					
Labor	179	311	327	33	154
Non-Labor	7,771	7,885	7,019	5,490	7,157
NSE	0	0	0	0	0
Total	7,950	8,196	7,346	5,523	7,310
FTE	1.1	2.4	2.1	0.1	0.9
Vacation & Sick (Nominal \$)					
Labor	27	47	47	5	23
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	27	47	47	5	23
FTE	0.2	0.4	0.3	0.0	0.2
Escalation to 2021\$					
Labor	40	50	36	2	0
Non-Labor	1,527	1,107	681	251	0
NSE	0	0	0	0	0
Total	1,567	1,157	717	253	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	246	408	410	40	177
Non-Labor	9,297	8,992	7,700	5,740	7,157
NSE	0	0	0	0	0
Total	9,544	9,400	8,109	5,780	7,333
FTE	1.3	2.8	2.4	0.1	1.1

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00217.0
 Category: F. NEW BUSINESS
 Category-Sub: 5. Underground Residential New Business
 Workpaper Group: 002170 - UG RESIDENTIAL NB

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	10	-6	-5	-1	0	
Non-Labor	492	-56	-106	-220	0	
NSE	0	0	0	0	0	
Total	502	-63	-111	-221	0	
FTE	0.1	0.7	0.6	0.0	0.5	

Detail of Adjustments to Recorded in Nominal \$:

Year	Labor	NLbr	NSE	Total	FTE
2017	10	492	0	502	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	10	492	0	502	0.1
2018	-6	-56	0	-63	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	0.8
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-6	-56	0	-63	0.7
2019	-5	-106	0	-111	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	0.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-5	-106	0	-111	0.6
2020	-1	-220	0	-221	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-1	-220	0	-221	0.0
2021	0.001	0	0	0.001	0.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 5. Underground Residential New Business
Workpaper Group: 002170 - UG RESIDENTIAL NB

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	0.5

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002170**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00217.0
 Category: F. NEW BUSINESS
 Category-Sub: 5. Underground Residential New Business
 Workpaper Group: 002170 - UG RESIDENTIAL NB
 Workpaper Detail: 002170.001 - NON COLLECTIBLE - UG RESIDENTIAL NB
 In-Service Date: Not Applicable

Description:

Extends new underground electric distribution systems to new residential electric customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		190	190	190
Non-Labor		6,297	6,352	6,409
NSE		0	0	0
	Total	<u>6,487</u>	<u>6,542</u>	<u>6,599</u>
FTE		1.1	1.1	1.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00217.0
 Category: F. NEW BUSINESS
 Category-Sub: 5. Underground Residential New Business
 Workpaper Group: 002170 - UG RESIDENTIAL NB
 Workpaper Detail: 002170.002 - COLLECTIBLE - UG RESIDENTIAL NB
 In-Service Date: Not Applicable

Description:

Extends new underground electric distribution systems to new residential electric customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		19	19	19
Non-Labor		623	628	634
NSE		0	0	0
	Total	642	647	653
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
002180 - UG NON-RESIDENTIAL NB**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00218.0
 Category: F. NEW BUSINESS
 Category-Sub: 6. Underground Non-Residential New Business
 Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	162	358	317	213	335	288	288	288
Non-Labor	3-YR Average	4,243	5,664	5,466	7,002	9,303	7,314	7,378	7,444
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	4,405	6,022	5,783	7,215	9,638	7,602	7,666	7,732
FTE	3-YR Average	0.8	2.1	1.6	1.1	1.9	1.5	1.5	1.5

Business Purpose:

Extends new underground electric distribution systems to new non-residential electric customers requesting service from the utility.

Physical Description:

This project provides for the extension of the underground electric distribution system to serve new non-residential customers.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 6. Underground Non-Residential New Business
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00218.0
 Category: F. NEW BUSINESS
 Category-Sub: 6. Underground Non-Residential New Business
 Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

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	3-YR Average	288	288	288	0	0	0	288	288	288
Non-Labor	3-YR Average	7,257	7,257	7,257	57	121	187	7,314	7,378	7,444
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		7,545	7,545	7,545	57	121	187	7,602	7,666	7,732
FTE	3-YR Average	1.5	1.5	1.5	0.0	0.0	0.0	1.5	1.5	1.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	57	0	57	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	57	0	57	0.0
2023	0	121	0	121	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	121	0	121	0.0
2024	0	187	0	187	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	187	0	187	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 6. Underground Non-Residential New Business
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	105	275	256	182	292
Non-Labor	3,072	4,999	5,081	6,859	9,303
NSE	0	0	0	0	0
Total	3,177	5,274	5,337	7,041	9,594
FTE	0.6	1.4	1.0	0.4	0.1
Adjustments (Nominal \$)**					
Labor	13	-2	-3	-4	0
Non-Labor	474	-32	-98	-163	0
NSE	0	0	0	0	0
Total	488	-35	-101	-167	0
FTE	0.1	0.4	0.3	0.5	1.5
Recorded-Adjusted (Nominal \$)					
Labor	118	273	253	178	292
Non-Labor	3,546	4,967	4,983	6,696	9,303
NSE	0	0	0	0	0
Total	3,664	5,239	5,236	6,875	9,594
FTE	0.7	1.8	1.3	0.9	1.6
Vacation & Sick (Nominal \$)					
Labor	18	41	36	25	44
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	18	41	36	25	44
FTE	0.1	0.3	0.3	0.2	0.3
Escalation to 2021\$					
Labor	27	44	28	9	0
Non-Labor	697	697	483	306	0
NSE	0	0	0	0	0
Total	723	741	511	315	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	162	358	317	213	335
Non-Labor	4,243	5,664	5,466	7,002	9,303
NSE	0	0	0	0	0
Total	4,405	6,022	5,783	7,215	9,638
FTE	0.8	2.1	1.6	1.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00218.0
 Category: F. NEW BUSINESS
 Category-Sub: 6. Underground Non-Residential New Business
 Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	13	-2	-3	-4	0
Non-Labor	474	-32	-98	-163	0
NSE	0	0	0	0	0
Total	488	-35	-101	-167	0
FTE	0.1	0.4	0.3	0.5	1.5

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	13	474	0	488	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	13	474	0	488	0.1
2018	-2	-32	0	-35	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	0.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-2	-32	0	-35	0.4
2019	-3	-98	0	-101	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	0.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-3	-98	0	-101	0.3
2020	-4	-163	0	-167	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.6
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-4	-163	0	-167	0.5
2021	0.001	0	0	0.001	1.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 6. Underground Non-Residential New Business
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	1.5

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002180**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00218.0
 Category: F. NEW BUSINESS
 Category-Sub: 6. Underground Non-Residential New Business
 Workpaper Group: 002180 - UG NON-RESIDENTIAL NB
 Workpaper Detail: 002180.001 - NON COLLECTIBLE - UG NON-RESIDENTIAL NB
 In-Service Date: Not Applicable

Description:

Extends new underground electric distribution systems to new non-residential electric customers requesting service from the utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		249	249	249
Non-Labor		6,320	6,376	6,432
NSE		0	0	0
	Total	6,569	6,625	6,681
FTE		1.3	1.3	1.3

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00218.0
 Category: F. NEW BUSINESS
 Category-Sub: 6. Underground Non-Residential New Business
 Workpaper Group: 002180 - UG NON-RESIDENTIAL NB
 Workpaper Detail: 002180.002 - COLLECTIBLE - UG NON-RESIDENTIAL NB
 In-Service Date: Not Applicable

Description:

Extends new underground electric distribution systems to new non-residential electric customers requesting service from the utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		39	39	39
Non-Labor		994	1,002	1,012
NSE		0	0	0
	Total	<u>1,033</u>	<u>1,041</u>	<u>1,051</u>
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002190 - NEW BUSINESS INFRASTRUCTURE

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00219.0
 Category: F. NEW BUSINESS
 Category-Sub: 7. New Business Infrastructure
 Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	303	264	147	77	167	130	130	130
Non-Labor	3-YR Average	9,387	7,274	4,516	3,503	6,684	4,939	4,983	5,027
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		9,690	7,538	4,663	3,580	6,851	5,069	5,113	5,157
FTE	3-YR Average	1.6	1.8	1.2	0.3	1.3	0.9	0.9	0.9

Business Purpose:

Provide facilities for new electric customers to be served from both the overhead and underground distribution system.

Physical Description:

This project provides for the following: 1) Installation of new underground distribution systems in conjunction with the development of land and new streets. 2) Retrofitting the existing system to comply with current standards when required to serve new customers. 3) Installation of street light systems 4) Modification of the existing electric system (reconductors, cutovers, load transfers, neutral bringups) to meet capacity requirements when necessitated by new customer projects. 5) Installation of new distribution systems to provide alternate service or special facilities under rule 2. 6) Installation of electric distribution facilities in anticipation of future utility needs.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 7. New Business Infrastructure
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00219.0
 Category: F. NEW BUSINESS
 Category-Sub: 7. New Business Infrastructure
 Workpaper Group: 002190 - NEW BUSINESS 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	3-YR Average	130	130	130	0	0	0	130	130	130
Non-Labor	3-YR Average	4,901	4,901	4,901	38	82	126	4,939	4,983	5,027
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		5,031	5,031	5,031	38	82	126	5,069	5,113	5,157
FTE	3-YR Average	0.9	0.9	0.9	0.0	0.0	0.0	0.9	0.9	0.9

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	38	0	38	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	38	0	38	0.0
2023	0	82	0	82	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	82	0	82	0.0
2024	0	126	0	126	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	126	0	126	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 7. New Business Infrastructure
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	169	203	117	65	145
Non-Labor	7,214	6,399	4,128	3,378	6,684
NSE	0	0	0	0	0
Total	7,383	6,602	4,245	3,444	6,829
FTE	0.9	1.0	0.5	0.1	0.1
Adjustments (Nominal \$)**					
Labor	52	-2	0	-1	0
Non-Labor	632	-20	-11	-28	0
NSE	0	0	0	0	0
Total	683	-22	-11	-29	0
FTE	0.5	0.5	0.5	0.2	1.0
Recorded-Adjusted (Nominal \$)					
Labor	221	201	117	64	145
Non-Labor	7,846	6,379	4,117	3,350	6,684
NSE	0	0	0	0	0
Total	8,066	6,579	4,234	3,415	6,829
FTE	1.4	1.5	1.0	0.3	1.1
Vacation & Sick (Nominal \$)					
Labor	33	30	17	9	22
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	33	30	17	9	22
FTE	0.2	0.3	0.2	0.0	0.2
Escalation to 2021\$					
Labor	50	32	13	3	0
Non-Labor	1,541	895	399	153	0
NSE	0	0	0	0	0
Total	1,591	928	412	156	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	303	264	147	77	167
Non-Labor	9,387	7,274	4,516	3,503	6,684
NSE	0	0	0	0	0
Total	9,690	7,538	4,663	3,580	6,851
FTE	1.6	1.8	1.2	0.3	1.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00219.0
 Category: F. NEW BUSINESS
 Category-Sub: 7. New Business Infrastructure
 Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	52	-2	0	-1	0	
Non-Labor	632	-20	-11	-28	0	
NSE	0	0	0	0	0	
Total	683	-22	-11	-29	0	
FTE	0.5	0.5	0.5	0.2	1.0	

Detail of Adjustments to Recorded in Nominal \$:

Year	Labor	NLbr	NSE	Total	FTE
2017	52	632	0	683	0.5
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	52	632	0	683	0.5
2018	-2	-20	0	-22	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	0.6
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-2	-20	0	-22	0.5
2019	0	-11	0	-11	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	0.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	-11	0	-11	0.5
2020	-1	-28	0	-29	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-0.999	-28	0	-29	0.2
2021	0.001	0	0	0.001	1.0
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 7. New Business Infrastructure
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	1.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002190**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00219.0
 Category: F. NEW BUSINESS
 Category-Sub: 7. New Business Infrastructure
 Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE
 Workpaper Detail: 002190.001 - NON COLLECTIBLE - NEW BUSINESS INFRASTRUCTURE
 In-Service Date: Not Applicable
 Description:

Provide facilities for new electric customers to be served from both the overhead and underground distribution system.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		101	101	101
Non-Labor		3,853	3,887	3,921
NSE		0	0	0
	Total	3,954	3,988	4,022
FTE		0.7	0.7	0.7

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00219.0
 Category: F. NEW BUSINESS
 Category-Sub: 7. New Business Infrastructure
 Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE
 Workpaper Detail: 002190.002 - COLLECTIBLE - NEW BUSINESS INFRASTRUCTURE
 In-Service Date: Not Applicable
 Description:

Provide facilities for new electric customers to be served from both the overhead and underground distribution system.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		29	29	29
Non-Labor		1,086	1,096	1,106
NSE		0	0	0
	Total	1,115	1,125	1,135
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002240 - NEW SERVICE INSTALLATIONS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00224.0
 Category: F. NEW BUSINESS
 Category-Sub: 8. New Service Installations
 Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2017	2018	2019	2020	2021	2022	2023	2024
Labor	3-YR Average	636	829	554	367	323	414	414	414
Non-Labor	3-YR Average	4,653	8,182	6,850	5,528	6,750	6,426	6,482	6,540
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		5,289	9,011	7,404	5,895	7,073	6,840	6,896	6,954
FTE	3-YR Average	3.7	5.5	3.4	2.3	2.2	2.6	2.6	2.6

Business Purpose:

Provides electric service to new customers from new or existing electric distribution systems.

Physical Description:

This project installs new overhead and underground electric services for new customers. The installation of distribution facilities is to be installed on Budgets 215, 216, 217, 218 or 219.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 8. New Service Installations
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

n/a

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00224.0
 Category: F. NEW BUSINESS
 Category-Sub: 8. New Service Installations
 Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

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	3-YR Average	414	414	414	0	0	0	414	414	414
Non-Labor	3-YR Average	6,376	6,376	6,376	50	106	164	6,426	6,482	6,540
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		6,790	6,790	6,790	50	106	164	6,840	6,896	6,954
FTE	3-YR Average	2.6	2.6	2.6	0.0	0.0	0.0	2.6	2.6	2.6

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	50	0	50	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	50	0	50	0.0
2023	0	106	0	106	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	106	0	106	0.0
2024	0	164	0	164	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	164	0	164	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 8. New Service Installations
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	343	633	442	307	281
Non-Labor	2,268	7,177	6,246	5,290	6,750
NSE	0	0	0	0	0
Total	2,611	7,810	6,688	5,597	7,031
FTE	2.2	2.4	1.2	0.6	0.7
Adjustments (Nominal \$)**					
Labor	120	-1	-1	0	0
Non-Labor	1,621	-2	-2	-3	0
NSE	0	0	0	0	0
Total	1,741	-3	-2	-3	0
FTE	0.9	2.3	1.7	1.4	1.2
Recorded-Adjusted (Nominal \$)					
Labor	463	631	441	307	281
Non-Labor	3,889	7,175	6,245	5,287	6,750
NSE	0	0	0	0	0
Total	4,352	7,806	6,686	5,594	7,031
FTE	3.1	4.7	2.9	2.0	1.9
Vacation & Sick (Nominal \$)					
Labor	69	96	63	44	42
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	69	96	63	44	42
FTE	0.6	0.8	0.5	0.3	0.3
Escalation to 2021\$					
Labor	105	102	49	16	0
Non-Labor	764	1,007	606	242	0
NSE	0	0	0	0	0
Total	869	1,109	654	258	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	636	829	554	367	323
Non-Labor	4,653	8,182	6,850	5,528	6,750
NSE	0	0	0	0	0
Total	5,289	9,011	7,404	5,895	7,073
FTE	3.7	5.5	3.4	2.3	2.2

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00224.0
 Category: F. NEW BUSINESS
 Category-Sub: 8. New Service Installations
 Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	120	-1	-1	0	0	
Non-Labor	1,621	-2	-2	-3	0	
NSE	0	0	0	0	0	
Total	1,741	-3	-2	-3	0	
FTE	0.9	2.3	1.7	1.4	1.2	

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	120	1,621	0	1,741	0.9
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	120	1,621	0	1,741	0.9
2018	-1	-2	0	-3	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	2.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-1	-2	0	-3	2.3
2019	-0.578	-2	0	-2	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	1.8
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-0.577	-2	0	-2	1.7
2020	0	-3	0	-3	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	1.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	-3	0	-3	1.4
2021	0.001	0	0	0.001	1.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 8. New Service Installations
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	1.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002240**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00224.0
 Category: F. NEW BUSINESS
 Category-Sub: 8. New Service Installations
 Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS
 Workpaper Detail: 002240.001 - NON COLLECTIBLE - NEW SERVICE INSTALLATIONS
 In-Service Date: Not Applicable
 Description:

Provides electric service to new customers from new or existing electric distribution systems.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		397	397	397
Non-Labor		6,169	6,223	6,278
NSE		0	0	0
	Total	6,566	6,620	6,675
FTE		2.5	2.5	2.5

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00224.0
 Category: F. NEW BUSINESS
 Category-Sub: 8. New Service Installations
 Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS
 Workpaper Detail: 002240.002 - COLLECTIBLE - NEW SERVICE INSTALLATIONS
 In-Service Date: Not Applicable

Description:

Provides electric service to new customers from new or existing electric distribution systems.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		17	17	17
Non-Labor		257	259	262
NSE		0	0	0
	Total	274	276	279
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00225.0
 Category: F. NEW BUSINESS
 Category-Sub: 9. Customer Requested Upgrades & Services
 Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	929	1,153	1,076	801	664	847	847	847
Non-Labor	3-YR Average	8,681	10,943	11,400	12,466	12,931	12,362	12,470	12,581
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	9,610	12,095	12,476	13,266	13,595	13,209	13,317	13,428
FTE	3-YR Average	5.8	7.0	6.7	5.2	4.5	5.5	5.5	5.5

Business Purpose:

Replace, relocate, rearrange, or remove existing electric distribution and service facilities as requested by customers.

Physical Description:

Replaces, relocates, rearranges, or removes existing electric distribution facilities at the customer's request, including joint utility requests; Modifies the existing electric distribution system as required to meet the customer's capacity needs and accommodate customer upgrades in service; Electric service replacements, rearrangements, and removals due to customer request or upgrade in service; Replace customer-owned distribution systems in mobile home parks.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, modification to existing electric facilities may be required due to customer request and in conjunction with new business projects.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00225.0
Category: F. NEW BUSINESS
Category-Sub: 9. Customer Requested Upgrades & Services
Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00225.0
 Category: F. NEW BUSINESS
 Category-Sub: 9. Customer Requested Upgrades & Services
 Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

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	3-YR Average	847	847	847	0	0	0	847	847	847
Non-Labor	3-YR Average	12,266	12,266	12,266	96	204	315	12,362	12,470	12,581
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		13,113	13,113	13,113	96	204	315	13,209	13,317	13,428
FTE	3-YR Average	5.5	5.5	5.5	0.0	0.0	0.0	5.5	5.5	5.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	96	0	96	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	96	0	96	0.0
2023	0	204	0	204	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	204	0	204	0.0
2024	0	315	0	315	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	315	0	315	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00225.0
 Category: F. NEW BUSINESS
 Category-Sub: 9. Customer Requested Upgrades & Services
 Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	421	882	867	686	578
Non-Labor	4,682	9,670	10,459	12,057	12,931
NSE	0	0	0	0	0
Total	5,104	10,552	11,326	12,743	13,509
FTE	2.7	2.0	1.0	0.4	0.3
Adjustments (Nominal \$)**					
Labor	255	-5	-9	-15	0
Non-Labor	2,573	-74	-67	-137	0
NSE	0	0	0	0	0
Total	2,827	-79	-76	-152	0
FTE	2.2	4.0	4.7	4.0	3.5
Recorded-Adjusted (Nominal \$)					
Labor	676	878	858	671	578
Non-Labor	7,255	9,596	10,392	11,921	12,931
NSE	0	0	0	0	0
Total	7,931	10,473	11,250	12,591	13,509
FTE	4.9	6.0	5.7	4.4	3.8
Vacation & Sick (Nominal \$)					
Labor	100	133	123	95	87
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	100	133	123	95	87
FTE	0.9	1.0	1.0	0.8	0.7
Escalation to 2021\$					
Labor	153	142	95	35	0
Non-Labor	1,425	1,347	1,008	545	0
NSE	0	0	0	0	0
Total	1,578	1,489	1,103	580	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	929	1,153	1,076	801	664
Non-Labor	8,681	10,943	11,400	12,466	12,931
NSE	0	0	0	0	0
Total	9,610	12,095	12,476	13,266	13,595
FTE	5.8	7.0	6.7	5.2	4.5

* 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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00225.0
 Category: F. NEW BUSINESS
 Category-Sub: 9. Customer Requested Upgrades & Services
 Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		255	-5	-9	-15	0
Non-Labor		2,573	-74	-67	-137	0
NSE		0	0	0	0	0
	Total	2,827	-79	-76	-152	0
FTE		2.2	4.0	4.7	4.0	3.5

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	255	2,573	0	2,827	2.2
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	255	2,573	0	2,827	2.2
2018	-5	-74	0	-79	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	4.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-5	-74	0	-79	4.0
2019	-9	-67	0	-76	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	4.8
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-9	-67	0	-76	4.7
2020	-15	-137	0	-152	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	4.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-15	-137	0	-152	4.0
2021	0.001	0	0	0.001	3.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00225.0
Category: F. NEW BUSINESS
Category-Sub: 9. Customer Requested Upgrades & Services
Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	3.5

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002250**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00225.0
 Category: F. NEW BUSINESS
 Category-Sub: 9. Customer Requested Upgrades & Services
 Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES
 Workpaper Detail: 002250.001 - NON COLLECTIBLE - CUSTOMER REQUESTED UPGRADES AND SERVICES
 In-Service Date: Not Applicable
 Description:

Replace, relocate, rearrange, or remove existing electric distribution and service facilities as requested by customers.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		635	635	635
Non-Labor		9,271	9,353	9,436
NSE		0	0	0
	Total	9,906	9,988	10,071
FTE		4.1	4.1	4.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00225.0
 Category: F. NEW BUSINESS
 Category-Sub: 9. Customer Requested Upgrades & Services
 Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES
 Workpaper Detail: 002250.002 - COLLECTIBLE - CUSTOMER REQUESTED UPGRADES AND SERVICES
 In-Service Date: Not Applicable
 Description:

Replace, relocate, rearrange, or remove existing electric distribution and service facilities as requested by customers.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		212	212	212
Non-Labor		3,091	3,117	3,145
NSE		0	0	0
	Total	3,303	3,329	3,357
FTE		1.4	1.4	1.4

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002350 - TRANSFORMER & METER INSTALLATIONS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00235.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	3,990	4,178	4,585	4,932	4,220	4,620	4,667	4,714
Non-Labor	3-YR Average	5,144	4,882	2,873	3,691	6,983	4,551	4,591	4,632
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	9,134	9,061	7,458	8,623	11,203	9,171	9,258	9,346
FTE	3-YR Average	14.0	11.8	8.5	7.2	6.9	32.5	32.7	33.1

Business Purpose:

Install new line transformers, including the replacement of existing transformers, new electric meters, switching for capital jobs, excluding parallel or transmission switching, handling and loading of retired equipment, and salvage of distribution line equipment being retired or scrapped.

Physical Description:

This project provides for the following: 1) The labor, transportation and minor material cost associated with the installation of new line transformers, including the replacement of existing transformers. 2) The labor and transportation cost associated with the installation of new electric meters. 3) The labor and transportation costs associated with switching for capital jobs, excluding parallel or transmission switching. 4) All costs associated with the handling & loading of retired equipment, including PCB contaminated line equipment. 5) Salvage costs associated with the disposition of distribution line equipment that is being retired or scrapped, including PCB contaminated line equipment.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, modification to existing electric facilities may be required due to customer request and in conjunction with new business projects.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00235.0
Category: F. NEW BUSINESS
Category-Sub: 10. Other New Business
Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00235.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

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	3-YR Average	4,579	4,579	4,579	41	88	135	4,620	4,667	4,714
Non-Labor	3-YR Average	4,516	4,516	4,516	35	75	116	4,551	4,591	4,632
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		9,095	9,095	9,095	76	163	251	9,171	9,258	9,346
FTE	3-YR Average	7.5	7.5	7.5	25.0	25.2	25.6	32.5	32.7	33.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	41	35	0	76	25.0
Explanation:	Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024) including V&S for incremental labor and FTE; Adjusted FTE to reflect average salary.				
2022 Total	41	35	0	76	25.0
2023	88	75	0	163	25.2
Explanation:	Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024) including V&S for incremental labor and FTE; Adjusted FTE to reflect average salary.				
2023 Total	88	75	0	163	25.2
2024	135	116	0	251	25.6
Explanation:	Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024) including V&S for incremental labor and FTE; Adjusted FTE to reflect average salary.				
2024 Total	135	116	0	251	25.6

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00235.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	2,904	3,182	3,656	4,131	3,669
Non-Labor	4,299	4,281	2,619	3,529	6,983
NSE	0	0	0	0	0
Total	7,203	7,463	6,275	7,660	10,652
FTE	12.0	10.1	7.2	6.2	5.9
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	0.1	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	2,904	3,182	3,656	4,131	3,669
Non-Labor	4,299	4,281	2,619	3,529	6,983
NSE	0	0	0	0	0
Total	7,203	7,463	6,275	7,660	10,652
FTE	12.0	10.1	7.3	6.2	5.9
Vacation & Sick (Nominal \$)					
Labor	431	482	524	586	551
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	431	482	524	586	551
FTE	2.0	1.7	1.2	1.0	1.0
Escalation to 2021\$					
Labor	655	514	405	216	0
Non-Labor	845	601	254	161	0
NSE	0	0	0	0	0
Total	1,500	1,115	659	377	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	3,990	4,178	4,585	4,932	4,220
Non-Labor	5,144	4,882	2,873	3,691	6,983
NSE	0	0	0	0	0
Total	9,134	9,061	7,458	8,623	11,203
FTE	14.0	11.8	8.5	7.2	6.9

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00235.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

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	0.1	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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019	0.001	0	0	0.001	0.1
2019 Total	0.001	0	0	0.001	0.1
2020 Total	0	0	0	0	0.0
2021 Total	0	0	0	0	0.0

Explanation: One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002350**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00235.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS
 Workpaper Detail: 002350.001 - NON COLLECTIBLE - TRANSFORMER & METER INSTALLATIONS
 In-Service Date: Not Applicable

Description:

Install new line transformers, including the replacement of existing transformers, new electric meters, switching for capital jobs, excluding parallel or transmission switching, handling and loading of retired equipment, and salvage of distribution line equipment being retired or scrapped.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		4,481	4,527	4,573
Non-Labor		4,415	4,454	4,493
NSE		0	0	0
	Total	8,896	8,981	9,066
FTE		31.5	31.7	32.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00235.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS
 Workpaper Detail: 002350.002 - COLLECTIBLE - TRANSFORMER & METER INSTALLATIONS
 In-Service Date: Not Applicable

Description:

Install new line transformers, including the replacement of existing transformers, new electric meters, switching for capital jobs, excluding parallel or transmission switching, handling and loading of retired equipment, and salvage of distribution line equipment being retired or scrapped.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		139	140	141
Non-Labor		136	137	139
NSE		0	0	0
	Total	275	277	280
FTE		1.0	1.0	1.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
181430 - 3 ROOTS TL6906,TL677,TL668 CUST RELO

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18143.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 181430 - 3 ROOTS TL6906,TL677,TL668 CUST RELO

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	6	2	6	1	1	0
Non-Labor	Zero-Based	0	0	185	49	-28	48	168	1
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	191	51	-22	49	169	1
FTE	Zero-Based	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0

Business Purpose:

To accommodate the new development, SDG&E has also been asked to relocate and underground portions of three 69kV power lines and one 12kV distribution line, as well as decommission an existing substation that is not feeding any customers.

Physical Description:

Per the customer request SDG&E will be relocating approximately 5,700ft of three (3) 69kV lines in the Fenton Carrol Canyon area. The realignment of TL6906, TL677 and TL668 will consist of 400ft of overhead and 5,700ft of underground from transmission structure Z233217 to Z247005. Additionally, there will be a relocation of around 600 ft of TL664 west of Camino Santa Fe.

Project Justification:

3Roots is a developer project within the Mira Mesa community consisting of 1,800 residential units including single family detached homes, attached and detached townhomes, apartments and over 156,000 square feet of commercial/multi use space.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 18143.0
Category: F. NEW BUSINESS
Category-Sub: 10. Other New Business
Workpaper Group: 181430 - 3 ROOTS TL6906,TL677,TL668 CUST RELO

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18143.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 181430 - 3 ROOTS TL6906,TL677,TL668 CUST RELO

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	Zero-Based	1	1	0	0	0	0	1	1	0
Non-Labor	Zero-Based	48	168	1	0	0	0	48	168	1
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		49	169	1	0	0	0	49	169	1
FTE	Zero-Based	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18143.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 181430 - 3 ROOTS TL6906,TL677,TL668 CUST RELO

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	5	1	5
Non-Labor	0	0	169	47	-28
NSE	0	0	0	0	0
Total	0	0	173	48	-23
FTE	0.0	0.0	0.0	0.0	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	0.1	0.1	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	5	1	5
Non-Labor	0	0	169	47	-28
NSE	0	0	0	0	0
Total	0	0	173	48	-23
FTE	0.0	0.0	0.1	0.1	0.1
Vacation & Sick (Nominal \$)					
Labor	0	0	1	0	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	1	0	1
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	1	0	0
Non-Labor	0	0	16	2	0
NSE	0	0	0	0	0
Total	0	0	17	2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	6	2	6
Non-Labor	0	0	185	49	-28
NSE	0	0	0	0	0
Total	0	0	191	51	-22
FTE	0.0	0.0	0.1	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18143.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 181430 - 3 ROOTS TL6906,TL677,TL668 CUST RELO

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	0.1	0.1	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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019	0.001	0	0	0.001	0.1
Explanation:	Adding FTE to align with labor charges				
2019 Total	0.001	0	0	0.001	0.1
2020	0.001	0	0	0.001	0.1
Explanation:	Adding FTE to align with labor charges				
2020 Total	0.001	0	0	0.001	0.1
2021 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 181430**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18143.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 181430 - 3 ROOTS TL6906,TL677,TL668 CUST RELO
 Workpaper Detail: 181430.001 - COLLECTIBLE - 3 ROOTS TL6906, TL677, TL668 CUSTOMER RELOCATION
 In-Service Date: 03/31/2024

Description:

As part of a new customer development, relocate and underground portions of three 69kV power lines and one 12kV distribution line, and decommission an existing substation that is not feeding any customers.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		1	1	0
Non-Labor		48	168	1
NSE		0	0	0
	Total	49	169	1
FTE		0.1	0.1	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 181430

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

TY2024 GRC FORECAST - DETAILS
Budget Code: 18443
Estimated In Service Date: 3/30/2024

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (cu./ft./mile)	2022			2023			2024			Total Cost	Comments
					# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost		
1	Distribution Structures	Collectible - Non-Labor	Non-RAM	Structures	1	\$ 22,672	\$ 22,672	5	\$ 22,672	\$ 113,358	-	\$ -	\$ 236,029	Cost distribution based off of expected level of effort applied to unit cost estimates for 2022-2024	
2	Distribution Conductor	Collectible - Non-Labor	Non-RAM	Circuit Miles	0.08	\$ 316,539	\$ 25,443	0.18	\$ 316,539	\$ 55,433	0	\$ -	\$ 82,300	Cost distribution based off of expected level of effort applied to unit cost estimates for 2022-2024	
3	Labor	Collectible - Labor	Non-RAM	hours	22	\$ 58	\$ 1,278	22	\$ 58	\$ 1,278	5	\$ 312	\$ 2,439		
4	FTEs	Collectible - Labor	Non-RAM	V&S	4	\$ 9	\$ 33	4	\$ 9	\$ 32	1	\$ 9	\$ 74		
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
*Costs should be reported in direct costs only (no overheads)															
Summary															
		Labor	RAM												
		Non-Labor	Non-RAM												
Subtotal RAM		Collectible - Labor	Non-RAM		\$ 1,311	\$ 1,311		\$ 1,280	\$ 1,280			\$ 321	\$ 2,911		
		Collectible - Non-Labor	Non-RAM		\$ 48,314	\$ 48,314		\$ 168,791	\$ 168,791			\$ 1,224	\$ 218,309		
		Labor	Non-RAM												
		Non-Labor	Non-RAM												
Subtotal Non-RAM					\$ 49,625	\$ 49,625		\$ 170,071	\$ 170,071			\$ 1,545	\$ 221,241		
Total Project Forecast					\$ 49,625	\$ 49,625		\$ 170,071	\$ 170,071			\$ 1,545	\$ 221,241		

**Beginning of Workpaper Group
182420 - PURE WATER ELECTRIC**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18242.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 182420 - PURE WATER ELECTRIC

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	15	18	17	7	0	0
Non-Labor	Zero-Based	0	0	54	92	1,135	1,815	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	69	111	1,152	1,822	0	0
FTE	Zero-Based	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0

Business Purpose:

This project came into existence due to SDG&E underground infrastructure obstructing a \$1.4 billion City of San Diego water recycling project.

Physical Description:

Relocation of SDG&E electric facilities located in the public right of way to accommodate for City of San Diego's multi-year Purewater program. Work will be phased in accordance with the City's priority work schedule. SDG&E shall perform the work in accordance with SDG&E's standard operating procedures, processes and methods, pursuant to the relocation design for the work approved by both, the City and SDG&E jointly.

Project Justification:

This project will help the City of San Diego to reduce ocean pollution, produce safe, high-quality drinking water. With San Diego's existing water system, only 8% of the wastewater leaving homes and businesses is recycled; the rest is treated and discharged into the ocean. The Pure Water Program transforms the City's water system into a complete water cycle that maximizes City's use of water overall.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 18242.0
Category: F. NEW BUSINESS
Category-Sub: 10. Other New Business
Workpaper Group: 182420 - PURE WATER ELECTRIC

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

n/a

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18242.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 182420 - PURE WATER ELECTRIC

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	Zero-Based	7	0	0	0	0	0	7	0	0
Non-Labor	Zero-Based	1,815	0	0	0	0	0	1,815	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,822	0	0	0	0	0	1,822	0	0
FTE	Zero-Based	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18242.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 182420 - PURE WATER ELECTRIC

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	12	15	14
Non-Labor	0	0	50	88	1,135
NSE	0	0	0	0	0
Total	0	0	61	104	1,150
FTE	0.0	0.0	0.1	0.1	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	0	0	12	15	14
Non-Labor	0	0	50	88	1,135
NSE	0	0	0	0	0
Total	0	0	61	104	1,150
FTE	0.0	0.0	0.1	0.1	0.1
Vacation & Sick (Nominal \$)					
Labor	0	0	2	2	2
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	2	2	2
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	1	1	0
Non-Labor	0	0	5	4	0
NSE	0	0	0	0	0
Total	0	0	6	5	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	15	18	17
Non-Labor	0	0	54	92	1,135
NSE	0	0	0	0	0
Total	0	0	69	111	1,152
FTE	0.0	0.0	0.1	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18242.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 182420 - PURE WATER ELECTRIC

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 182420**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 18242.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 182420 - PURE WATER ELECTRIC
 Workpaper Detail: 182420.001 - COLLECTIBLE - PURE WATER ELECTRIC
 In-Service Date: 08/31/2022

Description:

Relocate SDG&E electric facilities located in the public right of way to accommodate for City of San Diego's multi-year Purewater program, phased in accordance with the City's priority work schedule.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		7	0	0
Non-Labor		1,815	0	0
NSE		0	0	0
	Total	<u>1,822</u>	<u>0</u>	<u>0</u>
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 182420

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 182142
Estimated In Service Date: 8/30/2021

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea./ft./mils)	2022		2023		2024		Total Cost	Comments	
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*			
1	No. of Hours Worked	Collectible - Labor	Non-RAM	Hours	142	\$ 50	7,100	\$ -	\$ -	\$ -	\$ 7,100	a) Zero based forecasting method used for forecasting for one project i.e. ED00 US Estimate M&I b) Construction for ED00 scheduled from Mar '22 to Aug '22 hence all units forecasted in 2022 and not applicable for 2023 and 2024 c) 100% Collectible project paid by City hence added a third line item for "CMC"	
2	No. of underground cable feet	Collectible - Non-Labor	Non-RAM	Feet	2,148	\$ 845	1,815,438	\$ -	\$ -	\$ -	\$ 1,815,438		
3	FTE'S	Collectible - Labor	Non-RAM	V&S	24	\$ 8	192	\$ -	\$ -	\$ -	\$ 192		
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
*Costs should be reported in direct costs only (no overheads)													
Summary													
		Labor	RAM										
		Non-Labor	RAM										
Subtotal RAM		Collectible - Labor	Non-RAM										
		Collectible - Non-Labor	Non-RAM										
		Labor	Non-RAM										
		Non-Labor	Non-RAM										
Subtotal Non-RAM													
Total Project Forecast													

Beginning of Workpaper Group
202560 - COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20256.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 202560 - COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	0	0	
Non-Labor	Zero-Based	0	0	0	0	101	10,254	2,262	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	101	10,254	2,262	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

Replace existing metering a Camp Pendleton facility at the request of the Government.

Physical Description:

Remove existing primary metering and replace with new equipment for approximately 1,300 customers at Stuart Mesa Housing on Camp Pendleton.

Project Justification:

This project is at the request and expense of federal government.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20256.0
Category: F. NEW BUSINESS
Category-Sub: 10. Other New Business
Workpaper Group: 202560 - COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING

Forecast Methodology:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20256.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 202560 - COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING

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	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	10,254	2,262	0	0	0	0	10,254	2,262	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		10,254	2,262	0	0	0	0	10,254	2,262	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20256.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 202560 - COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	101
NSE	0	0	0	0	0
Total	0	0	0	0	101
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	0	0	0
Non-Labor	0	0	0	0	101
NSE	0	0	0	0	0
Total	0	0	0	0	101
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 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	101
NSE	0	0	0	0	0
Total	0	0	0	0	101
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20256.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 202560 - COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING

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 202560**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20256.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 202560 - COLLECTIBLE - CAMP PENDLETON - STUART MESA HOUSING
 Workpaper Detail: 202560.001 - COLLECTIBLE - CAMP PENDLETON STUART MESA HOUSING-ELECTRIC
 In-Service Date: 03/31/2023

Description:

Replace primary metering with new electric distribution system for approximately 1,300 customers at Stuart Mesa Housing on Camp Pendleton.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	0	0
Non-Labor		10,254	2,262	0
NSE		0	0	0
	Total	10,254	2,262	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 202560

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

L/NL	WO	Job Level	Forecast	
			2022	2023
Contractor Labor	530000239643	Civil & Electric - Phase A	\$ 692,144.98	\$ 152,684.51
Contractor Labor	530000239667	Civil & Electric - Phase B	\$ 384,524.99	\$ 84,824.73
Contractor Labor	530000239720	Civil & Electric - Phase C	\$ 461,429.98	\$ 101,789.67
NON LABOR	530000239643	Civil & Electric - Phase A	\$ 3,922,154.86	\$ 865,212.23
NON LABOR	530000239667	Civil & Electric - Phase B	\$ 2,178,974.92	\$ 480,673.46
NON LABOR	530000239720	Civil & Electric - Phase C	\$ 2,614,769.91	\$ 576,808.15
subtotals			\$ 10,253,999.63	\$ 2,261,992.76
			C&E Labor Subtotal	\$ 2,076,903.06
			C&E Non Labor Subtotal	\$ 11,769,117.35
			C&E grand total	\$ 13,846,020.41

The estimated costs above are based on a combination of contracts, design estimated costs and schedules in place.

Beginning of Workpaper Group
212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21252.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	3	77	140	16	26	61	61	61
Non-Labor	3-YR Average	1,264	1,014	1,322	1,568	3,971	2,305	2,325	2,346
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	1,267	1,091	1,461	1,584	3,998	2,366	2,386	2,407
FTE	3-YR Average	0.2	0.4	0.7	0.0	0.2	0.3	0.3	0.3

Business Purpose:

This project is required to convert existing electric overhead distribution lines to underground upon customer request.

Physical Description:

This project reflects SDG&E's portion of the costs for installing new underground facilities to replace existing overhead facilities for projects meeting the criteria for Rule 20B.

Project Justification:

SDG&E is responsible for a portion of the costs associated with converting overhead distribution lines to underground to comply with the "Rules for the Sale of Electric Energy"

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21252.0
Category: F. NEW BUSINESS
Category-Sub: 10. Other New Business
Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21252.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN

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	3-YR Average	61	61	61	0	0	0	61	61	61
Non-Labor	3-YR Average	2,287	2,287	2,287	18	38	59	2,305	2,325	2,346
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		2,348	2,348	2,348	18	38	59	2,366	2,386	2,407
FTE	3-YR Average	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	18	0	18	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	18	0	18	0.0
2023	0	38	0	38	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	38	0	38	0.0
2024	0	59	0	59	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	59	0	59	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21252.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	22
Non-Labor	0	0	0	0	3,883
NSE	0	0	0	0	0
Total	0	0	0	0	3,905
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$)**					
Labor	2	59	111	14	1
Non-Labor	1,056	889	1,205	1,499	88
NSE	0	0	0	0	0
Total	1,058	947	1,316	1,513	89
FTE	0.2	0.3	0.6	0.0	0.2
Recorded-Adjusted (Nominal \$)					
Labor	2	59	111	14	23
Non-Labor	1,056	889	1,205	1,499	3,971
NSE	0	0	0	0	0
Total	1,058	947	1,316	1,513	3,994
FTE	0.2	0.3	0.6	0.0	0.2
Vacation & Sick (Nominal \$)					
Labor	0	9	16	2	3
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	9	16	2	3
FTE	0.0	0.1	0.1	0.0	0.0
Escalation to 2021\$					
Labor	0	9	12	1	0
Non-Labor	208	125	117	69	0
NSE	0	0	0	0	0
Total	208	134	129	69	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	3	77	140	16	26
Non-Labor	1,264	1,014	1,322	1,568	3,971
NSE	0	0	0	0	0
Total	1,267	1,091	1,461	1,584	3,998
FTE	0.2	0.4	0.7	0.0	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21252.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		2	59	111	14	1
Non-Labor		1,056	889	1,205	1,499	88
NSE		0	0	0	0	0
	Total	1,058	947	1,316	1,513	89
FTE		0.2	0.3	0.6	0.0	0.2

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	1	1,060	0	1,061	0.1
Explanation:	Split into two separate projects: 21252 and 21253				
2017	0.406	-3	0	-3	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	2	1,056	0	1,058	0.2
2018	59	890	0	949	0.4
Explanation:	Split into two separate projects: 21252 and 21253				
2018	-0.004	-1	0	-1	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018 Total	59	889	0	947	0.3
2019	111	1,206	0	1,317	0.7
Explanation:	Split into two separate projects: 21252 and 21253				
2019	-0.033	-1	0	-1	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019 Total	111	1,205	0	1,316	0.6
2020	14	1,502	0	1,515	0.1
Explanation:	Split into two separate projects: 21252 and 21253				
2020	-0.081	-2	0	-2	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020 Total	14	1,499	0	1,513	0.0
2021	1	88	0	89	0.1
Explanation:	Split into two separate projects: 21252 and 21253				
2021	0.001	0	0	0.001	0.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21252.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	1	88	0	89	0.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 212520**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21252.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN
 Workpaper Detail: 212520.001 - NON COLLECTIBLE - CONVERSION FROM OH-UG RULE 20B NEW BUSINESS
 In-Service Date: Not Applicable

Description:

Extends new underground electric distribution systems to new residential electric customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		42	42	42
Non-Labor		1,592	1,606	1,621
NSE		0	0	0
	Total	<u>1,634</u>	<u>1,648</u>	<u>1,663</u>
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21252.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212520 - CONVERSION FROM OH-UG RULE 20B NEW BUSIN
 Workpaper Detail: 212520.002 - COLLECTIBLE - CONVERSION FROM OH-UG RULE 20B NEW BUSINESS
 In-Service Date: Not Applicable

Description:

Extends new underground electric distribution systems to new residential electric customers requesting service from the Utility.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		19	19	19
Non-Labor		713	719	725
NSE		0	0	0
	Total	<u>732</u>	<u>738</u>	<u>744</u>
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
212530 - CONVERSION FROM OH-UG RULE 20C

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21253.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	4	107	194	23	10	76	76	76
Non-Labor	3-YR Average	1,708	1,410	1,835	2,176	1,726	1,927	1,944	1,961
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	1,712	1,517	2,029	2,199	1,736	2,003	2,020	2,037
FTE	3-YR Average	0.2	0.7	1.2	0.1	0.1	0.5	0.5	0.5

Business Purpose:

Convert existing electric overhead distribution lines to underground upon customer request.

Physical Description:

This project reflects SDG&E's portion of the costs for installing new underground facilities to replace existing overhead facilities for projects meeting the criteria for Rule 20C.

Project Justification:

SDG&E is responsible for a portion of the costs associated with converting overhead distribution lines to underground to comply with the "Rules for the Sale of Electric Energy"

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21253.0
Category: F. NEW BUSINESS
Category-Sub: 10. Other New Business
Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.? Adjustments were made based on growth factors derived from the SDG&E meterset forecast.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21253.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C

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	3-YR Average	76	76	76	0	0	0	76	76	76
Non-Labor	3-YR Average	1,912	1,912	1,912	15	32	49	1,927	1,944	1,961
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		1,988	1,988	1,988	15	32	49	2,003	2,020	2,037
FTE	3-YR Average	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	15	0	15	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2022 Total	0	15	0	15	0.0
2023	0	32	0	32	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2023 Total	0	32	0	32	0.0
2024	0	49	0	49	0.0
Explanation: Meterset growth rate of 0.78% (2022), 0.88% (2023), 0.89% (2024)					
2024 Total	0	49	0	49	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21253.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	7
Non-Labor	0	0	0	0	1,604
NSE	0	0	0	0	0
Total	0	0	0	0	1,611
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$)**					
Labor	3	81	155	19	2
Non-Labor	1,428	1,237	1,673	2,081	122
NSE	0	0	0	0	0
Total	1,431	1,318	1,828	2,100	124
FTE	0.2	0.6	1.0	0.1	0.1
Recorded-Adjusted (Nominal \$)					
Labor	3	81	155	19	9
Non-Labor	1,428	1,237	1,673	2,081	1,726
NSE	0	0	0	0	0
Total	1,431	1,318	1,828	2,100	1,735
FTE	0.2	0.6	1.0	0.1	0.1
Vacation & Sick (Nominal \$)					
Labor	0	12	22	3	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	12	22	3	1
FTE	0.0	0.1	0.2	0.0	0.0
Escalation to 2021\$					
Labor	1	13	17	1	0
Non-Labor	281	174	162	95	0
NSE	0	0	0	0	0
Total	281	187	179	96	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	4	107	194	23	10
Non-Labor	1,708	1,410	1,835	2,176	1,726
NSE	0	0	0	0	0
Total	1,712	1,517	2,029	2,199	1,736
FTE	0.2	0.7	1.2	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21253.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	3	81	155	19	2	
Non-Labor	1,428	1,237	1,673	2,081	122	
NSE	0	0	0	0	0	
Total	1,431	1,318	1,828	2,100	124	
FTE	0.2	0.6	1.0	0.1	0.1	

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	2	1,474	0	1,476	0.1
Explanation:	Split into two separate projects: 21252 and 21253				
2017	0.853	-46	0	-45	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	3	1,428	0	1,431	0.2
2018	82	1,238	0	1,320	0.6
Explanation:	Split into two separate projects: 21252 and 21253				
2018	-0.286	-2	0	-2	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	81	1,237	0	1,318	0.6
2019	155	1,678	0	1,833	1.0
Explanation:	Split into two separate projects: 21252 and 21253				
2019	-0.032	-5	0	-5	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	155	1,673	0	1,828	1.0
2020	19	2,089	0	2,108	0.1
Explanation:	Split into two separate projects: 21252 and 21253				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21253.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2020	-0.018	-8	0	-8	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	19	2,081	0	2,100	0.1
2021	2	122	0	124	0.1
Explanation:	Split into two separate projects: 21252 and 21253				
2021 Total	2	122	0	124	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 212530**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21253.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C
 Workpaper Detail: 212530.001 - NON COLLECTIBLE - CONVERSION FROM OH-UG RULE 20C
 In-Service Date: Not Applicable
 Description:

Convert existing electric overhead distribution lines to underground upon customer request.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	57	57	57
Non-Labor	1,445	1,458	1,471
NSE	0	0	0
Total	1,502	1,515	1,528
FTE	0.4	0.4	0.4

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21253.0
 Category: F. NEW BUSINESS
 Category-Sub: 10. Other New Business
 Workpaper Group: 212530 - CONVERSION FROM OH-UG RULE 20C
 Workpaper Detail: 212530.002 - COLLECTIBLE - CONVERSION FROM OH-UG RULE 20C
 In-Service Date: Not Applicable
 Description:

Convert existing electric overhead distribution lines to underground upon customer request.

Forecast In 2021 \$(000)			
Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor	19	19	19
Non-Labor	482	486	490
NSE	0	0	0
Total	<u>501</u>	<u>505</u>	<u>509</u>
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: G. OVERHEAD POOLS
Workpaper: VARIOUS

Summary for Category: G. OVERHEAD POOLS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	67,993	60,971	68,041	55,727
Non-Labor	112,555	108,457	128,562	96,276
NSE	0	0	0	0
Total	180,548	169,428	196,603	152,003
FTE	576.7	488.0	544.3	445.9

E09010 Local Engineering Pool - ED Pool

Labor	45,597	34,717	35,386	23,748
Non-Labor	98,159	86,255	87,918	59,001
NSE	0	0	0	0
Total	143,756	120,972	123,304	82,749
FTE	386.8	278.0	283.0	190.0

E09040 Local Engineering Pool - Substation Pool Elec

Labor	1,620	2,439	2,404	1,932
Non-Labor	1,676	2,708	2,670	2,145
NSE	0	0	0	0
Total	3,296	5,147	5,074	4,077
FTE	13.7	19.5	19.2	15.5

E09050 Department Overhead Pool - Elec

Labor	17,862	18,852	20,544	21,072
Non-Labor	444	178	194	199
NSE	0	0	0	0
Total	18,306	19,030	20,738	21,271
FTE	151.5	150.8	164.4	168.6

E09060 CONTRACT ADMINISTRATION POOL - Elec

Labor	2,914	4,963	9,707	8,975
Non-Labor	12,276	19,316	37,780	34,931
NSE	0	0	0	0
Total	15,190	24,279	47,487	43,906
FTE	24.7	39.7	77.7	71.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
E09010 - Local Engineering Pool - ED Pool

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0901.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09010 - Local Engineering Pool - ED Pool

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	49,482	37,874	42,131	54,466	45,597	34,717	35,386	23,748
Non-Labor	Zero-Based	69,263	109,989	68,865	72,877	98,159	86,255	87,918	59,001
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	118,745	147,862	110,996	127,343	143,756	120,972	123,304	82,749
FTE	Zero-Based	350.0	280.6	325.3	441.5	386.8	278.0	283.0	190.0

Business Purpose:

The Local Engineering - ED Pool consists of the pool of Planners, Designers and Engineers, and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for new services, facilities relocations, overhead-to-underground conversions, capacity, and reliability projects. These persons also address the interaction with internal and external customers in preparing a work order package for construction. This pool includes the costs that will be allocated to electric distribution capital activities.

Physical Description:

Typical activities included in this account are:

- Communicating with internal and external customers to collect information necessary to prepare a work order package for construction;
- Performing load and sizing studies to determine the design characteristics to apply to a construction project;
- Developing a design for the construction project that meets the customer needs for service and the overall system design requirements. This design identifies the material, labor and equipment requirements necessary to complete the construction project;
- Coordination of the permitting and rights of way requirements;
- Preparing cost estimates according to the line extension rules and presenting these estimates to the internal or external customer for their approval;
- Preparing contracts and processing fees for new business construction projects; and
- Preparing work order packages and transmitting them to the internal and external groups.

Project Justification:

Local Engineering activities are required to see a project from inception to completion. Due to the volume of capital work that takes place on the distribution system, the most effective and efficient way to allocate the planning and engineering activities is through the use of the overhead pools. It is not feasible to charge directly for each electric distribution job due to the tremendous amount of work orders.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0901.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09010 - Local Engineering Pool - ED Pool

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0901.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09010 - Local Engineering Pool - ED Pool

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	Zero-Based	34,717	35,386	23,748	0	0	0	34,717	35,386	23,748
Non-Labor	Zero-Based	86,255	87,918	59,001	0	0	0	86,255	87,918	59,001
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		120,972	123,304	82,749	0	0	0	120,972	123,304	82,749
FTE	Zero-Based	278.0	283.0	190.0	0.0	0.0	0.0	278.0	283.0	190.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0901.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09010 - Local Engineering Pool - ED Pool

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	29,870	34,484	34,371	36,779	40,515
Non-Labor	22,794	38,554	58,919	74,950	95,958
NSE	0	0	0	0	0
Total	52,664	73,038	93,290	111,730	136,473
FTE	331.0	367.0	367.6	376.3	400.8
Adjustments (Nominal \$)**					
Labor	6,143	-5,642	-776	8,838	-872
Non-Labor	35,097	57,895	3,859	-5,260	2,201
NSE	0	0	0	0	0
Total	41,239	52,253	3,084	3,578	1,329
FTE	-30.9	-126.7	-87.6	3.8	-70.4
Recorded-Adjusted (Nominal \$)					
Labor	36,013	28,842	33,596	45,617	39,643
Non-Labor	57,890	96,449	62,778	69,691	98,159
NSE	0	0	0	0	0
Total	93,903	125,291	96,374	115,308	137,801
FTE	300.1	240.3	280.0	380.1	330.4
Vacation & Sick (Nominal \$)					
Labor	5,344	4,370	4,811	6,469	5,954
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	5,344	4,370	4,811	6,469	5,954
FTE	49.9	40.3	45.3	61.4	56.4
Escalation to 2021\$					
Labor	8,125	4,662	3,724	2,380	0
Non-Labor	11,373	13,540	6,088	3,187	0
NSE	0	0	0	0	0
Total	19,498	18,202	9,812	5,567	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	49,482	37,874	42,131	54,466	45,597
Non-Labor	69,263	109,989	68,865	72,877	98,159
NSE	0	0	0	0	0
Total	118,745	147,862	110,996	127,343	143,756
FTE	350.0	280.6	325.3	441.5	386.8

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0901.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09010 - Local Engineering Pool - ED Pool

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	6,143	-5,642	-776	8,838	-872	
Non-Labor	35,097	57,895	3,859	-5,260	2,201	
NSE	0	0	0	0	0	
Total	41,239	52,253	3,084	3,578	1,329	
FTE	-30.9	-126.7	-87.6	3.8	-70.4	

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	4,609	34,754	0	39,362	-44.7
Explanation:	This adjustment is to align the values with the correct OH data				
2017	1,534	343	0	1,877	13.8
Explanation:	Counter to one-side adjustment made on O&M side: "Adjustment moves labor & non-labor costs associated with Training from cost center 2100-0131 in work group 1ED0007 Distribution Design & PM to the Training Capital Pool to align activity where costs reside." Please see entry on O&M side for further details.				
2017 Total	6,143	35,097	0	41,239	-30.9
2018	-6,828	57,654	0	50,826	-136.4
Explanation:	This adjustment is to align the values with the correct OH data				
2018	1,186	241	0	1,427	9.7
Explanation:	Counter to one-side adjustment made on O&M side: "Adjustment moves labor & non-labor costs associated with Training from cost center 2100-0131 in work group 1ED0007 Distribution Design & PM to the Training Capital Pool to align activity where costs reside." Please see entry on O&M side for further details.				
2018 Total	-5,642	57,895	0	52,253	-126.7
2019	-2,762	2,200	0	-561	-104.8
Explanation:	This adjustment is to align the values with the correct OH data				
2019	1,986	1,659	0	3,645	17.2
Explanation:	Counter to one-side adjustment made on O&M side: "Adjustment moves labor & non-labor costs associated with Training from cost center 2100-0131 in work group 1ED0007 Distribution Design & PM to the Training Capital Pool to align activity where costs reside." Please see entry on O&M side for further details.				
2019 Total	-776	3,859	0	3,084	-87.6
2020	6,211	-6,730	0	-519	-17.5

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0901.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09010 - Local Engineering Pool - ED Pool

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
Explanation:	This adjustment is to align the values with the correct OH data				
2020	2,627	1,449	0	4,076	21.3
Explanation:	Counter to one-side adjustment made on O&M side: "Adjustment moves labor & non-labor costs associated with Training from cost center 2100-0131 in work group 1ED0007 Distribution Design & PM to the Training Capital Pool to align activity where costs reside." Please see entry on O&M side for further details.				
2020	0	5	0	5	0.0
Explanation:	Transfer environmental services expenses that were incorrectly charged to Gas Engineering WP EN 9030 to Electric Distribution WP E09010, where these expenses should have been charged.				
2020	0	16	0	16	0.0
Explanation:	Transfer electrical overhead expenses that were incorrectly charged to Gas Engineering WP EN 9030 to Electric Distribution WP E09010, where these expenses should have been charged and the activities reside.				
2020 Total	8,838	-5,260	0	3,578	3.8
2021	-873	2,182	0	1,310	-70.5
Explanation:	This adjustment is to align the values with the correct OH data				
2021	0.420	19	0	19	0.1
Explanation:	Counter to one-side adjustment made on O&M side: "Adjustment moves labor & non-labor costs associated with Training from cost center 2100-0131 in work group 1ED0007 Distribution Design & PM to the Training Capital Pool to align activity where costs reside." Please see entry on O&M side for further details.				
2021 Total	-872	2,201	0	1,329	-70.4

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group E09010**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0901.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09010 - Local Engineering Pool - ED Pool
 Workpaper Detail: E09010.001 - Local Engineering Pool - ED Pool
 In-Service Date: Not Applicable

Description:

The Local Engineering - ED Pool consists of the pool of Planners, Designers and Engineers, and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for new services, facilities relocations, overhead-to-underground conversions, capacity, and reliability projects. These persons also address the interaction with internal and external customers in preparing a work order package for construction. This pool includes the costs that will be allocated to electric distribution capital activities.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		34,612	35,254	23,616
Non-Labor		86,255	87,918	59,001
NSE		0	0	0
	Total	<u>120,867</u>	<u>123,172</u>	<u>82,617</u>
FTE		277.2	281.9	188.9

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0901.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09010 - Local Engineering Pool - ED Pool
 Workpaper Detail: E09010.002 - RAMP - Local Engineering Pool - ED Pool
 In-Service Date: 12/31/2023

Description:

The intent of this sub-workpaper is to carve out the RAMP mitigation: AIMDAT (Data Analytics).

The Local Engineering - ED Pool consists of the pool of Planners, Designers and Engineers, and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for new services, facilities relocations, overhead-to-underground conversions, capacity, and reliability projects. These persons also address the interaction with internal and external customers in preparing a work order package for construction. This pool includes the costs that will be allocated to electric distribution capital activities.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		105	132	132
Non-Labor		0	0	0
NSE		0	0	0
	Total	105	132	132
FTE		0.8	1.1	1.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0901.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09010 - Local Engineering Pool - ED Pool
 Workpaper Detail: E09010.002 - RAMP - Local Engineering Pool - ED Pool

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-1 Asset Management

RAMP Line Item ID: 3

RAMP Line Item Name: AIMDAT (Data Analytics)

Tranche(s): Tranche1: N/A

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	40	105	132	132	369	1,900	2,400

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates

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 Asset quantifications/analytics	0.00	1.00	1.00	1.00	3.00	0.00	0.00

Work Unit Changes from RAMP:

A unit range was not provided in the RAMP Report for this activity

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group E09010

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

Overhead Pools ED Portion of Expense and Base

Cap ED %	Year	Pool	Pool Expense	Capital Base	Loaded out	Average Loading Rate	Pool Expense YOY Change	Capital Base YOY Change	Pool Expense Reaction to. Cap Base Sensitivity
60%	2015	CA	5,317,478	84,943,497	(5,663,349)	7%			
54%	2016	CA	5,803,464	94,243,834	(5,773,303)	6%	9%	11%	0.8
58%	2017	CA	7,633,795	118,291,750	(6,883,325)	6%	32%	26%	1.2
44%	2018	CA	7,718,345	74,014,792	(7,024,625)	9%	1%	-37%	(0.0)
51%	2019	CA	16,489,681	97,866,941	(12,867,870)	13%	114%	32%	3.5
48%	2020	CA	13,297,829	129,128,020	(20,906,216)	16%	-19%	32%	(0.6)
52%	2021	CA	14,809,150	158,682,110	(14,783,834)	9%	11%	23%	0.5
							31%	27%	1.2
99%	2015	DOH	11,350,103	36,913,308	(9,381,029)	25%			
99%	2016	DOH	10,166,744	44,781,019	(11,692,270)	26%	-10%	21%	(0.5)
99%	2017	DOH	12,955,593	65,285,855	(12,881,815)	20%	27%	46%	0.6
99%	2018	DOH	11,176,895	86,361,546	(10,290,276)	12%	-14%	32%	(0.4)
99%	2019	DOH	10,923,922	94,274,520	(11,327,466)	12%	-2%	9%	(0.2)
99%	2020	DOH	11,906,336	87,148,972	(11,036,056)	13%	9%	-8%	(1.2)
100%	2021	DOH	15,973,719	91,098,842	(16,050,842)	18%	34%	5%	7.5
							16%	20%	0.8
100%	2015	LE ED	73,256,707	132,802,706	(74,171,870)	56%			
100%	2016	LE ED	74,854,343	153,102,244	(77,200,512)	50%	2%	15%	0.1
99%	2017	LE ED	93,902,857	194,018,650	(83,285,063)	43%	25%	27%	1.0
99%	2018	LE ED	125,291,068	170,638,714	(110,867,060)	65%	33%	-12%	(2.8)
100%	2019	LE ED	96,373,521	155,001,190	(125,945,817)	81%	-23%	-9%	2.5
100%	2020	LE ED	115,307,689	204,511,996	(91,145,410)	45%	20%	32%	0.6
99%	2021	LE ED	137,801,292	234,688,008	(116,741,780)	50%	20%	15%	1.3
							21%	18%	1.1
14%	2015	LE SUB	1,361,596	8,155,099	(1,262,719)	15%			
18%	2016	LE SUB	2,082,855	12,617,316	(2,342,816)	19%	53%	55%	1.0
24%	2017	LE SUB	3,214,606	19,627,520	(3,335,171)	17%	54%	56%	1.0
23%	2018	LE SUB	3,752,497	14,178,652	(2,713,962)	19%	17%	-28%	(0.6)
13%	2019	LE SUB	2,328,465	8,313,698	(2,786,361)	34%	-38%	-41%	0.9
25%	2020	LE SUB	3,645,000	13,210,800	(4,342,944)	33%	57%	59%	1.0
19%	2021	LE SUB	3,084,317	12,941,784	(3,009,608)	23%	-15%	-2%	7.6
							39%	40%	1.0
14%	2015	TOTAL ALL 4 POOLS	91,285,884	262,814,610	(90,478,967)	34%			
18%	2016	TOTAL ALL 4 POOLS	92,907,407	304,744,412	(97,008,901)	32%			
24%	2017	TOTAL ALL 4 POOLS	117,706,851	397,223,775	(106,385,374)	27%			
23%	2018	TOTAL ALL 4 POOLS	147,938,805	345,193,704	(130,895,922)	38%			
13%	2019	TOTAL ALL 4 POOLS	126,115,589	355,456,348	(152,927,514)	43%			
19%	2020	TOTAL ALL 4 POOLS	144,156,854	433,999,788	(127,430,626)	29%			
19%	2021	TOTAL ALL 4 POOLS	171,668,478	497,410,744	(150,586,064)	30%			
		CAGR - 2015-2021	11.1%	11.2%					
		CAGR - 2019-2021	16.7%	18.3%					

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

Overhead Pools Forecast Methodology and Assumptions:

Overhead pool activity is a function of the capital base. Historically, as the capital base has expanded or contracted, the pools have followed suit. A 7-year historical study was performed to determine, on average, how much each pool moves in relation to its eligible base (for each % increase in the base, how much, also in % terms, does the pool react). This factor was then multiplied by the projected Year-Over-Year % change of the capital base, and finally by the previous year's pool forecast, to arrive at the projected pool balance for each year. This is the most appropriate forecasting methodology as it aligns the pool activity with the direct costs that drive it. By utilizing direct costs as the forecasting base, timing and undulation of spending should coincide with project spending schedules.

- The **Capital Base** line represents, in Nominal whole \$'s, actual pool expenditures for 2021, and the forecasted eligible capital base for each pool for 2022-2024. The capital base was discounted back to present value using a 3% inflation factor.
- The **Capital Base YoY Change** line calculates the year-over-year percentage change between each forecast year and the prior year's forecast/actuals depending on the year.
- The overhead pools have a direct, in some cases near 1-for-1 relationship to their eligible capital base. The **Pool Sensitivity Ratio** is calculated as the average, in absolute terms, of the difference between the YoY % movement in the pool vs. the YoY % movement in the pool's eligible capital base. In other words, for every X% movement in the base, the pool moves Y% along with the base. This ratio is calculated based on a 7-year average (2015-2021) analysis of historical actuals. For forecasting purposes, this ratio is applied uniformly to both reductions and increases in the projected capital base.
- The **Pool Expense** is calculated by multiplying the (Prior Year Pool Expense) x (1 + Capital Base YoY % Change) x (Pool Sensitivity Ratio)
- Forecasted Pool Expense **Labor** and **Non-Labor** split is calculated based on 2021 actuals.

	ACTUAL	FORECAST	FORECAST	FORECAST
DOH Pool	2021	2022	2023	2024
Capital Base	\$ 91,098,842	\$ 112,771,258	\$ 125,362,817	\$ 129,369,642
Capital Base YoY Change		24%	11%	3%
Pool Sensitivity Ratio		0.8	0.8	0.8
Pool Expense	\$ 15,973,719	\$ 19,029,383	\$ 20,737,867	\$ 21,270,834
Labor	\$ 15,824,576	\$ 18,851,710	\$ 20,544,242	\$ 21,072,234
Non-Labor	\$ 149,143	\$ 177,673	\$ 193,624	\$ 198,601
FTE Units	127	151	164	169

	ACTUAL	FORECAST	FORECAST	FORECAST
ED Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 234,688,008	\$ 209,133,482	\$ 212,728,418	\$ 150,346,253
Capital Base YoY Change		-11%	2%	-29%
Pool Sensitivity Ratio		1.1	1.1	1.1
Pool Expense	\$ 137,801,292	\$ 120,971,873	\$ 123,304,208	\$ 82,748,524
Labor	\$ 39,546,829	\$ 34,717,047	\$ 35,386,391	\$ 23,747,540
Non-Labor	\$ 98,254,463	\$ 86,254,826	\$ 87,917,817	\$ 59,000,984
FTE Units	316	278	283	190

	ACTUAL	FORECAST	FORECAST	FORECAST
Substation Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 12,941,784	\$ 21,835,459	\$ 21,517,165	\$ 17,175,097
Capital Base YoY Change		69%	-1%	-20%
Pool Sensitivity Ratio		1.0	1.0	1.0
Pool Expense	\$ 3,084,317	\$ 5,147,168	\$ 5,074,146	\$ 4,077,602
Labor	\$ 1,461,521	\$ 2,439,015	\$ 2,404,412	\$ 1,932,195
Non-Labor	\$ 1,622,796	\$ 2,708,154	\$ 2,669,734	\$ 2,145,408
FTE Units	12	20	19	15

	ACTUAL	FORECAST	FORECAST	FORECAST
CA Pool	2021	2022	2023	2024
Capital Base	\$ 158,682,110	\$ 246,417,727	\$ 450,076,962	\$ 420,728,906
Capital Base YoY Change		55%	83%	-7%
Pool Sensitivity Ratio		1.2	1.2	1.2
Pool Expense	\$ 14,809,150	\$ 24,279,048	\$ 47,486,690	\$ 43,905,465
Labor	\$ 3,027,064	\$ 4,962,759	\$ 9,706,517	\$ 8,974,496
Non-Labor	\$ 11,782,086	\$ 19,316,289	\$ 37,780,173	\$ 34,930,968
FTE Units	24	40	78	72

Beginning of Workpaper Group
E09040 - Local Engineering Pool - Substation Pool Elec

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0904.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09040 - Local Engineering Pool - Substation Pool Elec

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	1,971	1,951	1,190	1,909	1,620	2,439	2,404	1,932
Non-Labor	Zero-Based	2,132	2,586	1,514	2,139	1,676	2,708	2,670	2,145
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		4,103	4,537	2,703	4,049	3,296	5,147	5,074	4,077
FTE	Zero-Based	14.0	14.5	9.2	15.4	13.7	19.5	19.2	15.5

Business Purpose:

The Local Engineering – Substation Pool consists of the pool of planners, designers and engineers and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for substation projects. These persons also address the interaction with internal and external customers in preparing a work order package for construction. This pool includes the costs that will be allocated to electric distribution and transmission substation capital activities.

Physical Description:

Typical activities included in this account are:

- Communicating with internal and external customers to collect information necessary to prepare a work order package for construction;
- Performing load and sizing studies to determine the design characteristics to apply to a construction project;
- Developing a design for the construction project that meets the customer needs for service and the overall system design requirements. This design identifies the material, labor and equipment requirements necessary to complete the construction project;
- Coordination of the permitting and rights of way requirements;
- Preparing cost estimates according to the line extension rules and presenting these estimates to the internal or external customer for their approval;
- Preparing contracts and processing fees for new business construction projects; and
- Preparing work order packages and transmitting them to the internal and external groups.

Project Justification:

Local Engineering activities are required to see a project from inception to completion. Due to the volume of capital work that takes place on the distribution system, the most effective and efficient way to allocate the planning and engineering activities is through the use of the overhead pools. It is not feasible to charge directly for each electric distribution/substation job due to the tremendous volume of work orders. In the case of the Local Engineering – Substation Pool, it is only the substation related activities that are charged to it

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0904.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09040 - Local Engineering Pool - Substation Pool Elec

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0904.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09040 - Local Engineering Pool - Substation Pool Elec

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	Zero-Based	2,439	2,404	1,932	0	0	0	2,439	2,404	1,932
Non-Labor	Zero-Based	2,708	2,670	2,145	0	0	0	2,708	2,670	2,145
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		5,147	5,074	4,077	0	0	0	5,147	5,074	4,077
FTE	Zero-Based	19.5	19.2	15.5	0.0	0.0	0.0	19.5	19.2	15.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0904.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09040 - Local Engineering Pool - Substation Pool Elec

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	6,028	6,274	6,323	5,832	5,099
Non-Labor	4,176	6,001	7,070	6,534	6,227
NSE	0	0	0	0	0
Total	10,205	12,275	13,393	12,366	11,326
FTE	55.8	56.6	55.0	48.4	40.9
Adjustments (Nominal \$)**					
Labor	-4,594	-4,788	-5,374	-4,232	-3,690
Non-Labor	-2,396	-3,735	-5,690	-4,488	-4,551
NSE	0	0	0	0	0
Total	-6,990	-8,522	-11,064	-8,721	-8,242
FTE	-43.8	-44.2	-47.1	-35.1	-29.2
Recorded-Adjusted (Nominal \$)					
Labor	1,434	1,486	949	1,599	1,408
Non-Labor	1,780	2,267	1,380	2,046	1,676
NSE	0	0	0	0	0
Total	3,215	3,752	2,328	3,645	3,084
FTE	12.0	12.4	7.9	13.3	11.7
Vacation & Sick (Nominal \$)					
Labor	213	225	136	227	212
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	213	225	136	227	212
FTE	2.0	2.1	1.3	2.1	2.0
Escalation to 2021\$					
Labor	324	240	105	83	0
Non-Labor	352	319	134	93	0
NSE	0	0	0	0	0
Total	676	559	239	177	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	1,971	1,951	1,190	1,909	1,620
Non-Labor	2,132	2,586	1,514	2,139	1,676
NSE	0	0	0	0	0
Total	4,103	4,537	2,703	4,049	3,296
FTE	14.0	14.5	9.2	15.4	13.7

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0904.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09040 - Local Engineering Pool - Substation Pool Elec

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	-4,594	-4,788	-5,374	-4,232	-3,690	
Non-Labor	-2,396	-3,735	-5,690	-4,488	-4,551	
NSE	0	0	0	0	0	
Total	-6,990	-8,522	-11,064	-8,721	-8,242	
FTE	-43.8	-44.2	-47.1	-35.1	-29.2	

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	-4,594	-2,413	0	-7,007	-43.8
Explanation:	This adjustment is to align the values with the correct OH data				
2017	0	17	0	17	0.0
Explanation:	Transfer electrical overhead expenses that were incorrectly charged to Gas Engineering WP EN 9030 to Electric Distribution WP E09040, where these expenses should have been charged and activities reside.				
2017 Total	-4,594	-2,396	0	-6,990	-43.8
2018	-4,788	-3,743	0	-8,531	-44.2
Explanation:	This adjustment is to align the values with the correct OH data				
2018	0	8	0	8	0.0
Explanation:	Transfer electrical overhead expenses that were incorrectly charged to Gas Engineering WP EN 9030 to Electric Distribution WP E09040, where these expenses should have been charged and the activities reside.				
2018 Total	-4,788	-3,735	0	-8,522	-44.2
2019	-5,374	-5,690	0	-11,064	-47.1
Explanation:	This adjustment is to align the values with the correct OH data				
2019 Total	-5,374	-5,690	0	-11,064	-47.1
2020	-4,232	-4,489	0	-8,721	-35.1
Explanation:	This adjustment is to align the values with the correct OH data				
2020	0	0.119	0	0.119	0.0
Explanation:	Transfer environmental services expenses that were incorrectly charged to Gas Engineering WP EN 9030 to Electric Distribution WP E09040, where these expenses should have been charged.				
2020 Total	-4,232	-4,488	0	-8,721	-35.1
2021	-3,690	-4,551	0	-8,242	-29.2
Explanation:	This adjustment is to align the values with the correct OH data				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0904.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09040 - Local Engineering Pool - Substation Pool Elec

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	-3,690	-4,551	0	-8,242	-29.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group E09040**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0904.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09040 - Local Engineering Pool - Substation Pool Elec
 Workpaper Detail: E09040.001 - Local Engineering Pool - Substation Pool Elec
 In-Service Date: Not Applicable

Description:

Typical activities included in this account are: Communicating with internal and external customers to collect information necessary to prepare a work order package for construction;

- Performing load and sizing studies to determine the design characteristics to apply to a construction project;
- Developing a design for the construction project that meets the customer needs for service and the overall system design requirements. This design identifies the material, labor and equipment requirements necessary to complete the construction project;
- Coordination of the permitting and rights of way requirements;
- Preparing cost estimates according to the line extension rules and presenting these estimates to the internal or external customer for their approval;
- Preparing contracts and processing fees for new business construction projects; and
- Preparing work order packages and transmitting them to the internal and external groups.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		2,439	2,404	1,932
Non-Labor		2,708	2,670	2,145
NSE		0	0	0
	Total	<u>5,147</u>	<u>5,074</u>	<u>4,077</u>
FTE		19.5	19.2	15.5

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group E09040

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

Overhead Pools ED Portion of Expense and Base

Cap ED %	Year	Pool	Pool Expense	Capital Base	Loaded out	Average Loading Rate	Pool Expense YOY Change	Capital Base YOY Change	Pool Expense Reaction to. Cap Base Sensitivity
60%	2015	CA	5,317,478	84,943,497	(5,663,349)	7%			
54%	2016	CA	5,803,464	94,243,834	(5,773,303)	6%	9%	11%	0.8
58%	2017	CA	7,633,795	118,291,750	(6,883,325)	6%	32%	26%	1.2
44%	2018	CA	7,718,345	74,014,792	(7,024,625)	9%	1%	-37%	(0.0)
51%	2019	CA	16,489,681	97,866,941	(12,867,870)	13%	114%	32%	3.5
48%	2020	CA	13,297,829	129,128,020	(20,906,216)	16%	-19%	32%	(0.6)
52%	2021	CA	14,809,150	158,682,110	(14,783,834)	9%	11%	23%	0.5
							31%	27%	1.2
99%	2015	DOH	11,350,103	36,913,308	(9,381,029)	25%			
99%	2016	DOH	10,166,744	44,781,019	(11,692,270)	26%	-10%	21%	(0.5)
99%	2017	DOH	12,955,593	65,285,855	(12,881,815)	20%	27%	46%	0.6
99%	2018	DOH	11,176,895	86,361,546	(10,290,276)	12%	-14%	32%	(0.4)
99%	2019	DOH	10,923,922	94,274,520	(11,327,466)	12%	-2%	9%	(0.2)
99%	2020	DOH	11,906,336	87,148,972	(11,036,056)	13%	9%	-8%	(1.2)
100%	2021	DOH	15,973,719	91,098,842	(16,050,842)	18%	34%	5%	7.5
							16%	20%	0.8
100%	2015	LE ED	73,256,707	132,802,706	(74,171,870)	56%			
100%	2016	LE ED	74,854,343	153,102,244	(77,200,512)	50%	2%	15%	0.1
99%	2017	LE ED	93,902,857	194,018,650	(83,285,063)	43%	25%	27%	1.0
99%	2018	LE ED	125,291,068	170,638,714	(110,867,060)	65%	33%	-12%	(2.8)
100%	2019	LE ED	96,373,521	155,001,190	(125,945,817)	81%	-23%	-9%	2.5
100%	2020	LE ED	115,307,689	204,511,996	(91,145,410)	45%	20%	32%	0.6
99%	2021	LE ED	137,801,292	234,688,008	(116,741,780)	50%	20%	15%	1.3
							21%	18%	1.1
14%	2015	LE SUB	1,361,596	8,155,099	(1,262,719)	15%			
18%	2016	LE SUB	2,082,855	12,617,316	(2,342,816)	19%	53%	55%	1.0
24%	2017	LE SUB	3,214,606	19,627,520	(3,335,171)	17%	54%	56%	1.0
23%	2018	LE SUB	3,752,497	14,178,652	(2,713,962)	19%	17%	-28%	(0.6)
13%	2019	LE SUB	2,328,465	8,313,698	(2,786,361)	34%	-38%	-41%	0.9
25%	2020	LE SUB	3,645,000	13,210,800	(4,342,944)	33%	57%	59%	1.0
19%	2021	LE SUB	3,084,317	12,941,784	(3,009,608)	23%	-15%	-2%	7.6
							39%	40%	1.0
14%	2015	TOTAL ALL 4 POOLS	91,285,884	262,814,610	(90,478,967)	34%			
18%	2016	TOTAL ALL 4 POOLS	92,907,407	304,744,412	(97,008,901)	32%			
24%	2017	TOTAL ALL 4 POOLS	117,706,851	397,223,775	(106,385,374)	27%			
23%	2018	TOTAL ALL 4 POOLS	147,938,805	345,193,704	(130,895,922)	38%			
13%	2019	TOTAL ALL 4 POOLS	126,115,589	355,456,348	(152,927,514)	43%			
19%	2020	TOTAL ALL 4 POOLS	144,156,854	433,999,788	(127,430,626)	29%			
19%	2021	TOTAL ALL 4 POOLS	171,668,478	497,410,744	(150,586,064)	30%			
		CAGR - 2015-2021	11.1%	11.2%					
		CAGR - 2019-2021	16.7%	18.3%					

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

Overhead Pools Forecast Methodology and Assumptions:

Overhead pool activity is a function of the capital base. Historically, as the capital base has expanded or contracted, the pools have followed suit. A 7-year historical study was performed to determine, on average, how much each pool moves in relation to its eligible base (for each % increase in the base, how much, also in % terms, does the pool react). This factor was then multiplied by the projected Year-Over-Year % change of the capital base, and finally by the previous year's pool forecast, to arrive at the projected pool balance for each year. This is the most appropriate forecasting methodology as it aligns the pool activity with the direct costs that drive it. By utilizing direct costs as the forecasting base, timing and undulation of spending should coincide with project spending schedules.

- The **Capital Base** line represents, in Nominal whole \$'s, actual pool expenditures for 2021, and the forecasted eligible capital base for each pool for 2022-2024. The capital base was discounted back to present value using a 3% inflation factor.
- The **Capital Base YoY Change** line calculates the year-over-year percentage change between each forecast year and the prior year's forecast/actuals depending on the year.
- The overhead pools have a direct, in some cases near 1-for-1 relationship to their eligible capital base. The **Pool Sensitivity Ratio** is calculated as the average, in absolute terms, of the difference between the YoY % movement in the pool vs. the YoY % movement in the pool's eligible capital base. In other words, for every X% movement in the base, the pool moves Y% along with the base. This ratio is calculated based on a 7-year average (2015-2021) analysis of historical actuals. For forecasting purposes, this ratio is applied uniformly to both reductions and increases in the projected capital base.
- The **Pool Expense** is calculated by multiplying the (Prior Year Pool Expense) x (1 + Capital Base YoY % Change) x (Pool Sensitivity Ratio)
- Forecasted Pool Expense **Labor** and **Non-Labor** split is calculated based on 2021 actuals.

	ACTUAL	FORECAST	FORECAST	FORECAST
DOH Pool	2021	2022	2023	2024
Capital Base	\$ 91,098,842	\$ 112,771,258	\$ 125,362,817	\$ 129,369,642
Capital Base YoY Change		24%	11%	3%
Pool Sensitivity Ratio		0.8	0.8	0.8
Pool Expense	\$ 15,973,719	\$ 19,029,383	\$ 20,737,867	\$ 21,270,834
Labor	\$ 15,824,576	\$ 18,851,710	\$ 20,544,242	\$ 21,072,234
Non-Labor	\$ 149,143	\$ 177,673	\$ 193,624	\$ 198,601
FTE Units	127	151	164	169

	ACTUAL	FORECAST	FORECAST	FORECAST
ED Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 234,688,008	\$ 209,133,482	\$ 212,728,418	\$ 150,346,253
Capital Base YoY Change		-11%	2%	-29%
Pool Sensitivity Ratio		1.1	1.1	1.1
Pool Expense	\$ 137,801,292	\$ 120,971,873	\$ 123,304,208	\$ 82,748,524
Labor	\$ 39,546,829	\$ 34,717,047	\$ 35,386,391	\$ 23,747,540
Non-Labor	\$ 98,254,463	\$ 86,254,826	\$ 87,917,817	\$ 59,000,984
FTE Units	316	278	283	190

	ACTUAL	FORECAST	FORECAST	FORECAST
Substation Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 12,941,784	\$ 21,835,459	\$ 21,517,165	\$ 17,175,097
Capital Base YoY Change		69%	-1%	-20%
Pool Sensitivity Ratio		1.0	1.0	1.0
Pool Expense	\$ 3,084,317	\$ 5,147,168	\$ 5,074,146	\$ 4,077,602
Labor	\$ 1,461,521	\$ 2,439,015	\$ 2,404,412	\$ 1,932,195
Non-Labor	\$ 1,622,796	\$ 2,708,154	\$ 2,669,734	\$ 2,145,408
FTE Units	12	20	19	15

	ACTUAL	FORECAST	FORECAST	FORECAST
CA Pool	2021	2022	2023	2024
Capital Base	\$ 158,682,110	\$ 246,417,727	\$ 450,076,962	\$ 420,728,906
Capital Base YoY Change		55%	83%	-7%
Pool Sensitivity Ratio		1.2	1.2	1.2
Pool Expense	\$ 14,809,150	\$ 24,279,048	\$ 47,486,690	\$ 43,905,465
Labor	\$ 3,027,064	\$ 4,962,759	\$ 9,706,517	\$ 8,974,496
Non-Labor	\$ 11,782,086	\$ 19,316,289	\$ 37,780,173	\$ 34,930,968
FTE Units	24	40	78	72

Beginning of Workpaper Group
E09050 - Department Overhead Pool - Elec

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0905.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09050 - Department Overhead Pool - Elec

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	15,936	13,697	13,449	14,104	17,862	18,852	20,544	21,072
Non-Labor	Zero-Based	1,624	851	219	98	444	178	194	199
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		17,560	14,548	13,668	14,202	18,306	19,030	20,738	21,271
FTE	Zero-Based	112.7	101.5	103.8	114.3	151.5	150.8	164.4	168.6

Business Purpose:

Department Overheads are those costs for supervision and administration of crews in the SDG&E Construction and Operation (C&O) districts. Department Overhead is charged for costs that are not attributable to one particular project, but benefit many projects, or the Construction and Operation (C&O) districts as a whole. C&O managers, construction managers, construction supervisors, dispatchers, operations assistants and other clerical C&O employees charge this account. Construction field employees charge this account when meeting on multiple projects. The non-labor piece consists of administrative expenses such as: office supplies, telephone expenses, mileage, employee uniforms and professional dues. This pool includes the costs that will be allocated to distribution electric capital activities.

Physical Description:

Typical activities included in this account are:

- Management and supervision of construction personnel
- Scheduling, material ordering, dispatching for construction personnel

Project Justification:

Department Overheads are those costs for supervision and administration of crews in the SDG&E Construction and Operation (C&O) districts. Department Overhead is charged for expenses that are not attributable to one particular project, but benefit many projects, or the Construction and Operation (C&O) districts as a whole. Due to the volume of capital work that takes place on the distribution system, the most effective and efficient way to allocate the expenditures for the management of capital distribution operations activities throughout the service territory is through the use of this pool. It isn't feasible to direct charge for each electric distribution job due to the tremendous volume of work orders and field memos.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0905.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09050 - Department Overhead Pool - Elec

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0905.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09050 - Department Overhead Pool - Elec

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	Zero-Based	18,852	20,544	21,072	0	0	0	18,852	20,544	21,072
Non-Labor	Zero-Based	178	194	199	0	0	0	178	194	199
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		19,030	20,738	21,271	0	0	0	19,030	20,738	21,271
FTE	Zero-Based	150.8	164.4	168.6	0.0	0.0	0.0	150.8	164.4	168.6

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0905.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09050 - Department Overhead Pool - Elec

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	842	187	791	1,245	2,165
Non-Labor	1,055	560	701	499	341
NSE	0	0	0	0	0
Total	1,897	747	1,492	1,744	2,506
FTE	8.7	1.8	5.8	8.6	14.7
Adjustments (Nominal \$)**					
Labor	10,756	10,244	9,933	10,568	13,365
Non-Labor	302	186	-501	-405	103
NSE	0	0	0	0	0
Total	11,058	10,430	9,432	10,162	13,468
FTE	88.0	85.1	83.6	89.8	114.7
Recorded-Adjusted (Nominal \$)					
Labor	11,598	10,431	10,724	11,813	15,530
Non-Labor	1,357	746	200	93	444
NSE	0	0	0	0	0
Total	12,956	11,177	10,924	11,906	15,974
FTE	96.7	86.9	89.4	98.4	129.4
Vacation & Sick (Nominal \$)					
Labor	1,721	1,580	1,536	1,675	2,333
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1,721	1,580	1,536	1,675	2,333
FTE	16.0	14.6	14.4	15.9	22.1
Escalation to 2021\$					
Labor	2,617	1,686	1,189	616	0
Non-Labor	267	105	19	4	0
NSE	0	0	0	0	0
Total	2,883	1,791	1,208	621	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	15,936	13,697	13,449	14,104	17,862
Non-Labor	1,624	851	219	98	444
NSE	0	0	0	0	0
Total	17,560	14,548	13,668	14,202	18,306
FTE	112.7	101.5	103.8	114.3	151.5

* 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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0905.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09050 - Department Overhead Pool - Elec

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		10,756	10,244	9,933	10,568	13,365
Non-Labor		302	186	-501	-405	103
NSE		0	0	0	0	0
	Total	11,058	10,430	9,432	10,162	13,468
FTE		88.0	85.1	83.6	89.8	114.7

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	10,756	302	0	11,058	88.0
Explanation:	This adjustment is to align the values with the correct OH data				
2017 Total	10,756	302	0	11,058	88.0
2018	10,244	186	0	10,430	85.1
Explanation:	This adjustment is to align the values with the correct OH data				
2018 Total	10,244	186	0	10,430	85.1
2019	9,933	-501	0	9,432	83.6
Explanation:	This adjustment is to align the values with the correct OH data				
2019 Total	9,933	-501	0	9,432	83.6
2020	10,568	-405	0	10,162	89.8
Explanation:	This adjustment is to align the values with the correct OH data				
2020 Total	10,568	-405	0	10,162	89.8
2021	13,365	103	0	13,468	114.7
Explanation:	This adjustment is to align the values with the correct OH data				
2021 Total	13,365	103	0	13,468	114.7

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group E09050**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0905.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09050 - Department Overhead Pool - Elec
 Workpaper Detail: E09050.001 - Department Overhead Pool - Elec
 In-Service Date: Not Applicable

Description:

Department Overheads are those costs for supervision and administration of crews in the SDG&E Construction and Operation (C&O) districts. Department Overhead is charged for expenses that are not attributable to one particular project, but benefit many projects, or the Construction and Operation (C&O) districts as a whole. C&O managers, construction managers, construction supervisors, dispatchers, operations assistants and other clerical C&O employees charge this account. Construction field employees charge this account when meeting on multiple projects. The non-labor piece consists of administrative expenses such as: office supplies, telephone expenses, mileage, employee uniforms and professional dues. This pool includes the costs that will be allocated to distribution gas and electric capital activities.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		18,852	20,544	21,072
Non-Labor		178	194	199
NSE		0	0	0
	Total	<u>19,030</u>	<u>20,738</u>	<u>21,271</u>
FTE		150.8	164.4	168.6

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group E09050

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

Overhead Pools ED Portion of Expense and Base

Cap ED %	Year	Pool	Pool Expense	Capital Base	Loaded out	Average Loading Rate	Pool Expense YOY Change	Capital Base YOY Change	Pool Expense Reaction to. Cap Base Sensitivity
60%	2015	CA	5,317,478	84,943,497	(5,663,349)	7%			
54%	2016	CA	5,803,464	94,243,834	(5,773,303)	6%	9%	11%	0.8
58%	2017	CA	7,633,795	118,291,750	(6,883,325)	6%	32%	26%	1.2
44%	2018	CA	7,718,345	74,014,792	(7,024,625)	9%	1%	-37%	(0.0)
51%	2019	CA	16,489,681	97,866,941	(12,867,870)	13%	114%	32%	3.5
48%	2020	CA	13,297,829	129,128,020	(20,906,216)	16%	-19%	32%	(0.6)
52%	2021	CA	14,809,150	158,682,110	(14,783,834)	9%	11%	23%	0.5
							31%	27%	1.2
99%	2015	DOH	11,350,103	36,913,308	(9,381,029)	25%			
99%	2016	DOH	10,166,744	44,781,019	(11,692,270)	26%	-10%	21%	(0.5)
99%	2017	DOH	12,955,593	65,285,855	(12,881,815)	20%	27%	46%	0.6
99%	2018	DOH	11,176,895	86,361,546	(10,290,276)	12%	-14%	32%	(0.4)
99%	2019	DOH	10,923,922	94,274,520	(11,327,466)	12%	-2%	9%	(0.2)
99%	2020	DOH	11,906,336	87,148,972	(11,036,056)	13%	9%	-8%	(1.2)
100%	2021	DOH	15,973,719	91,098,842	(16,050,842)	18%	34%	5%	7.5
							16%	20%	0.8
100%	2015	LE ED	73,256,707	132,802,706	(74,171,870)	56%			
100%	2016	LE ED	74,854,343	153,102,244	(77,200,512)	50%	2%	15%	0.1
99%	2017	LE ED	93,902,857	194,018,650	(83,285,063)	43%	25%	27%	1.0
99%	2018	LE ED	125,291,068	170,638,714	(110,867,060)	65%	33%	-12%	(2.8)
100%	2019	LE ED	96,373,521	155,001,190	(125,945,817)	81%	-23%	-9%	2.5
100%	2020	LE ED	115,307,689	204,511,996	(91,145,410)	45%	20%	32%	0.6
99%	2021	LE ED	137,801,292	234,688,008	(116,741,780)	50%	20%	15%	1.3
							21%	18%	1.1
14%	2015	LE SUB	1,361,596	8,155,099	(1,262,719)	15%			
18%	2016	LE SUB	2,082,855	12,617,316	(2,342,816)	19%	53%	55%	1.0
24%	2017	LE SUB	3,214,606	19,627,520	(3,335,171)	17%	54%	56%	1.0
23%	2018	LE SUB	3,752,497	14,178,652	(2,713,962)	19%	17%	-28%	(0.6)
13%	2019	LE SUB	2,328,465	8,313,698	(2,786,361)	34%	-38%	-41%	0.9
25%	2020	LE SUB	3,645,000	13,210,800	(4,342,944)	33%	57%	59%	1.0
19%	2021	LE SUB	3,084,317	12,941,784	(3,009,608)	23%	-15%	-2%	7.6
							39%	40%	1.0
14%	2015	TOTAL ALL 4 POOLS	91,285,884	262,814,610	(90,478,967)	34%			
18%	2016	TOTAL ALL 4 POOLS	92,907,407	304,744,412	(97,008,901)	32%			
24%	2017	TOTAL ALL 4 POOLS	117,706,851	397,223,775	(106,385,374)	27%			
23%	2018	TOTAL ALL 4 POOLS	147,938,805	345,193,704	(130,895,922)	38%			
13%	2019	TOTAL ALL 4 POOLS	126,115,589	355,456,348	(152,927,514)	43%			
19%	2020	TOTAL ALL 4 POOLS	144,156,854	433,999,788	(127,430,626)	29%			
19%	2021	TOTAL ALL 4 POOLS	171,668,478	497,410,744	(150,586,064)	30%			
		CAGR - 2015-2021	11.1%	11.2%					
		CAGR - 2019-2021	16.7%	18.3%					

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

Overhead Pools Forecast Methodology and Assumptions:

Overhead pool activity is a function of the capital base. Historically, as the capital base has expanded or contracted, the pools have followed suit. A 7-year historical study was performed to determine, on average, how much each pool moves in relation to its eligible base (for each % increase in the base, how much, also in % terms, does the pool react). This factor was then multiplied by the projected Year-Over-Year % change of the capital base, and finally by the previous year's pool forecast, to arrive at the projected pool balance for each year. This is the most appropriate forecasting methodology as it aligns the pool activity with the direct costs that drive it. By utilizing direct costs as the forecasting base, timing and undulation of spending should coincide with project spending schedules.

- The **Capital Base** line represents, in Nominal whole \$'s, actual pool expenditures for 2021, and the forecasted eligible capital base for each pool for 2022-2024. The capital base was discounted back to present value using a 3% inflation factor.
- The **Capital Base YoY Change** line calculates the year-over-year percentage change between each forecast year and the prior year's forecast/actuals depending on the year.
- The overhead pools have a direct, in some cases near 1-for-1 relationship to their eligible capital base. The **Pool Sensitivity Ratio** is calculated as the average, in absolute terms, of the difference between the YoY % movement in the pool vs. the YoY % movement in the pool's eligible capital base. In other words, for every X% movement in the base, the pool moves Y% along with the base. This ratio is calculated based on a 7-year average (2015-2021) analysis of historical actuals. For forecasting purposes, this ratio is applied uniformly to both reductions and increases in the projected capital base.
- The **Pool Expense** is calculated by multiplying the (Prior Year Pool Expense) x (1 + Capital Base YoY % Change) x (Pool Sensitivity Ratio)
- Forecasted Pool Expense **Labor** and **Non-Labor** split is calculated based on 2021 actuals.

	ACTUAL	FORECAST	FORECAST	FORECAST
DOH Pool	2021	2022	2023	2024
Capital Base	\$ 91,098,842	\$ 112,771,258	\$ 125,362,817	\$ 129,369,642
Capital Base YoY Change		24%	11%	3%
Pool Sensitivity Ratio		0.8	0.8	0.8
Pool Expense	\$ 15,973,719	\$ 19,029,383	\$ 20,737,867	\$ 21,270,834
Labor	\$ 15,824,576	\$ 18,851,710	\$ 20,544,242	\$ 21,072,234
Non-Labor	\$ 149,143	\$ 177,673	\$ 193,624	\$ 198,601
FTE Units	127	151	164	169

	ACTUAL	FORECAST	FORECAST	FORECAST
ED Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 234,688,008	\$ 209,133,482	\$ 212,728,418	\$ 150,346,253
Capital Base YoY Change		-11%	2%	-29%
Pool Sensitivity Ratio		1.1	1.1	1.1
Pool Expense	\$ 137,801,292	\$ 120,971,873	\$ 123,304,208	\$ 82,748,524
Labor	\$ 39,546,829	\$ 34,717,047	\$ 35,386,391	\$ 23,747,540
Non-Labor	\$ 98,254,463	\$ 86,254,826	\$ 87,917,817	\$ 59,000,984
FTE Units	316	278	283	190

	ACTUAL	FORECAST	FORECAST	FORECAST
Substation Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 12,941,784	\$ 21,835,459	\$ 21,517,165	\$ 17,175,097
Capital Base YoY Change		69%	-1%	-20%
Pool Sensitivity Ratio		1.0	1.0	1.0
Pool Expense	\$ 3,084,317	\$ 5,147,168	\$ 5,074,146	\$ 4,077,602
Labor	\$ 1,461,521	\$ 2,439,015	\$ 2,404,412	\$ 1,932,195
Non-Labor	\$ 1,622,796	\$ 2,708,154	\$ 2,669,734	\$ 2,145,408
FTE Units	12	20	19	15

	ACTUAL	FORECAST	FORECAST	FORECAST
CA Pool	2021	2022	2023	2024
Capital Base	\$ 158,682,110	\$ 246,417,727	\$ 450,076,962	\$ 420,728,906
Capital Base YoY Change		55%	83%	-7%
Pool Sensitivity Ratio		1.2	1.2	1.2
Pool Expense	\$ 14,809,150	\$ 24,279,048	\$ 47,486,690	\$ 43,905,465
Labor	\$ 3,027,064	\$ 4,962,759	\$ 9,706,517	\$ 8,974,496
Non-Labor	\$ 11,782,086	\$ 19,316,289	\$ 37,780,173	\$ 34,930,968
FTE Units	24	40	78	72

Beginning of Workpaper Group
E09060 - CONTRACT ADMINISTRATION POOL - Elec

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0906.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09060 - CONTRACT ADMINISTRATION POOL - Elec

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	4,030	3,136	5,164	2,487	2,914	4,963	9,707	8,975
Non-Labor	Zero-Based	5,624	6,078	13,571	11,727	12,276	19,316	37,780	34,931
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	9,654	9,214	18,736	14,214	15,190	24,279	47,487	43,906
FTE	Zero-Based	28.5	23.2	39.8	20.2	24.7	39.7	77.7	71.8

Business Purpose:

The Contract Administration (CA) pool consists of incurred costs necessary for the administration of projects that are performed by contractors for SDG&E. The costs allocated to this pool consist of labor for Contract Administrators and support personnel, as well as the associated non-labor support costs such as office and field supplies. This budget code includes the costs that will be allocated to contracted work

Physical Description:

Typical activities included in this account are: Working with Contractors to develop fixed price bid for construction projects; Overseeing the Contractor work to remove obstacles and verify work is completed and complies with company standards; Approving Contractor Invoices for completed work; and Developing and Administering Contract Units for unit priced contracts.

Project Justification:

The CA Pool consists of those expenses necessary for the administration of projects that are performed by contractors for SDG&E. Due to the volume of capital work that takes place on the electric distribution system, the most effective and efficient way to allocate the contract administration costs is through the use of the CA Pool. It is not feasible to charge directly for each electric distribution job due to the tremendous volume of work orders.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0906.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09060 - CONTRACT ADMINISTRATION POOL - Elec

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0906.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09060 - CONTRACT ADMINISTRATION POOL - Elec

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	Zero-Based	4,963	9,707	8,975	0	0	0	4,963	9,707	8,975
Non-Labor	Zero-Based	19,316	37,780	34,931	0	0	0	19,316	37,780	34,931
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		24,279	47,487	43,906	0	0	0	24,279	47,487	43,906
FTE	Zero-Based	39.7	77.7	71.8	0.0	0.0	0.0	39.7	77.7	71.8

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: E0906.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. OVERHEAD POOLS
Workpaper Group: E09060 - CONTRACT ADMINISTRATION POOL - Elec

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
Adjustments (Nominal \$)**					
Labor	2,933	2,388	4,118	2,083	2,534
Non-Labor	4,701	5,330	12,372	11,215	12,276
NSE	0	0	0	0	0
Total	7,634	7,718	16,490	13,298	14,809
FTE	24.4	19.9	34.3	17.4	21.1
Recorded-Adjusted (Nominal \$)					
Labor	2,933	2,388	4,118	2,083	2,534
Non-Labor	4,701	5,330	12,372	11,215	12,276
NSE	0	0	0	0	0
Total	7,634	7,718	16,490	13,298	14,809
FTE	24.4	19.9	34.3	17.4	21.1
Vacation & Sick (Nominal \$)					
Labor	435	362	590	295	381
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	435	362	590	295	381
FTE	4.1	3.3	5.5	2.8	3.6
Escalation to 2021\$					
Labor	662	386	457	109	0
Non-Labor	923	748	1,200	512	0
NSE	0	0	0	0	0
Total	1,585	1,134	1,656	621	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	4,030	3,136	5,164	2,487	2,914
Non-Labor	5,624	6,078	13,571	11,727	12,276
NSE	0	0	0	0	0
Total	9,654	9,214	18,736	14,214	15,190
FTE	28.5	23.2	39.8	20.2	24.7

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0906.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09060 - CONTRACT ADMINISTRATION POOL - Elec

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	2,933	2,388	4,118	2,083	2,534	
Non-Labor	4,701	5,330	12,372	11,215	12,276	
NSE	0	0	0	0	0	
Total	7,634	7,718	16,490	13,298	14,809	
FTE	24.4	19.9	34.3	17.4	21.1	

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	2,933	4,701	0	7,634	24.4
Explanation:	This adjustment is to align the values with the correct OH data				
2017 Total	2,933	4,701	0	7,634	24.4
2018	2,388	5,330	0	7,718	19.9
Explanation:	This adjustment is to align the values with the correct OH data				
2018 Total	2,388	5,330	0	7,718	19.9
2019	4,118	11,911	0	16,029	34.3
Explanation:	This adjustment is to align the values with the correct OH data				
2019	0	461	0	461	0.0
Explanation:	JE was posted in Dec 2021 to remove all Field Safety Pool costs from the CA Pool. This adjustment is to allocate the costs to the appropriate years rather than all in 2021. Breakdown: \$460,560 in 2019 and \$1,552,016 in 2020. So we are increasing CA Pool balance by \$2,012,576 in 2021 and will allocate the decrease in the years described above.				
2019 Total	4,118	12,372	0	16,490	34.3
2020	2,083	12,767	0	14,850	17.4
Explanation:	This adjustment is to align the values with the correct OH data				
2020	0	-1,552	0	-1,552	0.0
Explanation:	JE was posted in Dec 2021 to remove all Field Safety Pool costs from the CA Pool. This adjustment is to allocate the costs to the appropriate years rather than all in 2021. Breakdown: \$460,560 in 2019 and \$1,552,016 in 2020. So we are increasing CA Pool balance by \$2,012,576 in 2021 and will allocate the decrease in the years described above.				
2020 Total	2,083	11,215	0	13,298	17.4
2021	2,534	10,263	0	12,797	21.1
Explanation:	This adjustment is to align the values with the correct OH data				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0906.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09060 - CONTRACT ADMINISTRATION POOL - Elec

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021	0	2,013	0	2,013	0.0
Explanation:	JE was posted in Dec 2021 to remove all Field Safety Pool costs from the CA Pool. This adjustment is to allocate the costs to the appropriate years rather than all in 2021. Breakdown: \$460,560 in 2019 and \$1,552,016 in 2020. The CA Pool balance will increase by \$2,012,576 in 2021 and then decrease in the years described above.				
2021 Total	2,534	12,276	0	14,809	21.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group E09060**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: E0906.0
 Category: G. OVERHEAD POOLS
 Category-Sub: 1. OVERHEAD POOLS
 Workpaper Group: E09060 - CONTRACT ADMINISTRATION POOL - Elec
 Workpaper Detail: E09060.001 - CONTRACT ADMINISTRATION POOL
 In-Service Date: Not Applicable

Description:

The Contract Administration (CA) pool consists of those expenses necessary for the administration of projects that are performed by contractors for SDG&E. The expenses to this pool consist of labor for Contract Administrators and support personnel, as well as the associated non-labor support costs such as office and field supplies. This pool includes the costs that will be allocated to contracted work

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		4,963	9,707	8,975
Non-Labor		19,316	37,780	34,931
NSE		0	0	0
	Total	<u>24,279</u>	<u>47,487</u>	<u>43,906</u>
FTE		39.7	77.7	71.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group E09060

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

Overhead Pools ED Portion of Expense and Base

Cap ED %	Year	Pool	Pool Expense	Capital Base	Loaded out	Average Loading Rate	Pool Expense YOY Change	Capital Base YOY Change	Pool Expense Reaction to. Cap Base Sensitivity
60%	2015	CA	5,317,478	84,943,497	(5,663,349)	7%			
54%	2016	CA	5,803,464	94,243,834	(5,773,303)	6%	9%	11%	0.8
58%	2017	CA	7,633,795	118,291,750	(6,883,325)	6%	32%	26%	1.2
44%	2018	CA	7,718,345	74,014,792	(7,024,625)	9%	1%	-37%	(0.0)
51%	2019	CA	16,489,681	97,866,941	(12,867,870)	13%	114%	32%	3.5
48%	2020	CA	13,297,829	129,128,020	(20,906,216)	16%	-19%	32%	(0.6)
52%	2021	CA	14,809,150	158,682,110	(14,783,834)	9%	11%	23%	0.5
							31%	27%	1.2
99%	2015	DOH	11,350,103	36,913,308	(9,381,029)	25%			
99%	2016	DOH	10,166,744	44,781,019	(11,692,270)	26%	-10%	21%	(0.5)
99%	2017	DOH	12,955,593	65,285,855	(12,881,815)	20%	27%	46%	0.6
99%	2018	DOH	11,176,895	86,361,546	(10,290,276)	12%	-14%	32%	(0.4)
99%	2019	DOH	10,923,922	94,274,520	(11,327,466)	12%	-2%	9%	(0.2)
99%	2020	DOH	11,906,336	87,148,972	(11,036,056)	13%	9%	-8%	(1.2)
100%	2021	DOH	15,973,719	91,098,842	(16,050,842)	18%	34%	5%	7.5
							16%	20%	0.8
100%	2015	LE ED	73,256,707	132,802,706	(74,171,870)	56%			
100%	2016	LE ED	74,854,343	153,102,244	(77,200,512)	50%	2%	15%	0.1
99%	2017	LE ED	93,902,857	194,018,650	(83,285,063)	43%	25%	27%	1.0
99%	2018	LE ED	125,291,068	170,638,714	(110,867,060)	65%	33%	-12%	(2.8)
100%	2019	LE ED	96,373,521	155,001,190	(125,945,817)	81%	-23%	-9%	2.5
100%	2020	LE ED	115,307,689	204,511,996	(91,145,410)	45%	20%	32%	0.6
99%	2021	LE ED	137,801,292	234,688,008	(116,741,780)	50%	20%	15%	1.3
							21%	18%	1.1
14%	2015	LE SUB	1,361,596	8,155,099	(1,262,719)	15%			
18%	2016	LE SUB	2,082,855	12,617,316	(2,342,816)	19%	53%	55%	1.0
24%	2017	LE SUB	3,214,606	19,627,520	(3,335,171)	17%	54%	56%	1.0
23%	2018	LE SUB	3,752,497	14,178,652	(2,713,962)	19%	17%	-28%	(0.6)
13%	2019	LE SUB	2,328,465	8,313,698	(2,786,361)	34%	-38%	-41%	0.9
25%	2020	LE SUB	3,645,000	13,210,800	(4,342,944)	33%	57%	59%	1.0
19%	2021	LE SUB	3,084,317	12,941,784	(3,009,608)	23%	-15%	-2%	7.6
							39%	40%	1.0
14%	2015	TOTAL ALL 4 POOLS	91,285,884	262,814,610	(90,478,967)	34%			
18%	2016	TOTAL ALL 4 POOLS	92,907,407	304,744,412	(97,008,901)	32%			
24%	2017	TOTAL ALL 4 POOLS	117,706,851	397,223,775	(106,385,374)	27%			
23%	2018	TOTAL ALL 4 POOLS	147,938,805	345,193,704	(130,895,922)	38%			
13%	2019	TOTAL ALL 4 POOLS	126,115,589	355,456,348	(152,927,514)	43%			
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19%	2021	TOTAL ALL 4 POOLS	171,668,478	497,410,744	(150,586,064)	30%			
		CAGR - 2015-2021	11.1%	11.2%					
		CAGR - 2019-2021	16.7%	18.3%					

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

Overhead Pools Forecast Methodology and Assumptions:

Overhead pool activity is a function of the capital base. Historically, as the capital base has expanded or contracted, the pools have followed suit. A 7-year historical study was performed to determine, on average, how much each pool moves in relation to its eligible base (for each % increase in the base, how much, also in % terms, does the pool react). This factor was then multiplied by the projected Year-Over-Year % change of the capital base, and finally by the previous year's pool forecast, to arrive at the projected pool balance for each year. This is the most appropriate forecasting methodology as it aligns the pool activity with the direct costs that drive it. By utilizing direct costs as the forecasting base, timing and undulation of spending should coincide with project spending schedules.

- The **Capital Base** line represents, in Nominal whole \$'s, actual pool expenditures for 2021, and the forecasted eligible capital base for each pool for 2022-2024. The capital base was discounted back to present value using a 3% inflation factor.
- The **Capital Base YoY Change** line calculates the year-over-year percentage change between each forecast year and the prior year's forecast/actuals depending on the year.
- The overhead pools have a direct, in some cases near 1-for-1 relationship to their eligible capital base. The **Pool Sensitivity Ratio** is calculated as the average, in absolute terms, of the difference between the YoY % movement in the pool vs. the YoY % movement in the pool's eligible capital base. In other words, for every X% movement in the base, the pool moves Y% along with the base. This ratio is calculated based on a 7-year average (2015-2021) analysis of historical actuals. For forecasting purposes, this ratio is applied uniformly to both reductions and increases in the projected capital base.
- The **Pool Expense** is calculated by multiplying the (Prior Year Pool Expense) x (1 + Capital Base YoY % Change) x (Pool Sensitivity Ratio)
- Forecasted Pool Expense **Labor** and **Non-Labor** split is calculated based on 2021 actuals.

	ACTUAL	FORECAST	FORECAST	FORECAST
DOH Pool	2021	2022	2023	2024
Capital Base	\$ 91,098,842	\$ 112,771,258	\$ 125,362,817	\$ 129,369,642
Capital Base YoY Change		24%	11%	3%
Pool Sensitivity Ratio		0.8	0.8	0.8
Pool Expense	\$ 15,973,719	\$ 19,029,383	\$ 20,737,867	\$ 21,270,834
Labor	\$ 15,824,576	\$ 18,851,710	\$ 20,544,242	\$ 21,072,234
Non-Labor	\$ 149,143	\$ 177,673	\$ 193,624	\$ 198,601
FTE Units	127	151	164	169

	ACTUAL	FORECAST	FORECAST	FORECAST
ED Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 234,688,008	\$ 209,133,482	\$ 212,728,418	\$ 150,346,253
Capital Base YoY Change		-11%	2%	-29%
Pool Sensitivity Ratio		1.1	1.1	1.1
Pool Expense	\$ 137,801,292	\$ 120,971,873	\$ 123,304,208	\$ 82,748,524
Labor	\$ 39,546,829	\$ 34,717,047	\$ 35,386,391	\$ 23,747,540
Non-Labor	\$ 98,254,463	\$ 86,254,826	\$ 87,917,817	\$ 59,000,984
FTE Units	316	278	283	190

	ACTUAL	FORECAST	FORECAST	FORECAST
Substation Engineering Pool	2021	2022	2023	2024
Capital Base	\$ 12,941,784	\$ 21,835,459	\$ 21,517,165	\$ 17,175,097
Capital Base YoY Change		69%	-1%	-20%
Pool Sensitivity Ratio		1.0	1.0	1.0
Pool Expense	\$ 3,084,317	\$ 5,147,168	\$ 5,074,146	\$ 4,077,602
Labor	\$ 1,461,521	\$ 2,439,015	\$ 2,404,412	\$ 1,932,195
Non-Labor	\$ 1,622,796	\$ 2,708,154	\$ 2,669,734	\$ 2,145,408
FTE Units	12	20	19	15

	ACTUAL	FORECAST	FORECAST	FORECAST
CA Pool	2021	2022	2023	2024
Capital Base	\$ 158,682,110	\$ 246,417,727	\$ 450,076,962	\$ 420,728,906
Capital Base YoY Change		55%	83%	-7%
Pool Sensitivity Ratio		1.2	1.2	1.2
Pool Expense	\$ 14,809,150	\$ 24,279,048	\$ 47,486,690	\$ 43,905,465
Labor	\$ 3,027,064	\$ 4,962,759	\$ 9,706,517	\$ 8,974,496
Non-Labor	\$ 11,782,086	\$ 19,316,289	\$ 37,780,173	\$ 34,930,968
FTE Units	24	40	78	72

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

Summary for Category: H. RELIABILITY/IMPROVEMENTS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	20,531	22,147	23,191	21,139
Non-Labor	54,331	55,534	107,207	47,203
NSE	0	0	0	0
Total	74,862	77,681	130,398	68,342
FTE	110.5	133.0	141.8	123.5

002030 RAMP- DISTRIBUTION SUBSTATION RELIABILITY

Labor	464	399	399	399
Non-Labor	549	977	977	977
NSE	0	0	0	0
Total	1,013	1,376	1,376	1,376
FTE	3.1	2.7	2.7	2.7

202740 Coronado 69/12kV Transformer Replacement

Labor	6	12	103	56
Non-Labor	11	514	873	639
NSE	0	0	0	0
Total	17	526	976	695
FTE	0.0	0.1	0.9	0.5

202750 La Jolla 69/12kV Transformer Replacement

Labor	1	53	215	14
Non-Labor	12	1,205	1,548	94
NSE	0	0	0	0
Total	13	1,258	1,763	108
FTE	0.0	0.5	1.8	0.1

202830 CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

Labor	207	246	0	0
Non-Labor	198	325	0	0
NSE	0	0	0	0
Total	405	571	0	0
FTE	1.3	2.3	0.0	0.0

202880 RAMP-NON-HFTD WIRELESS FAULT INDICATORS

Labor	1	4	0	0
Non-Labor	61	19	1,243	1,243
NSE	0	0	0	0
Total	62	23	1,243	1,243
FTE	0.0	0.1	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
002260 RAMP- MANAGEMENT OF OH DIST. SERVICE				
Labor	3,508	3,105	3,105	3,105
Non-Labor	8,259	5,012	5,012	5,012
NSE	0	0	0	0
Total	11,767	8,117	8,117	8,117
FTE	20.3	14.6	14.6	14.6
002270 RAMP- MANAGEMENT OF UG DIST. SERVICE				
Labor	1,579	1,579	1,579	1,579
Non-Labor	1,774	1,774	1,774	1,774
NSE	0	0	0	0
Total	3,353	3,353	3,353	3,353
FTE	8.5	8.5	8.5	8.5
002300 RAMP- REPLACEMENT OF UNDERGROUND CABLES				
Labor	4,354	4,265	4,265	4,265
Non-Labor	1,485	1,534	1,534	1,534
NSE	0	0	0	0
Total	5,839	5,799	5,799	5,799
FTE	20.6	19.1	19.1	19.1
002360 RAMP- CAPITAL RESTORATION OF SERVICE				
Labor	6,366	5,506	5,506	5,506
Non-Labor	4,450	4,016	4,016	4,016
NSE	0	0	0	0
Total	10,816	9,522	9,522	9,522
FTE	30.8	25.3	25.3	25.3
002380 RAMP- PLANNED CABLE REPLACEMENTS				
Labor	646	655	528	519
Non-Labor	3,644	3,605	2,957	2,912
NSE	0	0	0	0
Total	4,290	4,260	3,485	3,431
FTE	4.1	5.6	4.5	4.5
002900 RAMP- DOE SWITCH REPLACEMENT				
Labor	582	394	578	551
Non-Labor	9,334	3,504	8,749	5,231
NSE	0	0	0	0
Total	9,916	3,898	9,327	5,782
FTE	2.9	3.4	5.0	4.7
062540 RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR				
Labor	194	304	82	82
Non-Labor	1,533	2,971	252	252
NSE	0	0	0	0
Total	1,727	3,275	334	334
FTE	1.5	2.6	0.7	0.7

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
112490 RAMP - INSTALL SCADA ON LINE CAPACITORS				
Labor	67	250	253	253
Non-Labor	767	733	731	731
NSE	0	0	0	0
Total	834	983	984	984
FTE	0.5	2.1	2.2	2.2
132440 STREAMVIEW 69/12KV SUB REBUILD-PRE ENG				
Labor	3	98	83	123
Non-Labor	613	5,915	18,530	36
NSE	0	0	0	0
Total	616	6,013	18,613	159
FTE	0.0	0.9	0.8	1.1
141280 ARTESIAN 230KV EXPANSION				
Labor	69	18	0	0
Non-Labor	1,194	18	0	0
NSE	0	0	0	0
Total	1,263	36	0	0
FTE	0.5	0.1	0.0	0.0
141430 RAMP- POWAY SUBSTATION REBUILD				
Labor	256	985	0	0
Non-Labor	1,125	532	0	0
NSE	0	0	0	0
Total	1,381	1,517	0	0
FTE	1.6	8.4	0.0	0.0
152430 RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION				
Labor	103	233	633	467
Non-Labor	693	968	1,894	1,309
NSE	0	0	0	0
Total	796	1,201	2,527	1,776
FTE	1.4	2.0	5.3	3.9
171600 RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV				
Labor	0	47	705	77
Non-Labor	0	46	3,050	24
NSE	0	0	0	0
Total	0	93	3,755	101
FTE	0.0	0.4	5.3	0.6
172430 RAMP- SUBSTATION MOD TO SUPPORT FLISR				
Labor	559	408	0	0
Non-Labor	1,952	479	0	0
NSE	0	0	0	0
Total	2,511	887	0	0
FTE	3.3	3.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
172610 RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT				
Labor	248	181	173	173
Non-Labor	1,624	692	659	659
NSE	0	0	0	0
Total	1,872	873	832	832
FTE	1.4	1.6	1.5	1.5
17264A RAMP- NORTH HARBOR				
Labor	0	0	639	213
Non-Labor	0	0	22,642	7,548
NSE	0	0	0	0
Total	0	0	23,281	7,761
FTE	0.0	0.0	7.0	2.3
172690 RAMP- 4KV MODERNIZATION				
Labor	49	1,182	1,784	1,784
Non-Labor	4,649	2,997	4,848	4,758
NSE	0	0	0	0
Total	4,698	4,179	6,632	6,542
FTE	0.2	10.1	15.3	15.3
192520 RAMP- URBAN SUBSTATION REBUILD				
Labor	55	114	75	0
Non-Labor	478	5,456	15,943	0
NSE	0	0	0	0
Total	533	5,570	16,018	0
FTE	0.6	1.2	0.8	0.0
202420 RAMP- TORREY PINES 12KV BREAKER REPLACEMENT				
Labor	149	297	0	0
Non-Labor	570	872	0	0
NSE	0	0	0	0
Total	719	1,169	0	0
FTE	1.1	2.5	0.0	0.0
202450 RAMP- EL CAJON 12KV BREAKER REPLACEMENTS				
Labor	34	63	133	0
Non-Labor	312	758	747	0
NSE	0	0	0	0
Total	346	821	880	0
FTE	0.3	0.5	1.0	0.0
202510 KETTNER REBUILD				
Labor	28	486	396	0
Non-Labor	666	890	223	0
NSE	0	0	0	0
Total	694	1,376	619	0
FTE	0.2	4.6	3.7	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
20263A RAMP- BERNARDO 12 KV BREAKERS AND TRANSFORMER				
Labor	0	0	0	225
Non-Labor	0	0	0	702
NSE	0	0	0	0
Total	0	0	0	927
FTE	0.0	0.0	0.0	1.9
20267A RAMP- MIRAMAR 12KV REPLACEMENTS				
Labor	0	30	254	99
Non-Labor	0	42	964	0
NSE	0	0	0	0
Total	0	72	1,218	99
FTE	0.0	0.3	2.2	0.8
202680 RAMP- MISSION 12KV REPLACEMENTS				
Labor	24	382	73	0
Non-Labor	1,217	1,684	483	0
NSE	0	0	0	0
Total	1,241	2,066	556	0
FTE	0.2	3.3	0.6	0.0
20270A RAMP - Stuart 12kV Transformer Replacement				
Labor	0	0	62	81
Non-Labor	0	0	595	789
NSE	0	0	0	0
Total	0	0	657	870
FTE	0.0	0.0	0.5	0.7
212750 CRISTIANITOS RFS				
Labor	43	81	0	0
Non-Labor	384	905	0	0
NSE	0	0	0	0
Total	427	986	0	0
FTE	0.4	1.0	0.0	0.0
932400 RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION				
Labor	347	264	1,062	1,062
Non-Labor	3,913	3,190	3,062	3,062
NSE	0	0	0	0
Total	4,260	3,454	4,124	4,124
FTE	1.7	2.3	9.1	9.1
942410 RAMP- POWER QUALITY PROGRAM				
Labor	120	46	46	46
Non-Labor	1,326	2,254	2,254	2,254
NSE	0	0	0	0
Total	1,446	2,300	2,300	2,300
FTE	0.8	0.3	0.3	0.3

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Category: H. RELIABILITY/IMPROVEMENTS
 Workpaper: VARIOUS

In 2021\$ (000)			
Adjusted-Recorded	Adjusted-Forecast		
2021	2022	2023	2024

992820 RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

Labor	469	460	460	460
Non-Labor	1,538	1,647	1,647	1,647
NSE	0	0	0	0
Total	2,007	2,107	2,107	2,107
FTE	3.2	3.1	3.1	3.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00203.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	652	329	721	12	464	399	399	399
Non-Labor	3-YR Average	2,602	1,864	1,121	1,261	549	977	977	977
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		3,253	2,194	1,842	1,273	1,013	1,376	1,376	1,376
FTE	3-YR Average	4.3	1.6	4.5	0.5	3.1	2.7	2.7	2.7

Business Purpose:

This project is for small changes to electrical distribution substation facilities. General project categories include:

1. Safety related improvements
2. Replacement of failed/obsolete equipment
3. Capital additions under \$500,000

Work authorized within this project is classified under the following accounts :

- 361 Structures & Improvements (Distribution)
- 362 Station Equipment (Distribution)
- 397 Communication Equipment (Distribution)

Physical Description:

This budget is required to maintain the reliability and integrity of distribution substations. The specific work required to meet safety requirements, replace obsolete or failed equipment and make necessary small capital additions is based on requests from engineering, planning, operations, and maintenance groups.

The scope of this project includes installation of 3 substation equipment annually.

Project Justification:

There are no alternatives to this budget if safety requirements are to be met, obsolete/failed equipment replacement is to continue, and necessary small capital additions are to be made.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00203.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. Distribution Substation Reliability Projects
Workpaper Group: 002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00203.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY

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	3-YR Average	399	399	399	0	0	0	399	399	399
Non-Labor	3-YR Average	977	977	977	0	0	0	977	977	977
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		1,376	1,376	1,376	0	0	0	1,376	1,376	1,376
FTE	3-YR Average	2.7	2.7	2.7	0.0	0.0	0.0	2.7	2.7	2.7

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00203.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	474	251	575	10	403
Non-Labor	2,174	1,635	1,022	1,206	549
NSE	0	0	0	0	0
Total	2,649	1,886	1,597	1,216	952
FTE	3.7	1.4	3.9	0.4	2.6
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	474	251	575	10	403
Non-Labor	2,174	1,635	1,022	1,206	549
NSE	0	0	0	0	0
Total	2,649	1,886	1,597	1,216	952
FTE	3.7	1.4	3.9	0.4	2.6
Vacation & Sick (Nominal \$)					
Labor	70	38	82	1	61
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	70	38	82	1	61
FTE	0.6	0.2	0.6	0.1	0.5
Escalation to 2021\$					
Labor	107	41	64	1	0
Non-Labor	427	230	99	55	0
NSE	0	0	0	0	0
Total	534	270	163	56	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	652	329	721	12	464
Non-Labor	2,602	1,864	1,121	1,261	549
NSE	0	0	0	0	0
Total	3,253	2,194	1,842	1,273	1,013
FTE	4.3	1.6	4.5	0.5	3.1

* 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 - REVISED
 Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00203.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY

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 002030**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00203.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY
 Workpaper Detail: 002030.001 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY
 In-Service Date: Not Applicable

Description:

Maintain the reliability and integrity of distribution substations. The specific work required to meet safety requirements, replace obsolete or failed equipment and make necessary small capital additions is based on requests from engineering, planning, operations, and maintenance groups.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		399	399	399
Non-Labor		977	977	977
NSE		0	0	0
	Total	1,376	1,376	1,376
FTE		2.7	2.7	2.7

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00203.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 002030 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY
 Workpaper Detail: 002030.001 - RAMP- DISTRIBUTION SUBSTATION RELIABILITY

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C19
 RAMP Line Item Name: Minor Distribution Substation Reliability Projects
 Tranche(s): Tranche1: N/A

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	1,012	1,376	1,376	1,376	4,128	4,503	5,565

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates

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 major substation equipment installed	1.00	3.00	3.00	3.00	9.00	6.00	9.00

Work Unit Changes from RAMP:

Within range

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Beginning of Workpaper Group
202740 - Coronado 69/12kV Transformer Replacement

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20274.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202740 - Coronado 69/12kV Transformer Replacement

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	6	12	103	56
Non-Labor	Zero-Based	0	0	0	0	11	514	873	639
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	17	526	976	695
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.5

Business Purpose:

Removing and replacing the Coronado 69/12kV transformer addresses aging infrastructure, environmental, and reliability concerns.

Physical Description:

Replace a 69/12kV transformer and modify the foundation and secondary containment.

The scope of this project includes installing 2 substation equipment in 2023 and 1 substation equipment in 2024.

Project Justification:

This project replaces a transformer that's been in service for 39 years and the transformer bank does not match current standard transformers, which are significantly more reliable. This transformer was selected for replacement because it is within 5 years of expected life span per manufacturer recommendations. This replacement will add 69/12kV system reliability, as well as environmental benefits.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20274.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. Distribution Substation Reliability Projects
Workpaper Group: 202740 - Coronado 69/12kV Transformer Replacement

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20274.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202740 - Coronado 69/12kV Transformer Replacement

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	Zero-Based	12	103	56	0	0	0	12	103	56
Non-Labor	Zero-Based	514	873	639	0	0	0	514	873	639
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		526	976	695	0	0	0	526	976	695
FTE	Zero-Based	0.1	0.9	0.5	0.0	0.0	0.0	0.1	0.9	0.5

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20274.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202740 - Coronado 69/12kV Transformer Replacement

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	6
Non-Labor	0	0	0	0	11
NSE	0	0	0	0	0
Total	0	0	0	0	17
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	0	0	6
Non-Labor	0	0	0	0	11
NSE	0	0	0	0	0
Total	0	0	0	0	17
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	1
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	6
Non-Labor	0	0	0	0	11
NSE	0	0	0	0	0
Total	0	0	0	0	17
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
 2024 GRC - REVISED
 Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20274.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202740 - Coronado 69/12kV Transformer Replacement

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 202740**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20274.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202740 - Coronado 69/12kV Transformer Replacement
 Workpaper Detail: 202740.001 - RAMP - CORONADO 69/12KV TRANSFORMER REPLACEMENT
 In-Service Date: 12/31/2024

Description:

Replace a 69/12kV transformer and modify the foundation and secondary containment.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		12	103	56
Non-Labor		514	873	639
NSE		0	0	0
	Total	526	976	695
FTE		0.1	0.9	0.5

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20274.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202740 - Coronado 69/12kV Transformer Replacement
 Workpaper Detail: 202740.001 - RAMP - CORONADO 69/12KV TRANSFORMER REPLACEMENT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity

RAMP Line Item ID: C20-T8

RAMP Line Item Name: Substation Reliability for Distribution Components - Coronado 69/12kV Transformer Replacements

Tranche(s): Tranche1: Substation

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	17	526	976	695	2,197	1,402	1,731

Cost Estimate Changes from RAMP:

The GRC forecastis outside the RAMP range due to forecast updates.

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 substation equipment installed	0.00	0.00	2.00	1.00	3.00	2.00	2.00

Work Unit Changes from RAMP:

The GRC forecastis outside the RAMP range due to forecsat updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	3.000	12.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 202740

Beginning of Workpaper Group
202750 - La Jolla 69/12kV Transformer Replacement

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202750 - La Jolla 69/12kV Transformer Replacement

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	1	53	215	14
Non-Labor	Zero-Based	0	0	0	0	12	1,205	1,548	94
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	13	1,258	1,763	108
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.5	1.8	0.1

Business Purpose:

Removal and replacement of transformer(s), disconnect(s) and capacitor banks due to aging infrastructure, operational limitations, environmental concerns, in addition to meeting current reliability standards.

Physical Description:

Construct a new foundation and oil containment for a new 69/12 kV transformer to comply with the existing low-profile substation. Replace the 69/12kV transformer, two capacitor banks and install 69kV bus disconnects for one bay position.

Project Justification:

The 69/12kV transformer has exceeded its life expectancy. This station has a limited footprint and requires a new transformer as an economical alternative compared to grounding banks. The capacitor banks have also aged and corroded requiring immediate replacement. Additionally, several 69kV disconnects have had mechanical issues with two disconnects having repeated repairs and no spare parts which will be replaced on this project. The remaining disconnects shall be replaced along with other aged equipment on a future project. La Jolla is a two-terminal substation feeding the La Jolla area requiring these immediate upgrades to improve system reliability.

This replacement will add 12kV system reliability, as well as environmental benefits.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20275.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. Distribution Substation Reliability Projects
Workpaper Group: 202750 - La Jolla 69/12kV Transformer Replacement

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202750 - La Jolla 69/12kV Transformer Replacement

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	Zero-Based	53	215	14	0	0	0	53	215	14
Non-Labor	Zero-Based	1,205	1,548	94	0	0	0	1,205	1,548	94
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,258	1,763	108	0	0	0	1,258	1,763	108
FTE	Zero-Based	0.5	1.8	0.1	0.0	0.0	0.0	0.5	1.8	0.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202750 - La Jolla 69/12kV Transformer Replacement

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	12
NSE	0	0	0	0	0
Total	0	0	0	0	13
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	0	0	1
Non-Labor	0	0	0	0	12
NSE	0	0	0	0	0
Total	0	0	0	0	13
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 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	12
NSE	0	0	0	0	0
Total	0	0	0	0	13
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202750 - La Jolla 69/12kV Transformer Replacement

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 202750**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202750 - La Jolla 69/12kV Transformer Replacement
 Workpaper Detail: 202750.001 - RAMP - La Jolla 69/12kV Transformer Replacement
 In-Service Date: 09/30/2024

Description:

Construct a new foundation and oil containment for a new 69/12 kV transformer to comply with the existing low-profile substation. Replace the 69/12kV transformer, two capacitor banks and install 69kV bus disconnects for one bay position.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		53	215	14
Non-Labor		1,205	1,548	94
NSE		0	0	0
	Total	<u>1,258</u>	<u>1,763</u>	<u>108</u>
FTE		0.5	1.8	0.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202750 - La Jolla 69/12kV Transformer Replacement
 Workpaper Detail: 202750.001 - RAMP - La Jolla 69/12kV Transformer Replacement

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW03
 RAMP Line Item Name: La Jolla 69/12kV Transformer Replacement
 Tranche(s): Tranche1: Substation

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	13	1,258	1,763	108	3,129	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item.

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 transformer banks replaced	0.00	0.00	0.00	1.00	1.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	10.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item.

Supplemental Workpapers for Workpaper Group 202750

Beginning of Workpaper Group
202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20283.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	207	246	0	0
Non-Labor	Zero-Based	0	0	0	0	198	325	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	405	571	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	1.3	2.3	0.0	0.0

Business Purpose:

This project will replace/upgrade equipment and existing hardware/software at various substations that is used to monitor and provide numerous data points pertaining to the status of the transformers and ancillary equipment data on the gases forming inside transformers. These dissolved gasses have been proven to provide insight on transformer issues, such as paper degradation and leaks, that would ultimately lead to a transformers failure, if not addressed. We also have Bushing Health Monitoring (BHM) systems installed on all bushings 69kV+. This provides us information such as capacitance and percent imbalance that would be a precursor to failure. With these two units, we have the Dynamic Ratings (DR) E3 monitor which provides us with other diagnostic information such as temperatures, fans, current & power readings to name a few. With all these in conjunction with each other, we are able to get alerts to any issue that is happening real-time on our transformers, so we can address them prior to a catastrophic failure. Both the DGA and the BHM monitors feed through the DR E3 monitor, and the DR E3 interface is how we see all this data. The E3 is the hub of all the data, and this project calls for an upgrade for the chip and firmware of this unit.

Physical Description:

Replace and upgrade outdated and non-supported software, aka firmware on various equipment the most recent software/firmware. Install monitoring systems on all 69kV+ transformer bushings. Install new/upgrade software on existing equipment that provided diagnostic data on the transformers and auxiliary equipment. Historically, when the existing DR monitors equipment were initially purchased, the newest firmware was 2.3.1. Since then, there have been years of firmware upgrades to the point where the chips inside our DR monitors don't support the latest firmware. The goal of this upgrade is to replace all the old DR chips with the new ones loaded with the 4.2 software.

The scope of work entails:

- Purchasing a new chip
- A new points list to be created for each unit
- RTU Tech to load the points into the gateway
- IT to enable the points in the gateway
- Electrician to install the chip and retest all the points

Once the points have been tested, there might be some IT assistance needed if issues are found. Our CBM program has a dedicated IT person, so the turnaround for troubleshooting a fix takes at most 2 weeks with back and forth from crew to IT. Usually fixes can be taken care of in a day. Projected completion of this program is in 2022 and entails 132 chips procurement and installs.

Project Justification:

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20283.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. Distribution Substation Reliability Projects
Workpaper Group: 202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

These software upgrades and equipment installations provide the company the ability to track the level of dissolved gases in transformers, which provides insight on transformer issues, such as paper degradation and leaks, that would ultimately lead to a transformers failure if not addressed. Additional equipment installed on all transformer bushings that are 69kV and larger provides information that is often a precursor to failure. This equipment will also provide various diagnostic information, including but limited to temperature, fans status, current readings, and power readings. Utilization of the data from this equipment enables the company to be aware on a real-time basis to any issue that on the transformers which in turn allows actions to prevent a catastrophic failure.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20283.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. Distribution Substation Reliability Projects
Workpaper Group: 202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20283.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

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	Zero-Based	246	0	0	0	0	0	246	0	0
Non-Labor	Zero-Based	325	0	0	0	0	0	325	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		571	0	0	0	0	0	571	0	0
FTE	Zero-Based	2.3	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20283.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	180
Non-Labor	0	0	0	0	198
NSE	0	0	0	0	0
Total	0	0	0	0	378
FTE	0.0	0.0	0.0	0.0	1.1
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	0	0	0	0	180
Non-Labor	0	0	0	0	198
NSE	0	0	0	0	0
Total	0	0	0	0	378
FTE	0.0	0.0	0.0	0.0	1.1
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	27
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	27
FTE	0.0	0.0	0.0	0.0	0.2
Escalation to 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	207
Non-Labor	0	0	0	0	198
NSE	0	0	0	0	0
Total	0	0	0	0	405
FTE	0.0	0.0	0.0	0.0	1.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20283.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM

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 202830**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20283.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202830 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORM
 Workpaper Detail: 202830.001 - CBM - 4.2 FIRMWARE UPGRADE FOR TRANSFORMER
 In-Service Date: 12/31/2022

Description:

Replace/upgrade equipment and existing hardware/software at various substations that is used to monitor and provide numerous data points pertaining to the status of the transformers and ancillary equipment data on the gases forming inside transformers.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		246	0	0
Non-Labor		325	0	0
NSE		0	0	0
	Total	571	0	0
FTE		2.3	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 202830

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

TY2024 GRC FORECAST - DETAILS
 Budget Code: 20283
 Estimated In Service Date: 12/31/2022

Line Item	Unit Description	2022		2023		2024		Total cost	Comments
		Labor/Non-Labor	# of units	Cost per unit*	Total cost	# of units	Cost per unit*		
1	Chips for Distribution Transformers	Non-Labor		132	\$ 2,118	\$ 279,624		\$ -	Unit cost is based on mfg price per chip. If of unit consist of distribution transformers plus factors to account for material/equipment used to install/program chips in the E3 meters.
2	TFE (cost per chip)	Non-RAMP		4,000	\$ 60	\$ 240,000		\$ -	500/line unless employee travel time, wage, # of hours, and manage the project.
3	Contractors	Non-RAMP		52	\$ 867	\$ 45,104		\$ -	Costs are weekly rates for contracted support.
4	TFE	Non-RAMP		682	\$ 9	\$ 6,138		\$ -	4-Liberty(\$601.40/week) and Ahear Engineering(\$366/wk).
5								\$ -	Units are number of weeks per year.
6								\$ -	LC input V85
7								\$ -	
8								\$ -	
9								\$ -	
10								\$ -	
11								\$ -	
12								\$ -	
13								\$ -	
14								\$ -	
15								\$ -	
*Costs should be reported in direct costs only (no overheads)									
Summary									
		Labor						\$ -	
		Non-Labor						\$ -	
Subtotal RAMP								\$ -	
		Labor						\$ 246,150	
		Non-RAMP						\$ 324,730	
Subtotal Non-RAMP								\$ 570,879	
Total Project Forecast								\$ 570,879	

Beginning of Workpaper Group
202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20288.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	1	4	0	0
Non-Labor	Zero-Based	0	0	0	0	61	19	1,243	1,243
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	62	23	1,243	1,243
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This project provides a way to rapidly identify and locate faults on distribution circuits via wireless fault indicators (WFI). This will reduce outage and repair times, improving reliability.

Physical Description:

Install wireless fault indicators (WFIs) on conductors.

Project scope includes installation of 20 WFIs in 2022, 800 WFIs in 2023, and 800 WFIs in 2024.

Project Justification:

WFI's will be used to monitor distribution lines and locate faults more efficiently and accurately using LPCN communication to alert distribution system operators. These WFI's can detect faults without having a minimum continuous current on the line, allowing the installation at remote locations that have very little load. This allows operators to dispatch electric troubleshooters closer to the exact fault location to more quickly identify and isolate the fault and begin service restoration.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20288.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. Distribution Substation Reliability Projects
Workpaper Group: 202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20288.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS

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	Zero-Based	4	0	0	0	0	0	4	0	0
Non-Labor	Zero-Based	19	1,243	1,243	0	0	0	19	1,243	1,243
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		23	1,243	1,243	0	0	0	23	1,243	1,243
FTE	Zero-Based	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20288.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	61
NSE	0	0	0	0	0
Total	0	0	0	0	62
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	0	0	1
Non-Labor	0	0	0	0	61
NSE	0	0	0	0	0
Total	0	0	0	0	62
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 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	1
Non-Labor	0	0	0	0	61
NSE	0	0	0	0	0
Total	0	0	0	0	62
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
 2024 GRC - REVISED
 Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20288.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS

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 202880**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20288.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS
 Workpaper Detail: 202880.001 - RAMP - NON-HFTD WIRELESS FAULT INDICATORS
 In-Service Date: Not Applicable

Description:

Install wireless fault indicators to monitor distribution lines and locate faults more efficiently and accurately using LPCN communication to alert distribution system operators.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		4	0	0
Non-Labor		19	1,243	1,243
NSE		0	0	0
	Total	23	1,243	1,243
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20288.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 1. Distribution Substation Reliability Projects
 Workpaper Group: 202880 - RAMP-NON-HFTD WIRELESS FAULT INDICATORS
 Workpaper Detail: 202880.001 - RAMP - NON-HFTD WIRELESS FAULT INDICATORS

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: M1
 RAMP Line Item Name: Non-HFTD Wireless Fault Indicator
 Tranche(s): Tranche1: OH Distribution

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	61	23	1,243	1,243	2,509	2,805	3,465

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 wireless indicators	15.00	20.00	800.00	800.00	1,620.00	4,089.00	4,089.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 202880

Beginning of Workpaper Group
002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00226.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	2,363	3,296	3,048	2,758	3,508	3,105	3,105	3,105
Non-Labor	3-YR Average	2,468	3,685	3,497	3,280	8,259	5,012	5,012	5,012
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	4,831	6,981	6,545	6,038	11,767	8,117	8,117	8,117
FTE	3-YR Average	14.5	15.4	12.8	10.7	20.3	14.6	14.6	14.6

Business Purpose:

This project is required to reinforce the electric overhead distribution system infrastructure by responsive action to system damages, deterioration and unsafe conditions outside normal restoration of service. The overall objective is to maintain continuity of safe and reliable customer service.

Physical Description:

This project provides for the reconstruction of existing overhead distribution facilities as necessary to:

- Correct improper voltage conditions
- Replace overloaded overhead facilities
- Make emergency repairs not normally associated with restoration of service
- Repair or replace deteriorated or unsafe equipment not found through the 'Corrective Maintenance Program'
- Install fault indicators / fusing / switching equipment as necessary to maintain service reliability

The forecasted costs support labor and non-labor expenses for 160 overhead transformer forced outages requiring crew in-kind replacement per year.

Project Justification:

This funding supports on going repairs and upgrades to overhead equipment needed to maintain continuity of safe and reliable electric service to customers.

Alternatives to the full forecast for funding for this project include:

- Reduction or suspension of mitigating efforts and correction of customer voltage problems (complaints)
- Operation of existing overhead facilities under overloaded conditions beyond acceptable limits that could accelerate system failures
- Delay in emergency repairs of unsafe conditions.

Above alternatives will have an adverse effect on public safety, service reliability, customer satisfaction and repair costs. Delaying responsive action could ultimately result in regulatory fines, increased number of customer complaints and higher long-term repair costs.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00226.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program. The previous 5-year average methodology is discontinued due to changing operating philosophies and increased adoption of proactive construction within Electric Regional Operations.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program. The previous 5-year average methodology is discontinued due to changing operating philosophies and increased adoption of proactive construction within Electric Regional Operations.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00226.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE

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	3-YR Average	3,105	3,105	3,105	0	0	0	3,105	3,105	3,105
Non-Labor	3-YR Average	5,012	5,012	5,012	0	0	0	5,012	5,012	5,012
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		8,117	8,117	8,117	0	0	0	8,117	8,117	8,117
FTE	3-YR Average	14.6	14.6	14.6	0.0	0.0	0.0	14.6	14.6	14.6

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00226.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	749	2,923	2,967	2,858	3,050
Non-Labor	749	3,283	3,240	3,220	8,439
NSE	0	0	0	0	0
Total	1,498	6,206	6,207	6,078	11,489
FTE	5.0	3.9	2.2	1.4	1.1
Adjustments (Nominal \$)**					
Labor	971	-413	-537	-548	0
Non-Labor	1,314	-52	-52	-83	-180
NSE	0	0	0	0	0
Total	2,285	-464	-589	-631	-180
FTE	7.5	9.3	8.8	7.8	16.2
Recorded-Adjusted (Nominal \$)					
Labor	1,720	2,510	2,430	2,310	3,050
Non-Labor	2,063	3,231	3,188	3,137	8,259
NSE	0	0	0	0	0
Total	3,783	5,742	5,618	5,447	11,309
FTE	12.5	13.2	11.0	9.2	17.3
Vacation & Sick (Nominal \$)					
Labor	255	380	348	328	458
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	255	380	348	328	458
FTE	2.0	2.2	1.8	1.5	3.0
Escalation to 2021\$					
Labor	388	406	269	121	0
Non-Labor	405	454	309	143	0
NSE	0	0	0	0	0
Total	793	859	579	264	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	2,363	3,296	3,048	2,758	3,508
Non-Labor	2,468	3,685	3,497	3,280	8,259
NSE	0	0	0	0	0
Total	4,831	6,981	6,545	6,038	11,767
FTE	14.5	15.4	12.8	10.7	20.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00226.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	971	-413	-537	-548	0	
Non-Labor	1,314	-52	-52	-83	-180	
NSE	0	0	0	0	0	
Total	2,285	-464	-589	-631	-180	
FTE	7.5	9.3	8.8	7.8	16.2	

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	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2017	971	1,314	0	2,285	7.4
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	971	1,314	0	2,285	7.5
2018	-413	-52	0	-464	-3.4
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	12.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-413	-52	0	-464	9.3
2019	-537	-52	0	-589	-4.5
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	13.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-537	-52	0	-589	8.8
2020	-548	-83	0	-631	-4.6
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	12.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-548	-83	0	-631	7.8

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00226.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021	0.001	0	0	0.001	16.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021	0	-180	0	-180	0.0
Explanation:	Two way transfer to reflect LED streetlight replacements from workpaper 002260 to 0172620.				
2021 Total	0.001	-180	0	-180	16.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002260**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00226.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE
 Workpaper Detail: 002260.001 - RAMP - MANAGEMENT OF OH DIST. SERVICE
 In-Service Date: Not Applicable

Description:

Reinforce the electric overhead distribution system infrastructure by responsive action to system damages, deterioration and unsafe conditions outside normal restoration of service.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		3,105	3,105	3,105
Non-Labor		5,012	5,012	5,012
NSE		0	0	0
	Total	<u>8,117</u>	<u>8,117</u>	<u>8,117</u>
FTE		14.6	14.6	14.6

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00226.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002260 - RAMP- MANAGEMENT OF OH DIST. SERVICE
 Workpaper Detail: 002260.001 - RAMP - MANAGEMENT OF OH DIST. SERVICE

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C05
 RAMP Line Item Name: Management of Overhead Distribution Service (Non-CMP)
 Tranche(s): Tranche1: N/A

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	11,767	8,117	8,117	8,117	24,351	23,656	29,222

Cost Estimate Changes from RAMP:
 Within range

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 overhead transformer forced outages requiring crew in-kind replacement	160.00	160.00	160.00	160.00	480.00	1,665.00	2,058.00

Work Unit Changes from RAMP:
 Change in unit of measure from RAMP filing.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Beginning of Workpaper Group
002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00227.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE

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	1,791	1,409	1,349	1,498	1,579	1,579	1,579	1,579
Non-Labor	Base YR Rec	1,430	1,314	1,385	1,378	1,774	1,774	1,774	1,774
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		3,221	2,723	2,733	2,876	3,353	3,353	3,353	3,353
FTE	Base YR Rec	9.2	2.7	2.0	1.0	8.5	8.5	8.5	8.5

Business Purpose:

This project is required to reinforce the electric underground distribution system infrastructure by responsive action to system damages, deterioration and unsafe conditions outside normal restoration of service. The overall objective is to maintain continuity of safe and reliable customer service.

Physical Description:

This project provides for the reconstruction of existing underground distribution facilities as necessary to:

- Correct improper voltage conditions
- Replace overloaded overhead facilities
- Make emergency repairs not normally associated with restoration of service
- Repair or replace deteriorated or unsafe equipment not found through the 'Corrective Maintenance Program'
- Install fault indicators / fusing / switching equipment as necessary to maintain service reliability

The forecasted costs support labor and non-labor expenses for 260 underground transformer forced outages requiring crew in-kind replacement per year.

Project Justification:

This funding supports on going repairs and upgrades to underground equipment needed to maintain continuity of safe and reliable electric service to customers.

The alternatives to full funding for this project include:

- Reduction or suspension of mitigating efforts and correction of customer voltage problems (complaints)
- Operation of existing underground facilities under overloaded conditions beyond acceptable limits that could accelerate system failures
- Delay in emergency repairs of unsafe conditions.

Above alternatives will have an adverse effect on public safety, service reliability, customer satisfaction and repair costs.

Delaying responsive action could ultimately result in regulatory fines, increased number of customer complaints and higher long-term repair costs.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00227.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE

Forecast Methodology:

Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.??The previous 5-year average methodology is discontinued due to changing operating philosophies and increased adoption of proactive construction within Electric Regional Operations.

Non-Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.??The previous 5-year average methodology is discontinued due to changing operating philosophies and increased adoption of proactive construction within Electric Regional Operations.

NSE - Base YR Rec

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00227.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE

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	1,579	1,579	1,579	0	0	0	1,579	1,579	1,579
Non-Labor	Base YR Rec	1,774	1,774	1,774	0	0	0	1,774	1,774	1,774
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		3,353	3,353	3,353	0	0	0	3,353	3,353	3,353
FTE	Base YR Rec	8.5	8.5	8.5	0.0	0.0	0.0	8.5	8.5	8.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00227.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	516	1,574	1,621	1,988	1,373
Non-Labor	642	1,220	1,323	1,477	1,774
NSE	0	0	0	0	0
Total	1,158	2,794	2,943	3,466	3,147
FTE	3.1	2.0	2.0	1.5	1.3
Adjustments (Nominal \$)**					
Labor	788	-501	-545	-733	0
Non-Labor	553	-68	-60	-160	0
NSE	0	0	0	0	0
Total	1,341	-568	-606	-893	0
FTE	4.8	0.3	-0.3	-0.6	6.0
Recorded-Adjusted (Nominal \$)					
Labor	1,304	1,073	1,075	1,255	1,373
Non-Labor	1,195	1,152	1,262	1,318	1,774
NSE	0	0	0	0	0
Total	2,499	2,225	2,338	2,573	3,147
FTE	7.9	2.3	1.7	0.9	7.3
Vacation & Sick (Nominal \$)					
Labor	193	163	154	178	206
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	193	163	154	178	206
FTE	1.3	0.4	0.3	0.1	1.2
Escalation to 2021\$					
Labor	294	173	119	65	0
Non-Labor	235	162	122	60	0
NSE	0	0	0	0	0
Total	529	335	242	126	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	1,791	1,409	1,349	1,498	1,579
Non-Labor	1,430	1,314	1,385	1,378	1,774
NSE	0	0	0	0	0
Total	3,221	2,723	2,733	2,876	3,353
FTE	9.2	2.7	2.0	1.0	8.5

* 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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00227.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	788	-501	-545	-733	0	
Non-Labor	553	-68	-60	-160	0	
NSE	0	0	0	0	0	
Total	1,341	-568	-606	-893	0	
FTE	4.8	0.3	-0.3	-0.6	6.0	

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	788	553	0	1,341	4.8
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	788	553	0	1,341	4.8
2018	-501	-68	0	-568	-4.2
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	4.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-501	-68	0	-568	0.3
2019	-545	-60	0	-606	-4.5
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	4.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-545	-60	0	-606	-0.3
2020	-733	-160	0	-893	-6.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	5.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-733	-160	0	-893	-0.6
2021	0.001	0	0	0.001	6.0
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00227.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	6.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002270**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00227.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE
 Workpaper Detail: 002270.001 - RAMP- MANAGEMENT OF UG DIST. SERVICE
 In-Service Date: Not Applicable

Description:

This project is required to reinforce the electric underground distribution system infrastructure by responsive action to system damages, deterioration and unsafe conditions outside normal restoration of service. The overall objective is to maintain continuity of safe and reliable customer service.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		1,579	1,579	1,579
Non-Labor		1,774	1,774	1,774
NSE		0	0	0
	Total	<u>3,353</u>	<u>3,353</u>	<u>3,353</u>
FTE		8.5	8.5	8.5

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00227.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002270 - RAMP- MANAGEMENT OF UG DIST. SERVICE
 Workpaper Detail: 002270.001 - RAMP- MANAGEMENT OF UG DIST. SERVICE

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C17
 RAMP Line Item Name: Management of Underground Distribution Service
 Tranche(s): Tranche1: N/A

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	3,353	3,353	3,353	3,353	10,059	9,639	11,908

Cost Estimate Changes from RAMP:

Within range

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 underground transformer forced outages requiring crew in-kind replacement	260.00	260.00	260.00	260.00	780.00	3.00	3.00

Work Unit Changes from RAMP:

Change in unit of measure from RAMP filing.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Beginning of Workpaper Group
002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00230.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	5,627	4,726	4,044	4,399	4,354	4,265	4,265	4,265
Non-Labor	3-YR Average	6,941	3,512	1,448	1,670	1,485	1,534	1,534	1,534
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		12,568	8,238	5,491	6,068	5,839	5,799	5,799	5,799
FTE	3-YR Average	27.8	21.0	17.5	19.3	20.6	19.1	19.1	19.1

Business Purpose:

This project is required to reinforce electric underground distribution cable systems by responsive action to system damages, deterioration and unsafe conditions. The overall objective is to maintain continuity of safe and reliable customer service.

Physical Description:

The project facilitates the responsive replacement of underground cable that has failed or has operated outside of its intended threshold of rated operation. The forecasted costs support labor and non-labor expenses for 350 distribution underground cable outages requiring crew replacements per year.

Project Justification:

This funding supports on going repairs and upgrades to underground equipment needed to maintain continuity of safe and reliable electric service to customers.

The alternatives to full funding for this project include:

- Applying splices to URD cable systems in response to failed cable segments , which may increase likelihood of future failures and require recurring, specialized training and additional workforce resources.
- Rebuilding undergrounded distribution lines as overhead equivalent systems, which may cause unnecessary investments in capital, reversing decades-long initiatives to underground overhead systems for public safety and customer-driven aesthetic purposes.
- Delay in emergency repairs of unsafe and outage conditions.

Above alternatives will have an adverse effect on public safety , service reliability, customer satisfaction and repair costs. Delaying responsive action could ultimately result in regulatory fines, increased number of customer complaints and higher long-term repair costs.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00230.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??The previous 5-year average methodology is discontinued due to recently modified operating protocols within Electric Regional Operations.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??The previous 5-year average methodology is discontinued due to recently modified operating protocols within Electric Regional Operations.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00230.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

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	3-YR Average	4,265	4,265	4,265	0	0	0	4,265	4,265	4,265
Non-Labor	3-YR Average	1,534	1,534	1,534	0	0	0	1,534	1,534	1,534
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		5,799	5,799	5,799	0	0	0	5,799	5,799	5,799
FTE	3-YR Average	19.1	19.1	19.1	0.0	0.0	0.0	19.1	19.1	19.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00230.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	2,656	3,702	3,316	3,792	3,786
Non-Labor	5,455	3,088	1,328	1,604	1,485
NSE	0	0	0	0	0
Total	8,111	6,789	4,644	5,396	5,270
FTE	16.5	2.4	1.5	1.5	1.0
Adjustments (Nominal \$)**					
Labor	1,439	-103	-92	-108	0
Non-Labor	347	-8	-8	-7	0
NSE	0	0	0	0	0
Total	1,786	-110	-100	-115	0
FTE	7.4	15.6	13.6	15.1	16.6
Recorded-Adjusted (Nominal \$)					
Labor	4,095	3,599	3,224	3,684	3,786
Non-Labor	5,802	3,080	1,320	1,597	1,485
NSE	0	0	0	0	0
Total	9,897	6,679	4,544	5,281	5,270
FTE	23.9	18.0	15.1	16.6	17.6
Vacation & Sick (Nominal \$)					
Labor	608	545	462	522	569
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	608	545	462	522	569
FTE	3.9	3.0	2.4	2.7	3.0
Escalation to 2021\$					
Labor	924	582	357	192	0
Non-Labor	1,140	432	128	73	0
NSE	0	0	0	0	0
Total	2,064	1,014	485	265	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	5,627	4,726	4,044	4,399	4,354
Non-Labor	6,941	3,512	1,448	1,670	1,485
NSE	0	0	0	0	0
Total	12,568	8,238	5,491	6,068	5,839
FTE	27.8	21.0	17.5	19.3	20.6

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00230.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	1,439	-103	-92	-108	0	
Non-Labor	347	-8	-8	-7	0	
NSE	0	0	0	0	0	
Total	1,786	-110	-100	-115	0	
FTE	7.4	15.6	13.6	15.1	16.6	

Detail of Adjustments to Recorded in Nominal \$:

Year	Labor	NLbr	NSE	Total	FTE
2017	1,439	347	0	1,786	7.4
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	1,439	347	0	1,786	7.4
2018	-103	-8	0	-110	-0.9
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	16.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-103	-8	0	-110	15.6
2019	-92	-8	0	-100	-0.8
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	14.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-92	-8	0	-100	13.6
2020	-108	-7	0	-115	-0.9
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	16.0
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-108	-7	0	-115	15.1
2021	0.001	0	0	0.001	16.6
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00230.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	16.6

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002300**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00230.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES
 Workpaper Detail: 002300.001 - RAMP- REPLACEMENT OF UNDERGROUND CABLES
 In-Service Date: Not Applicable

Description:

Replacement of failed underground cable.
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Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		4,265	4,265	4,265
Non-Labor		1,534	1,534	1,534
NSE		0	0	0
	Total	5,799	5,799	5,799
FTE		19.1	19.1	19.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00230.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002300 - RAMP- REPLACEMENT OF UNDERGROUND CABLES
 Workpaper Detail: 002300.001 - RAMP- REPLACEMENT OF UNDERGROUND CABLES

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C09
 RAMP Line Item Name: Underground Cable Replacement Program Reactive
 Tranche(s): Tranche1: N/A

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	5,838	5,799	5,799	5,799	17,397	17,250	21,309

Cost Estimate Changes from RAMP:

Within Range.

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 distribution underground cable outages requiring crew replacement	350.00	350.00	350.00	350.00	1,050.00	96.00	120.00

Work Unit Changes from RAMP:

Change in unit of measure from RAMP filing.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Beginning of Workpaper Group
002360 - RAMP- CAPITAL RESTORATION OF SERVICE

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00236.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	3-YR Average	11,116	6,306	6,464	3,688	6,366	5,506	5,506	5,506
Non-Labor	3-YR Average	4,971	3,441	3,702	3,897	4,450	4,016	4,016	4,016
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		16,087	9,747	10,166	7,585	10,817	9,522	9,522	9,522
FTE	3-YR Average	48.9	25.4	29.1	16.0	30.8	25.3	25.3	25.3

Business Purpose:

Repairs to SDG&E distribution facilities to restore electric service to customers in a timely manner and in compliance with the CPUC General Orders.

Physical Description:

This project is required to accomplish restoration of electric service due to system interruptions caused by severe inclement weather conditions, fires, equipment failures and damages caused by a third party. The forecasted costs support labor and non-labor expenses for 590 non-transformer forced outages requiring crew repair or in-kind replacement per year.

Project Justification:

This funding supports on going repairs and upgrades to non-transformer overhead and underground equipment needed to maintain continuity of safe and reliable electric service to customers.

Alternatives to the full forecast for funding for this project include:

- Delay in emergency repairs of unsafe conditions.

Above alternatives will have an adverse effect on public safety , service reliability, and customer reliability.

This workpaper captures comprehensive electric distribution asset failures and their associated repairs/replacements, namely incidents that are not solely caused by cable or transformer failures. This project also provides support for mitigating damages caused by unplanned, forced outages, which are expected to inevitably persist as part of the normal asset lifecycle.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00236.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??The previous 4-year average methodology is discontinued due to recently modified operating protocols within Electric Regional Operations.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.??The previous 4-year average methodology is discontinued due to recently modified operating protocols within Electric Regional Operations.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00236.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE

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	3-YR Average	5,506	5,506	5,506	0	0	0	5,506	5,506	5,506
Non-Labor	3-YR Average	4,016	4,016	4,016	0	0	0	4,016	4,016	4,016
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		9,522	9,522	9,522	0	0	0	9,522	9,522	9,522
FTE	3-YR Average	25.3	25.3	25.3	0.0	0.0	0.0	25.3	25.3	25.3

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00236.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	3,326	5,206	5,255	3,207	5,535
Non-Labor	2,845	3,044	3,389	3,735	4,450
NSE	0	0	0	0	0
Total	6,171	8,250	8,644	6,942	9,985
FTE	17.3	2.3	1.0	0.7	1.1
Adjustments (Nominal \$)**					
Labor	4,764	-404	-101	-118	0
Non-Labor	1,309	-26	-15	-8	0
NSE	0	0	0	0	0
Total	6,074	-430	-115	-126	0
FTE	24.6	19.5	24.0	13.1	25.2
Recorded-Adjusted (Nominal \$)					
Labor	8,090	4,802	5,154	3,089	5,535
Non-Labor	4,154	3,018	3,375	3,727	4,450
NSE	0	0	0	0	0
Total	12,245	7,820	8,529	6,815	9,985
FTE	41.9	21.8	25.0	13.8	26.3
Vacation & Sick (Nominal \$)					
Labor	1,201	728	738	438	831
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1,201	728	738	438	831
FTE	7.0	3.6	4.1	2.2	4.5
Escalation to 2021\$					
Labor	1,825	776	571	161	0
Non-Labor	816	424	327	170	0
NSE	0	0	0	0	0
Total	2,641	1,200	899	331	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	11,116	6,306	6,464	3,688	6,366
Non-Labor	4,971	3,441	3,702	3,897	4,450
NSE	0	0	0	0	0
Total	16,087	9,747	10,166	7,585	10,817
FTE	48.9	25.4	29.1	16.0	30.8

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00236.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		4,764	-404	-101	-118	0
Non-Labor		1,309	-26	-15	-8	0
NSE		0	0	0	0	0
	Total	6,074	-430	-115	-126	0
FTE		24.6	19.5	24.0	13.1	25.2

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	4,764	1,309	0	6,074	24.6
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	4,764	1,309	0	6,074	24.6
2018	-404	-26	0	-430	-3.4
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2018	0.001	0	0	0.001	22.9
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	-404	-26	0	-430	19.5
2019	-101	-15	0	-115	-0.8
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2019	0.001	0	0	0.001	24.8
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	-101	-15	0	-115	24.0
2020	-118	-8	0	-126	-1.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	14.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-118	-8	0	-126	13.1
2021	0.001	0	0	0.001	25.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00236.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE

<u>Year</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>
2021 Total	0.001	0	0	0.001	25.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002360**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00236.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE
 Workpaper Detail: 002360.001 - RAMP- CAPITAL RESTORATION OF SERVICE
 In-Service Date: Not Applicable

Description:

Repairs to SDG&E distribution facilities to restore electric service to customers in a timely manner and in compliance with the CPUC General Orders.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		5,506	5,506	5,506
Non-Labor		4,016	4,016	4,016
NSE		0	0	0
	Total	9,522	9,522	9,522
FTE		25.3	25.3	25.3

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00236.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002360 - RAMP- CAPITAL RESTORATION OF SERVICE
 Workpaper Detail: 002360.001 - RAMP- CAPITAL RESTORATION OF SERVICE

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity

RAMP Line Item ID: C07

RAMP Line Item Name: Restoration of Service

Tranche(s): Tranche1: N/A

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	10,816	9,522	9,522	9,522	28,566	30,078	37,154

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 non-transformer forced outages requiring crew repair or in-kind replacement	671.00	590.00	590.00	590.00	1,770.00	6,759.00	8,349.00

Work Unit Changes from RAMP:

Unit of measure changed from RAMP filing.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Beginning of Workpaper Group
002380 - RAMP - PLANNED CABLE REPLACEMENTS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00238.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002380 - RAMP- PLANNED CABLE REPLACEMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	204	473	151	996	646	655	528	519
Non-Labor	Zero-Based	781	2,892	899	2,899	3,644	3,605	2,957	2,912
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	986	3,365	1,051	3,895	4,290	4,260	3,485	3,431
FTE	Zero-Based	0.9	2.6	0.9	5.2	4.1	5.6	4.5	4.5

Business Purpose:

This budget is required to provide quality customer service and reliability to both new and existing customers by pro-actively replacing the underground cable system.

Physical Description:

This program takes a proactive approach by replacing underground feeder and branch cable that has been identified to have a high probability of failure based on electric reliability circuit analysis and cable failure data.

The scope of this project includes replacement of 33 miles of underground conductor in 2022, 38 miles in 2023, and 38 miles in 2024.

Project Justification:

Proactive/planned replacement will be based on the electric reliability circuit analysis or the cable failure data. The cable failure data will identify and prioritize the replacement of several poor cable vintages.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00238.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002380 - RAMP- PLANNED CABLE REPLACEMENTS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00238.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002380 - RAMP- PLANNED CABLE 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	Zero-Based	655	528	519	0	0	0	655	528	519
Non-Labor	Zero-Based	3,605	2,957	2,912	0	0	0	3,605	2,957	2,912
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		4,260	3,485	3,431	0	0	0	4,260	3,485	3,431
FTE	Zero-Based	5.6	4.5	4.5	0.0	0.0	0.0	5.6	4.5	4.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00238.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002380 - RAMP- PLANNED CABLE REPLACEMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	149	360	121	834	562
Non-Labor	653	2,536	820	2,775	3,644
NSE	0	0	0	0	0
Total	802	2,896	940	3,609	4,206
FTE	0.8	2.2	0.8	1.5	0.4
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	0	0	0	-2	0
NSE	0	0	0	0	0
Total	0	0	0	-2	0
FTE	0.0	0.0	0.0	3.0	3.1
Recorded-Adjusted (Nominal \$)					
Labor	149	360	121	834	562
Non-Labor	653	2,536	820	2,772	3,644
NSE	0	0	0	0	0
Total	802	2,896	940	3,607	4,206
FTE	0.8	2.2	0.8	4.5	3.5
Vacation & Sick (Nominal \$)					
Labor	22	55	17	118	84
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	22	55	17	118	84
FTE	0.1	0.4	0.1	0.7	0.6
Escalation to 2021\$					
Labor	34	58	13	44	0
Non-Labor	128	356	79	127	0
NSE	0	0	0	0	0
Total	162	414	93	170	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	204	473	151	996	646
Non-Labor	781	2,892	899	2,899	3,644
NSE	0	0	0	0	0
Total	986	3,365	1,051	3,895	4,290
FTE	0.9	2.6	0.9	5.2	4.1

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00238.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002380 - RAMP- PLANNED CABLE 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	-2	0
NSE		0	0	0	0	0
	Total	0	0	0	-2	0
FTE		0.0	0.0	0.0	3.0	3.1

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	0	-2	0	-2	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	3.0
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	-2	0	-2	3.0
2021	0.001	0	0	0.001	3.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	3.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002380**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00238.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002380 - RAMP- PLANNED CABLE REPLACEMENTS
 Workpaper Detail: 002380.001 - RAMP - PLANNED CABLE REPLACEMENTS
 In-Service Date: Not Applicable

Description:

Proactive/planned cable replacement based on electric reliability circuit analysis or cable failure data.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		655	528	519
Non-Labor		3,605	2,957	2,912
NSE		0	0	0
	Total	4,260	3,485	3,431
FTE		5.6	4.5	4.5

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00238.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002380 - RAMP- PLANNED CABLE REPLACEMENTS
 Workpaper Detail: 002380.001 - RAMP - PLANNED CABLE REPLACEMENTS

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C10-T1&T2
 RAMP Line Item Name: Underground Cable Replacement Program Proactive
 Tranche(s): Tranche1: UG Distribution

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	4,290	4,260	3,485	3,431	11,176	13,655	16,869

Cost Estimate Changes from RAMP:

The GRC forecast (which is a sum of T1-T2) is within the RAMP range (sum of T1-T2 range values).

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 miles of Cable Replaced	40.00	33.00	38.00	38.00	109.00	93.00	115.00

Work Unit Changes from RAMP:

The GRC forecast (which is a sum of T1-T2) is within the RAMP range (sum of T1-T2 range values).

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	2,082.000	465.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 002380

Beginning of Workpaper Group
002900 - RAMP- DOE SWITCH REPLACEMENT

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00290.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002900 - RAMP- DOE SWITCH REPLACEMENT

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	38	333	1,179	349	582	394	578	551
Non-Labor	Zero-Based	60	2,133	5,120	5,639	9,334	3,504	8,749	5,231
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	97	2,466	6,299	5,988	9,917	3,898	9,327	5,782
FTE	Zero-Based	0.2	1.4	5.8	1.6	2.9	3.4	5.0	4.7

Business Purpose:

This project removes or replaces defective overhead switches and underground oil, gas and air-insulated manual and SCADA switches that SDG&E has classified as Do not Operate Energized (DOE). Good engineering practices and CPUC general orders dictate that removal, replacement, or repairs of these switches be completed to ensure employee, contractor and public safety.

Physical Description:

Remove or replace overhead switches, and underground oil, gas, and air insulated manual and SCADA switches.

The scope of this project includes replacement of 20 switches in 2022, 40 switches in 2023, and 28 switches in 2024.

Project Justification:

This project supports SDG&E's good engineering practices and CPUC general orders regarding safe and reliable operation of the electrical distribution system.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 00290.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 002900 - RAMP- DOE SWITCH REPLACEMENT

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00290.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002900 - RAMP- DOE SWITCH REPLACEMENT

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	Zero-Based	394	578	551	0	0	0	394	578	551
Non-Labor	Zero-Based	3,504	8,749	5,231	0	0	0	3,504	8,749	5,231
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		3,898	9,327	5,782	0	0	0	3,898	9,327	5,782
FTE	Zero-Based	3.4	5.0	4.7	0.0	0.0	0.0	3.4	5.0	4.7

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00290.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002900 - RAMP- DOE SWITCH REPLACEMENT

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	21	254	940	294	506
Non-Labor	-58	1,870	4,667	5,396	9,334
NSE	0	0	0	0	0
Total	-37	2,124	5,607	5,689	9,841
FTE	0.1	1.0	4.2	0.1	0.0
Adjustments (Nominal \$)**					
Labor	6	0	0	-1	0
Non-Labor	108	0	0	-3	0
NSE	0	0	0	0	0
Total	114	0	0	-5	0
FTE	0.1	0.2	0.8	1.3	2.5
Recorded-Adjusted (Nominal \$)					
Labor	27	254	940	292	506
Non-Labor	50	1,870	4,667	5,392	9,334
NSE	0	0	0	0	0
Total	77	2,124	5,607	5,684	9,841
FTE	0.2	1.2	5.0	1.4	2.5
Vacation & Sick (Nominal \$)					
Labor	4	38	135	41	76
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	4	38	135	41	76
FTE	0.0	0.2	0.8	0.2	0.4
Escalation to 2021\$					
Labor	6	41	104	15	0
Non-Labor	10	263	453	246	0
NSE	0	0	0	0	0
Total	16	304	557	262	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	38	333	1,179	349	582
Non-Labor	60	2,133	5,120	5,639	9,334
NSE	0	0	0	0	0
Total	97	2,466	6,299	5,988	9,917
FTE	0.2	1.4	5.8	1.6	2.9

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00290.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002900 - RAMP- DOE SWITCH REPLACEMENT

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years		2017	2018	2019	2020	2021
Labor		6	0	0	-1	0
Non-Labor		108	0	0	-3	0
NSE		0	0	0	0	0
Total		114	0	0	-5	0
FTE		0.1	0.2	0.8	1.3	2.5

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	6	108	0	114	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	6	108	0	114	0.1
2018	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	0.001	0	0	0.001	0.2
2019	0.001	0	0	0.001	0.8
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	0.8
2020	-1	-3	0	-5	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	1.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-1	-3	0	-5	1.3
2021	0.001	0	0	0.001	2.5
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	2.5

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 002900**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00290.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002900 - High Speed Rail - Distribution
 Workpaper Detail: 002900.001 - RAMP- DOE SWITCH REPLACEMENT
 In-Service Date: Not Applicable

Description:

Replace deteriorated overhead manual and SCADA switches and underground oil, gas, and air insulated manual and SCADA switches identified as a result of corrective maintenance program (CMP) inspections or other activities.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		394	578	551
Non-Labor		3,504	8,749	5,231
NSE		0	0	0
	Total	3,898	9,327	5,782
FTE		3.4	5.0	4.7

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 00290.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 002900 - RAMP- DOE SWITCH REPLACEMENT
 Workpaper Detail: 002900.001 - RAMP- DOE SWITCH REPLACEMENT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C14
 RAMP Line Item Name: DOE Switch Replacement Underground
 Tranche(s): Tranche1: UG Distribution

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	9,916	3,898	9,327	5,782	19,007	16,516	20,402

Cost Estimate Changes from RAMP:
 Within Range

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 DOE Switches Replaced	39.00	20.00	40.00	28.00	88.00	80.00	99.00

Work Unit Changes from RAMP:
 Within Range

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	162.000	60.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 002900

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 290
Estimated In Service Date: ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMB/Non-RAMP	Unit Metric (ea./ft./mils)	2022		2023		2024		Total Cost	Comments			
					# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost			# of units	Cost per unit*	Total cost
1	Labor	Labor	RAMP	hours	5,995	\$ 64	\$ 383,880	8,813	\$ 64	\$ 564,032	8,393	\$ 64	\$ 537,152	\$ 1,484,864	Typically Crew of 5-8 people (On average) involved for a job. If the crew size is larger, it's possible they will assign 2 crews to the job. So that 5-8 people would double in size. Unit cost based on historical spend for labor on this project.
2	Service	Non-Labor	RAMP	ea	20	\$ 56,780	\$ 1,135,600	40	\$ 96,795	\$ 3,871,400	28	\$ 64,870	\$ 1,816,360	\$ 6,823,360	Removing old switches and new switches installation. Trench work for cabling - Expense varies per each Jurisdiction trench and removal as required. It also includes field paving. Unit cost based on historical spend.
3	Switches	Non-Labor	RAMP	ea	20	\$ 118,397	\$ 2,367,940	40	\$ 121,949	\$ 4,877,556	28	\$ 121,949	\$ 3,414,572	\$ 10,660,468	New Switches and Cables. Cost based on historical spend and vendor quote, assumes 3% price increase
4	Labor	Labor	RAMP	V&S	1,023	\$ 10	\$ 9,831	1,503	\$ 10	\$ 14,453	1,432	\$ 10	\$ 13,764	\$ 38,048	V&S Line
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
*Costs should be reported in direct costs only (no overheads)															
Summary															
	Labor	RAMP			393,511	\$	\$ 393,511								
	Non-Labor	RAMP			3,503,540	\$	\$ 3,503,540								
	Subtotal RAMP				3,897,051	\$	\$ 3,897,051								
	Labor	Non-RAMP				\$	\$ -								
	Non-Labor	Non-RAMP				\$	\$ -								
	Subtotal Non-RAMP					\$	\$ -								
	Total Project Forecast					\$	\$ 3,897,051							\$ 5,781,848	\$ 19,006,741

Beginning of Workpaper Group
062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06254.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	20	194	304	82	82
Non-Labor	Zero-Based	0	0	0	754	1,533	2,971	252	252
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	773	1,728	3,275	334	334
FTE	Zero-Based	0.0	0.0	0.0	0.2	1.5	2.6	0.7	0.7

Business Purpose:

Support the restoration of service to our distribution customers following outages caused by equipment failure by purchasing additional emergency spare and mobile equipment. The number of aging transformers on the SDG&E system is at the level that additional failures are expected despite our efforts to replace them before failure. Lead times for replacement units continue to be extended out farther every year. This project will provide two additional 69/12kV transformer for this purpose. Our existing mobile transformers are frequently utilized for routine maintenance and construction activities due to the high loading of our substations. This project will refurbish and replace major equipment on an aging 12/4kV mobile transformer to allow the rapid restoration of service. A failure of an existing 12kV circuit breaker could result in a lengthy outage. This project will correct that with the purchase of three mobile 12kV circuit breakers which can quickly be deployed to a substation to restore electric service to customers in the event of a circuit breaker failure.

Physical Description:

Purchase and install a 69/12 kV transformer on a concrete pad at Bay Blvd Substation, purchase and install a 69/12 kV transformer on a concrete pad at Vine Substation, refurbish and replace equipment on an existing trailer mounted 12/4kV transformer, purchase three mobile 12kV circuit breakers, and purchase spare bushings, insulators, disconnects, capacitor cans, arresters, and circuit breakers for the 12kV system.

The scope of this project includes installation of 20 substation equipment in 2022, 77 in 2023, and 77 in 2024.

Project Justification:

Purchasing two additional 69/12 kV transformer will help address outages caused by aging equipment failures exasperated by continued extended lead times to acquire replacement equipment; Refurbishing an existing mobile transformer will allow its continued use for routine maintenance and construction activities; Purchasing mobile circuit breakers will enable quick deployment to restore service to customers in the event a circuit breaker fails. This project will also purchase smaller substation material with long lead times in order to have sufficient supply of spares, including bushings for 12kV circuit breakers, bushings for 69/12kV and 138/12kV transformers, 12kV insulators, 12kV disconnect switches, 12kV capacitor cans, 12kV arresters, and spare 12kV circuit breakers.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 06254.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06254.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR

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	Zero-Based	304	82	82	0	0	0	304	82	82
Non-Labor	Zero-Based	2,971	252	252	0	0	0	2,971	252	252
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		3,275	334	334	0	0	0	3,275	334	334
FTE	Zero-Based	2.6	0.7	0.7	0.0	0.0	0.0	2.6	0.7	0.7

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06254.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	16	169
Non-Labor	0	0	0	721	1,533
NSE	0	0	0	0	0
Total	0	0	0	737	1,702
FTE	0.0	0.0	0.0	0.2	1.3
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	0	16	169
Non-Labor	0	0	0	721	1,533
NSE	0	0	0	0	0
Total	0	0	0	737	1,702
FTE	0.0	0.0	0.0	0.2	1.3
Vacation & Sick (Nominal \$)					
Labor	0	0	0	2	25
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	2	25
FTE	0.0	0.0	0.0	0.0	0.2
Escalation to 2021\$					
Labor	0	0	0	1	0
Non-Labor	0	0	0	33	0
NSE	0	0	0	0	0
Total	0	0	0	34	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	20	194
Non-Labor	0	0	0	754	1,533
NSE	0	0	0	0	0
Total	0	0	0	773	1,728
FTE	0.0	0.0	0.0	0.2	1.5

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06254.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR

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 062540**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06254.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR
 Workpaper Detail: 062540.001 - RAMP - EMERGENCY TRANSFORMER & SWITCHGEAR
 In-Service Date: Not Applicable

Description:

Purchase and install a 69/12 kV transformer on a concrete pad at Bay Blvd Substation, purchase and install a 69/12 kV transformer on a concrete pad at Vine Substation, refurbish and replace equipment on an existing trailer mounted 12/4kV transformer, purchase three mobile 12kV circuit breakers, and purchase spare bushings, insulators, disconnects, capacitor cans, arresters, and circuit breakers for the 12kV system.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		304	82	82
Non-Labor		2,971	252	252
NSE		0	0	0
	Total	3,275	334	334
FTE		2.6	0.7	0.7

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06254.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 062540 - RAMP- EMERGENCY TRANSFORMER & SWITCHGEAR
 Workpaper Detail: 062540.001 - RAMP - EMERGENCY TRANSFORMER & SWITCHGEAR

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C22
 RAMP Line Item Name: Emergency Transformer and Switchgear
 Tranche(s): Tranche1: N/A

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	1,727	3,275	334	334	3,943	658	812

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 substation equipment purchased	169.00	20.00	77.00	77.00	174.00	3.00	3.00

Work Unit Changes from RAMP:

Change in unit of measure from RAMP filing.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 062540

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 6754
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea/ft./mile)	2022		2023		2024		Total Cost	Comments	
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*			
1	FTE's	Labor	RAM	hr	4,630	\$ 64	1,250	\$ 64	1,250	\$ 64	\$ 80,000	Includes FTEs (1 lead substation engineer/ Internal Non-Union Labor, 1 construction engineer), utilized a blended rate of \$64/hr Includes contractor costs and procurement of equipment	
2	Transformer	Non-Labor	RAM	ea	3	\$ 707,672	-	-	-	-	\$ 2,123,016		
3	FTE's	Labor	RAM	V&S	790	\$ 10	213	\$ 10	213	\$ 10	\$ 2,050		
4	Misc Substation Equipment	Non-Labor	RAM	ea	20	\$ 9,132	77	\$ 3,275	77	\$ 3,275	\$ 252,175	unit cost consists of material procurement of bushings, insulators, disconnects, capacitor cans, arrestors, and circuit breakers. Higher unit cost in 2022 driven by cost of capacitor switches. Unit cost consists of material procurement	
5	Portable Circuit Breakers	Non-Labor	RAM	ea	3	\$ 21,627	-	-	-	-	\$ 64,881		
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
*Costs should be reported in direct costs only (no overheads)													
Summary													
Subtotal RAM		Labor	RAM			\$ 303,633		\$ 80,050		\$ 80,050	\$ 458,613		
		Non-Labor	RAM			\$ 2,800,537		\$ 252,175		\$ 252,175	\$ 3,450,827		
Subtotal Non-RAM		Labor	Non-RAM			\$ -		\$ -		\$ -	\$ -		
		Non-Labor	Non-RAM			\$ 3,279,450		\$ 334,225		\$ 334,225	\$ 3,942,900		
Total Project Forecast						\$ -		\$ -		\$ -	\$ -		
						\$ 3,279,450		\$ 334,225		\$ 334,225	\$ 3,942,900		

Beginning of Workpaper Group
112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 11249.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	65	57	69	36	67	250	253	253
Non-Labor	Zero-Based	304	172	138	28	767	733	731	731
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	369	229	207	64	834	983	984	984
FTE	Zero-Based	1.9	0.4	0.4	0.1	0.5	2.1	2.2	2.2

Business Purpose:

This project will improve system efficiency and operability by converting existing distribution line capacitors to SCADA controlled line capacitors that will enable remote VAR control and download circuit loading information to a web portal . The data/information provided by the SCADA capacitors will help improve capacitor reliability , minimize duration of outages, and enable expedited repair work.

Physical Description:

Convert existing distribution line capacitors to SCADA control.

The scope of this project is to replace 15 capacitors annually.

Project Justification:

SCADA controlled line capacitors will provide local and remote control , failure prediction, reduced operating cost, and should enhance distribution system performance through improved voltage and reactive power control. SCADA line capacitors will also provide early indications of problems and potential failures of line capacitors.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 11249.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 11249.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS

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	Zero-Based	250	253	253	0	0	0	250	253	253
Non-Labor	Zero-Based	733	731	731	0	0	0	733	731	731
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		983	984	984	0	0	0	983	984	984
FTE	Zero-Based	2.1	2.2	2.2	0.0	0.0	0.0	2.1	2.2	2.2

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 11249.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	38	43	55	30	58
Non-Labor	214	151	126	26	767
NSE	0	0	0	0	0
Total	253	195	181	56	825
FTE	0.3	0.3	0.3	0.0	0.0
Adjustments (Nominal \$)**					
Labor	9	0	0	0	0
Non-Labor	40	0	0	0	0
NSE	0	0	0	0	0
Total	49	0	0	0	0
FTE	1.4	0.1	0.0	0.1	0.4
Recorded-Adjusted (Nominal \$)					
Labor	48	43	55	30	58
Non-Labor	254	151	126	26	767
NSE	0	0	0	0	0
Total	301	195	181	56	825
FTE	1.7	0.4	0.3	0.1	0.4
Vacation & Sick (Nominal \$)					
Labor	7	7	8	4	9
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	7	7	8	4	9
FTE	0.2	0.0	0.1	0.0	0.1
Escalation to 2021\$					
Labor	11	7	6	2	0
Non-Labor	50	21	12	1	0
NSE	0	0	0	0	0
Total	61	28	18	3	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	65	57	69	36	67
Non-Labor	304	172	138	28	767
NSE	0	0	0	0	0
Total	369	229	207	64	834
FTE	1.9	0.4	0.4	0.1	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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 11249.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	9	0	0	0	0	
Non-Labor	40	0	0	0	0	
NSE	0	0	0	0	0	
Total	49	0	0	0	0	
FTE	1.4	0.1	0.0	0.1	0.4	

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	9	40	0	49	1.4
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	9	40	0	49	1.4
2018	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	0.001	0	0	0.001	0.1
2019 Total	0	0	0	0	0.0
2020	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	0	0	0.001	0.1
2021	0.001	0	0	0.001	0.4
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.4

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 112490**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 11249.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS
 Workpaper Detail: 112490.001 - RAMP- INSTALL SCADA ON LINE CAPACITORS
 In-Service Date: Not Applicable
 Description:

Convert the existing 1404 existing line capacitors to SCADA control.
--

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	250	253	253
Non-Labor	733	731	731
NSE	0	0	0
Total	983	984	984
FTE	2.1	2.2	2.2

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 11249.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS
 Workpaper Detail: 112490.001 - RAMP- INSTALL SCADA ON LINE CAPACITORS

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C29
 RAMP Line Item Name: SCADA Capacitors
 Tranche(s): Tranche1: OH Distribution; Tranche2: UG Distribution

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	583	688	689	689	2,066	2,028	2,504
Tranche 2 Cost Estimate	250	295	295	295	885	2,028	2,504

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates. The GRC forecast for this mitigation is allocated associated with revised tranching.

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 SCADA capacitors installed	11.00	11.00	11.00	11.00	33.00	45.00	57.00
Tranche 2 # of SCADA	4.00	4.00	4.00	4.00	12.00	45.00	57.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates. The GRC forecast for this mitigation is allocated associated with revised tranching.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	92.000	31.000
Tranche 2	68.000	31.000

RSE Changes from RAMP:

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 11249.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 112490 - RAMP - INSTALL SCADA ON LINE CAPACITORS
Workpaper Detail: 112490.001 - RAMP- INSTALL SCADA ON LINE CAPACITORS

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 112490

Beginning of Workpaper Group
132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13244.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	3	0	3	98	83	123
Non-Labor	Zero-Based	2	-2	0	0	613	5,915	18,530	36
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		3	-2	3	0	616	6,013	18,613	159
FTE	Zero-Based	0.6	-0.6	0.1	0.1	0.0	0.9	0.8	1.1

Business Purpose:

This project will rebuild and expand the existing Streamview substation to comply with present engineering standards and to allow for customer count/load balancing with other substations in the area. This will provide the substation with additional capacity to serve existing area load and future customer--driven electrical load growth, and to enhance the distribution and power network to minimize the potential for service disruptions to existing customers.

Physical Description:

Streamview is a 69kV/12kV substation serving 8 distribution circuits and 24,074 customers. Some of the major customer include San Diego State University, City of San Diego, San Diego Unified School District, AT&T, Verizon, T--Mobile, Sprint, and Salvation Army. This project will increase load capacity and reliability by rebuilding and expanding the existing SDG&E--owned Streamview substation property across three acquired residential parcels located to the west of the existing Streamview substation site. The acquisition of these three parcels provides an adequate area for rebuilding and upgrading the existing aging infrastructure. The project also includes overhead and underground transmission and distribution line upgrades that extend beyond the Streamview substation site. In 2022, construction will include installation of 13,200 ft of underground conduit, along with installation of 3 substation capacitor banks. In 2023, all distribution underground construction will be complete, along with the installation of 3 substation switchgear and 1 power transformer. By the end of 2024, all construction activities will be complete.

Project Justification:

This project is required for the purposes of both keeping up with growing energy demand in the service area, as well as bringing the aging asset up to current reliability and engineering standards.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 13244.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13244.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG

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	Zero-Based	98	83	123	0	0	0	98	83	123
Non-Labor	Zero-Based	5,915	18,530	36	0	0	0	5,915	18,530	36
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		6,013	18,613	159	0	0	0	6,013	18,613	159
FTE	Zero-Based	0.9	0.8	1.1	0.0	0.0	0.0	0.9	0.8	1.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13244.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	2	0	2
Non-Labor	2	-2	0	0	613
NSE	0	0	0	0	0
Total	2	-2	2	0	615
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	0.5	-0.5	0.1	0.1	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	2	0	2
Non-Labor	2	-2	0	0	613
NSE	0	0	0	0	0
Total	2	-2	2	0	615
FTE	0.5	-0.5	0.1	0.1	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	0.1	-0.1	0.0	0.0	0.0
Escalation to 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	3	0	3
Non-Labor	2	-2	0	0	613
NSE	0	0	0	0	0
Total	3	-2	3	0	616
FTE	0.6	-0.6	0.1	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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13244.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG

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	0.5	-0.5	0.1	0.1	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	0.001	0	0	0.001	0.5
Explanation:	Adding FTE due to labor charges				
2017 Total	0.001	0	0	0.001	0.5
2018	-0.001	0	0	-0.001	-0.5
Explanation:	Adding FTE due to labor charges				
2018 Total	-0.001	0	0	-0.001	-0.5
2019	0.001	0	0	0.001	0.1
Explanation:	Adding FTE due to labor charges				
2019 Total	0.001	0	0	0.001	0.1
2020	0.001	0	0	0.001	0.1
Explanation:	Adding FTE due to labor charges				
2020 Total	0.001	0	0	0.001	0.1
2021 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 132440**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13244.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG
 Workpaper Detail: 132440.001 - STREAMVIEW 69/12KV SUB REBUILD
 In-Service Date: 12/31/2024

Description:

This project rebuilds and expands the existing Streamview substation to comply with present engineering standards and to allow for customer count/load balancing with other substations in the area. This will provide the substation with additional capacity to serve existing area load and future customer--driven electrical load growth and enhance the distribution and power network to minimize the potential for service disruptions to existing customers.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		98	83	123
Non-Labor		5,815	17,882	0
NSE		0	0	0
	Total	5,913	17,965	123
FTE		0.9	0.8	1.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13244.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 132440 - STREAMVIEW 69/12KV SUB REBUILD-PRE ENG
 Workpaper Detail: 132440.002 - STREAMVIEW 69/12KV SUB REBUILD - GENERAL PLANT
 In-Service Date: 12/31/2024

Description:

This project rebuilds and expands the existing Streamview substation to comply with present engineering standards and to allow for customer count/load balancing with other substations in the area. This will provide the substation with additional capacity to serve existing area load and future customer--driven electrical load growth and enhance the distribution and power network to minimize the potential for service disruptions to existing customers.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	0	0
Non-Labor		100	648	36
NSE		0	0	0
	Total	100	648	36
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 132440

**Beginning of Workpaper Group
141280 - ARTESIAN 230KV EXPANSION**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14128.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141280 - ARTESIAN 230KV EXPANSION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	7	12	69	18	0	0
Non-Labor	Zero-Based	0	38	72	375	1,194	18	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	39	79	387	1,264	36	0	0
FTE	Zero-Based	0.0	0.1	0.1	0.1	0.5	0.1	0.0	0.0

Business Purpose:

This project will increase system reliability and capacity by expanding an existing 69/12kV substation and increasing the load carry capability of two existing 69kV power lines. The remaining forecast includes funds for IT support during the cutover phase of the new 230/69kV substation at Artesian.

Physical Description:

Construction of a new 230kV air insulated substation (AIS) on an SDG&E-owned parcel and interconnection with the existing 69/12 kV Artesian substation. The scope outside the substation includes pole replacements and reconductoring of approximately 2.2 miles of two 69kV power lines to accommodate increased power flow. The remaining scope to be completed consists of IT support including wiring, testing, and post-configuration work to complete the communication to the substation and have it remotely controlled and monitored. The scope includes 308 hours of phase II cutover support in 2022.

Project Justification:

The Artesian 230KV Substation Expansion Project will ensure the availability of safe and reliable electrical service and will provide additional capacity to serve long-term forecasted electrical demand requirements in the Electrical Needs Area (ENA), while also maintaining or improving system reliability and providing greater operational flexibility. The remaining IT cutovers are essential for substation remote operation.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 14128.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 141280 - ARTESIAN 230KV EXPANSION

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14128.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141280 - ARTESIAN 230KV EXPANSION

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	Zero-Based	18	0	0	0	0	0	18	0	0
Non-Labor	Zero-Based	18	0	0	0	0	0	18	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		36	0	0	0	0	0	36	0	0
FTE	Zero-Based	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14128.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141280 - ARTESIAN 230KV EXPANSION

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	6	10	60
Non-Labor	0	34	65	359	1,194
NSE	0	0	0	0	0
Total	0	34	71	369	1,255
FTE	0.0	0.0	0.1	0.1	0.4
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	0.1	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	6	10	60
Non-Labor	0	34	65	359	1,194
NSE	0	0	0	0	0
Total	0	34	71	369	1,255
FTE	0.0	0.1	0.1	0.1	0.4
Vacation & Sick (Nominal \$)					
Labor	0	0	1	1	9
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	1	1	9
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2021\$					
Labor	0	0	1	1	0
Non-Labor	0	5	6	16	0
NSE	0	0	0	0	0
Total	0	5	7	17	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	7	12	69
Non-Labor	0	38	72	375	1,194
NSE	0	0	0	0	0
Total	0	39	79	387	1,264
FTE	0.0	0.1	0.1	0.1	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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14128.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141280 - ARTESIAN 230KV EXPANSION

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	0.1	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 Total	0	0	0	0	0.0
2018	0.001	0	0	0.001	0.1
Explanation:	Adjusting FTE to align with labor charges				
2018 Total	0.001	0	0	0.001	0.1
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 141280**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14128.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141280 - ARTESIAN 230KV EXPANSION
 Workpaper Detail: 141280.001 - ARTESIAN 230KV EXPANSION
 In-Service Date: 11/30/2022

Description:

Construction of a new 230kV air insulated substation (AIS) on an SDG&E-owned parcel and interconnection with the existing 69/12 kV Artesian substation. The scope outside the substation includes pole replacements and reconductoring of approximately 2.2 miles of two 69kV power lines to accommodate increased power flow. The remaining scope to be completed consists of IT support including wiring, testing, and post-configuration work to complete the communication to the substation and have it remotely controlled and monitored.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		18	0	0
Non-Labor		18	0	0
NSE		0	0	0
	Total	36	0	0
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 141280

Beginning of Workpaper Group
141430 - RAMP- POWAY SUBSTATION REBUILD

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14143.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141430 - RAMP- POWAY SUBSTATION REBUILD

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	24	134	4	119	256	985	0	0
Non-Labor	Zero-Based	2,683	511	1,493	3,612	1,125	532	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		2,707	644	1,497	3,730	1,382	1,517	0	0
FTE	Zero-Based	0.1	0.8	0.0	0.8	1.6	8.4	0.0	0.0

Business Purpose:

This project will provide additional load serving capabilities to address forecast load growth by expanding/rebuilding the Poway Substation to include four 69kV transmission lines, SCADA control, and a new control shelter.

Physical Description:

Rebuild Poway 69kV substation to the standard low profile substation and rebuild the control shelter. This includes site development for extending the fence, rebuilding the transmission bus and constructing four (4) TL termination structures.

Ultimately, the substation will rebuild the distribution portion by installing two (2) new 30 MVA 69/12kV low profile transformers, two (2) 12kV metal clad switchgear, two (2) 12kV 7200MVAR cap banks, one (1) 69kV 50MVAR cap bank, and associated disconnects and breakers.

Work in 2022 includes energizing the two (2) new 69/12kV transformers, two (2) 12kV metal clad switchgear, two (2) 12kV 7200MVAR cap banks, and cutting over all 12kV circuits to the new switchgear sections. Finally, demolition and removal of the older 12kV and 69kV racks in addition to removal of all older 12kV yard equipment. All work is scheduled to be completed in 2022.

Project Justification:

The purpose of the rebuild at Poway Substation is to improve reliability and increase capacity by building a new and upgraded 69kV bus that can accept four 69kV transmission lines and four 69/12kV 28 MVA transformers (previous 69kV bus could only accept three 69kV transmission lines and two 69/12kV 28 MVA transformers), replacing the older 69kV circuit breakers and disconnect switches with new 69kV circuit breakers and disconnect switches, building a new control shelter with new and upgraded relays and communications devices, upgrading the older AC and DC sources with new standardized sources, replacing two 69/12kV 28MVA transformers with two new 69/12kV 28MVA transformers (one of these is a Wye-Delta Zig-Zag transformer needed to improve Protection), and by replacing the older 12kV bus and 12kV circuit breakers with the latest 12kV metal-clad enclosed switchgear technology.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 14143.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 141430 - RAMP- POWAY SUBSTATION REBUILD

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14143.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141430 - RAMP- POWAY SUBSTATION REBUILD

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	Zero-Based	985	0	0	0	0	0	985	0	0
Non-Labor	Zero-Based	532	0	0	0	0	0	532	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,517	0	0	0	0	0	1,517	0	0
FTE	Zero-Based	8.4	0.0	0.0	0.0	0.0	0.0	8.4	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14143.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141430 - RAMP- POWAY SUBSTATION REBUILD

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	17	102	3	99	223
Non-Labor	2,243	448	1,361	3,454	1,125
NSE	0	0	0	0	0
Total	2,260	549	1,364	3,553	1,348
FTE	0.1	0.7	0.0	0.7	1.4
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	17	102	3	99	223
Non-Labor	2,243	448	1,361	3,454	1,125
NSE	0	0	0	0	0
Total	2,260	549	1,364	3,553	1,348
FTE	0.1	0.7	0.0	0.7	1.4
Vacation & Sick (Nominal \$)					
Labor	3	15	0	14	33
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	3	15	0	14	33
FTE	0.0	0.1	0.0	0.1	0.2
Escalation to 2021\$					
Labor	4	16	0	5	0
Non-Labor	441	63	132	158	0
NSE	0	0	0	0	0
Total	445	79	132	163	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	24	134	4	119	256
Non-Labor	2,683	511	1,493	3,612	1,125
NSE	0	0	0	0	0
Total	2,707	644	1,497	3,730	1,382
FTE	0.1	0.8	0.0	0.8	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14143.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141430 - RAMP- POWAY SUBSTATION REBUILD

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 141430**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14143.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141430 - RAMP- POWAY SUBSTATION REBUILD
 Workpaper Detail: 141430.001 - RAMP- POWAY SUBSTATION REBUILD
 In-Service Date: 05/31/2022

Description:

Rebuild Poway 69kV substation to the standard low profile substation and rebuild the control shelter. This includes site development for extending the fence, rebuilding the transmission bus and constructing four (4) TL termination structures.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		985	0	0
Non-Labor		532	0	0
NSE		0	0	0
	Total	<u>1,517</u>	<u>0</u>	<u>0</u>
FTE		8.4	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14143.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 141430 - RAMP- POWAY SUBSTATION REBUILD
 Workpaper Detail: 141430.001 - RAMP- POWAY SUBSTATION REBUILD

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: New04
 RAMP Line Item Name: Poway 69kV Substation Rebuild
 Tranche(s): Tranche1: Substation

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	1,517	0	0	1,517	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item.

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 transformers installed	0.00	2.00	0.00	0.00	2.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item.

Supplemental Workpapers for Workpaper Group 141430

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 14143
Estimated In Service Date: 6/30/2022

Line Item	Unit Description	Labor/Non-Labor	RAM7/Non-RAMP	Unit Metric (ea./ft./mile)	# of units	2022		2023		2024		Total Cost	Comments
						Cost per unit*	Total cost	# of Cost	Total c	# of Cost	Total c		
1	FTE's	Labor	RAMP	hr	15,010	\$ 64	\$ 960,639	\$ -	\$ -	\$ -	\$ -	\$ 960,639	Includes FTEs (1 lead substation engineer, Internal Non-Union Labor) and Union Labor (crew work for 1 breaker is 3 people, 15 10-hour days), utilized a blended rate of \$64/hr. Unit cost includes the cost of construction associated with the two transformers. Procurement was completed in prior years.
2	Transformers	Non-Labor	RAMP	ea	2	\$ 132,924	\$ 265,848	\$ -	\$ -	\$ -	\$ -	\$ 265,848	Unit cost includes the cost of construction associated with the two switchgear. Procurement was completed in prior years.
3	Switchgear Installed	Non-Labor	RAMP	ea	2	\$ 132,924	\$ 265,848	\$ -	\$ -	\$ -	\$ -	\$ 265,848	Unit cost includes the cost of construction associated with the two switchgear. Procurement was completed in prior years.
4													
5	FTE's	Labor	RAMP	V&S	2,561	\$ 10	\$ 24,616	\$ -	\$ -	\$ -	\$ -	\$ 24,616	
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

*Costs should be reported in direct costs only (no overheads)

Summary		Labor	Non-Labor	RAMP	Non-RAMP	Total
Subtotal RAMP		\$ 985,254	\$ 531,696	\$ -	\$ -	\$ 1,516,950
Subtotal Non-RAMP		\$ -	\$ -	\$ -	\$ -	\$ -
Total Project Forecast		\$ 985,254	\$ 531,696	\$ -	\$ -	\$ 1,516,950

Beginning of Workpaper Group
152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 15243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	68	0	0	53	103	233	633	467
Non-Labor	Zero-Based	748	179	0	183	693	968	1,894	1,309
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		817	179	0	237	796	1,201	2,527	1,776
FTE	Zero-Based	0.5	0.0	0.0	0.6	1.4	2.0	5.3	3.9

Business Purpose:

This project provides reliability benefits and the funding supports the installation of the Supervisory Control and Data Acquisition (SCADA) system componets at the distribution portion in substations. These projects include addressing reliability concerns by replacing control and protection devices that are part of the aging infrastructure.

Physical Description:

This budget code will allow for distribution SCADA devices to be installed at various substations . This includes the design, procurement, and construction inside substation control shelters.

The scope of this project includes installing 18 relays in 2022, 30 in 2023, and 20 in 2024.

Project Justification:

Benefits of installing SCADA include:

1. Faster faulted circuit identifications
2. Faster isolation of faulted electric distribution circuits
3. Faster load restoration when system disturbances occur
4. Better system performance by mitigating electric system deficiencies

This increase in operational flexibility provided by a SCADA system will reduce the risk of unplanned outages which result in reliability benefits for the electric grid.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 15243.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 15243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION

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	Zero-Based	233	633	467	0	0	0	233	633	467
Non-Labor	Zero-Based	968	1,894	1,309	0	0	0	968	1,894	1,309
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,201	2,527	1,776	0	0	0	1,201	2,527	1,776
FTE	Zero-Based	2.0	5.3	3.9	0.0	0.0	0.0	2.0	5.3	3.9

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 15243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	50	0	0	45	89
Non-Labor	625	157	0	175	693
NSE	0	0	0	0	0
Total	675	157	0	220	783
FTE	0.4	0.0	0.0	0.5	1.2
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	50	0	0	45	89
Non-Labor	625	157	0	175	693
NSE	0	0	0	0	0
Total	675	157	0	220	783
FTE	0.4	0.0	0.0	0.5	1.2
Vacation & Sick (Nominal \$)					
Labor	7	0	0	6	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	7	0	0	6	13
FTE	0.1	0.0	0.0	0.1	0.2
Escalation to 2021\$					
Labor	11	0	0	2	0
Non-Labor	123	22	0	8	0
NSE	0	0	0	0	0
Total	134	22	0	10	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	68	0	0	53	103
Non-Labor	748	179	0	183	693
NSE	0	0	0	0	0
Total	817	179	0	237	796
FTE	0.5	0.0	0.0	0.6	1.4

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 15243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION

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 152430**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 15243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION
 Workpaper Detail: 152430.001 - RAMP - SUBSTATION SCADA EXPANSION-DISTRIBUTION
 In-Service Date: Not Applicable
 Description:

Installation, upgrades, and expansion of the Supervisory Control and Data Acquisition (SCADA) system for the distribution portion in substations.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		233	633	467
Non-Labor		968	1,894	1,309
NSE		0	0	0
	Total	<u>1,201</u>	<u>2,527</u>	<u>1,776</u>
FTE		2.0	5.3	3.9

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 15243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 152430 - RAMP- SUBSTATION SCADA EXPANSION-DISTRIBUTION
 Workpaper Detail: 152430.001 - RAMP - SUBSTATION SCADA EXPANSION-DISTRIBUTION

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C27
 RAMP Line Item Name: Distribution Substation SCADA Expansion
 Tranche(s): Tranche1: N/A

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	796	1,201	2,527	1,776	5,504	4,787	5,914

Cost Estimate Changes from RAMP:
 Within Range

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 Relays and Relay Panels	9.00	18.00	30.00	20.00	68.00	10.00	12.00

Work Unit Changes from RAMP:

Upon review and reflection of the submitted data, the SPACE management and finance team determined the work was more accurately represented being reported at a lower level by unit count (field replaceable Intelligent Electronic Devices) as opposed to higher level project tracking by substation. The forecast was further refined to make it more accurate, defensible, realistic and substantiated using SPACES Cost Estimating Tool.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 152430

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

TY2024 GRC FORECAST - DETAILS
 Budget Code: 15243
 Estimated In Service Date: ongoing

Line Item	2022		2023		2024		Total Cost	Comments	
	Unit Description	Unit Metric (ea./ft./mi)	# of units	Cost per unit*	Total cost	# of units			Cost per unit*
1	Labor	hours	3,500	\$65	\$227,500	9,500	\$65	\$617,500	Labor is unit estimated based upon assessment of job scope and proposals from experienced construction vendors. Labor rates are an aggregated average based upon agreed upon labor rates for the skilled labor involved in the work scope.
2	Relays and Relay Panels	ea	18	\$35,000	\$630,000	30	\$35,000	\$1,050,000	Relays and relay panel quantities and costs are cost based upon standard purchase amounts from both manufacturers and panel fabrication facilities. Quantities are calculated based upon the SPACE standard for the application of protective relays per project type.
3	Wires, cables, misc. materials	ea	18	\$4,200	\$75,600	30	\$4,200	\$126,000	Wiring, cables, and miscellaneous materials required to complete the relay and relay panel installations per the engineering designs are unit estimated based upon the aggregated average based upon agreed upon labor rates, as well as the engineers involved in the project when referencing the job scope. Costs are calculated based upon stocked items and standard unit quantities of materials commonly used in industry to install and commission such equipment.
4	Services	hours	1,500	\$175	\$262,500	4,100	\$175	\$717,500	Engineering and other services are unit estimated based upon assessment of job scope and proposals from experienced approved contractors. Labor rates are an aggregated average based upon agreed upon labor rates for the professional and skilled labor involved in the work scope.
5	Labor	V&S	597	\$10	\$5,823	1,621	\$10	\$15,823	
6					\$ -			\$ -	
Summary									
	Labor		\$ 233,329		\$ 633,323			\$ 466,659	\$ 1,333,311
	Non-Labor		\$ 968,100		\$ 1,893,500			\$ 1,309,000	\$ 4,170,600
	Subtotal RAMP		\$ 1,201,429		\$ 2,526,823			\$ 1,775,659	\$ 5,503,911
	Labor	Non-RAMP							
	Non-Labor	Non-RAMP							
	Subtotal Non-RAMP								
	Total Project Forecast		\$ 1,201,429		\$ 2,526,823			\$ 1,775,659	\$ 5,503,911

*Costs should be reported in direct costs only (no overheads);

Beginning of Workpaper Group
171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17160.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	14	0	0	0	47	705	77
Non-Labor	Zero-Based	634	3	5	0	0	46	3,050	24
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		634	17	5	0	0	93	3,755	101
FTE	Zero-Based	0.0	0.1	0.0	0.0	0.0	0.4	5.3	0.6

Business Purpose:

Work is required to replace aging infrastructure, upgrade 69kV bus and modernize the existing controls and protection.

Physical Description:

Upgrade the 69kV bus, replace all 69kV insulators, disconnects, potential transformers, protection and controls. Replace existing control shelter with a new block shelter. Replace Bk 32's 12kV switchgear with new switchgear (sized to fit on existing foundation) and cutover existing 12kV circuits to new switchgear. Replace and relocate existing 12kV capacitors. In 2023, 2 breakers will be energized. 1 breaker will be energized in 2024.

Project Justification:

San Marcos was originally constructed in 1968. Currently, the 69kV bus is undersized and consists of non-seismic rated pin & cap insulators and disconnects. The existing control shelter is too small for future additions of 69kV tieline positions and associated telecommunications upgrades. Four existing 69kV breakers are oil breakers identified on the SEA team's aging infrastructure list to be replaced in 2018. The existing Bank 32's 12kV switchgear is approximately 30 years old and needs to be replaced due to aging infrastructure and reliability requirements necessary for upgrading the existing relays and protection.

There are no alternatives to replacing aging infrastructure.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17160.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17160.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV

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	Zero-Based	47	705	77	0	0	0	47	705	77
Non-Labor	Zero-Based	46	3,050	24	0	0	0	46	3,050	24
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		93	3,755	101	0	0	0	93	3,755	101
FTE	Zero-Based	0.4	5.3	0.6	0.0	0.0	0.0	0.4	5.3	0.6

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17160.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	11	0	0	0
Non-Labor	530	3	4	0	0
NSE	0	0	0	0	0
Total	530	14	4	0	0
FTE	0.0	0.1	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	11	0	0	0
Non-Labor	530	3	4	0	0
NSE	0	0	0	0	0
Total	530	14	4	0	0
FTE	0.0	0.1	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	2	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	2	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	2	0	0	0
Non-Labor	104	0	0	0	0
NSE	0	0	0	0	0
Total	104	2	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	14	0	0	0
Non-Labor	634	3	5	0	0
NSE	0	0	0	0	0
Total	634	17	5	0	0
FTE	0.0	0.1	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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17160.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV

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 171600**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17160.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV
 Workpaper Detail: 171600.001 - RAMP - SAN MARCOS SUB REBUILD 69KV & 12KV
 In-Service Date: 06/30/2024

Description:

Replace aging infrastructure, upgrade 69kV bus, and modernize the existing controls and protection.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		47	705	77
Non-Labor		46	3,050	24
NSE		0	0	0
	Total	93	3,755	101
FTE		0.4	5.3	0.6

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17160.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 171600 - RAMP- SAN MARCOS SUB REBUILD 69KV & 12KV
 Workpaper Detail: 171600.001 - RAMP - SAN MARCOS SUB REBUILD 69KV & 12KV

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW05
 RAMP Line Item Name: San Marcos Substation 69kV Rebuild & 12kV Switchgear
 Tranche(s): Tranche1: Substation

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	93	3,755	101	3,949	0	0

Cost Estimate Changes from RAMP:

Newly indentified RAMP item

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 breakers installed	0.00	0.00	2.00	1.00	3.00	0.00	0.00

Work Unit Changes from RAMP:

Newly indentified RAMP item

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	6.000	0.000

RSE Changes from RAMP:

Newly indentified RAMP item

Supplemental Workpapers for Workpaper Group 171600

Beginning of Workpaper Group
172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	90	61	4	772	559	408	0	0
Non-Labor	Zero-Based	2,765	1,315	43	1,855	1,952	479	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		2,855	1,376	46	2,626	2,510	887	0	0
FTE	Zero-Based	0.8	0.6	0.0	4.9	3.3	3.5	0.0	0.0

Business Purpose:

The conclusion of this program will help SDG&E continue to provide safe, reliable, and quality customer service by enabling the deployment of Fault Locations, Isolation, and Restoration (FLISR) technology at San Ysidro substation. FLISR technology enables fault location, fault isolation, and customer restoration to occur automatically without the intervention of a system operator.

Physical Description:

Install switchgear and replace 12kV breakers, 12kV capacitor banks, and 12kV relaying at San Ysidro Substation.

Work in 2022 will include replacing 12kV breakers, installing two new 12kV bus tie disconnects, installation of 50kV SLP, replacing two 12kV capacitor banks, and demo/removal of de-energized 12kV bus, equipment, and below grade infrastructure. Design for cap bank replacements to occur in 2022. No work in 2024 is planned.

Project Justification:

Enable the deployment of FLISR technology to improve distribution system reliability when an outage occurs on a distribution circuit:

1. Faster faulted circuit identifications
2. Faster isolation of faulted electric distribution circuits.
3. Faster load restoration when system disturbances occur
4. Better system performance by mitigating electric system deficiencies.

With FLISR technology, fault location, fault isolation, and customer reestoration on a distribution circuit occurs automatically without the intervention of a distribution system operator. This results in safely improving the distribution system reliability impacts of distribution circuits in substations.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17243.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR

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	Zero-Based	408	0	0	0	0	0	408	0	0
Non-Labor	Zero-Based	479	0	0	0	0	0	479	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		887	0	0	0	0	0	887	0	0
FTE	Zero-Based	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	65	46	3	646	486
Non-Labor	2,311	1,153	39	1,774	1,952
NSE	0	0	0	0	0
Total	2,377	1,199	42	2,420	2,438
FTE	0.7	0.5	0.0	4.2	2.8
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	65	46	3	646	486
Non-Labor	2,311	1,153	39	1,774	1,952
NSE	0	0	0	0	0
Total	2,377	1,199	42	2,420	2,438
FTE	0.7	0.5	0.0	4.2	2.8
Vacation & Sick (Nominal \$)					
Labor	10	7	0	92	73
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	10	7	0	92	73
FTE	0.1	0.1	0.0	0.7	0.5
Escalation to 2021\$					
Labor	15	8	0	34	0
Non-Labor	454	162	4	81	0
NSE	0	0	0	0	0
Total	469	169	4	115	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	90	61	4	772	559
Non-Labor	2,765	1,315	43	1,855	1,952
NSE	0	0	0	0	0
Total	2,855	1,376	46	2,626	2,510
FTE	0.8	0.6	0.0	4.9	3.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR

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 172430**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR
 Workpaper Detail: 172430.001 - RAMP - SUBSTATION MOD TO SUPPORT FLISR
 In-Service Date: 06/30/2022

Description:

Install switchgear and replace 12kV breakers, 12kV capacitor banks, and 12kV relaying at San Ysidro Substation.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	408	0	0
Non-Labor	479	0	0
NSE	0	0	0
Total	887	0	0
FTE	3.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17243.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172430 - RAMP- SUBSTATION MOD TO SUPPORT FLISR
 Workpaper Detail: 172430.001 - RAMP - SUBSTATION MOD TO SUPPORT FLISR

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW06
 RAMP Line Item Name: Substation Modification To Support FLISR
 Tranche(s): Tranche1: Substation

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	887	0	0	887	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item.

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 capacitor banks installed	0.00	2.00	0.00	0.00	2.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item.

Supplemental Workpapers for Workpaper Group 172430

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 17243
Estimated In Service Date: 12/31/2022

Line Item	Unit Description	Labor/Non-Labor	RAM7/Non-RAMP	Unit Metric (ea./ft./mile)	# of units	2022		2023		2024		Comments
						Cost per unit*	Total cost	# of Units	Total Cost	# of Units	Total Cost	
1	FTE's	Labor	RAMP	hr	6,223	\$ 64	\$ 398,216		\$ -		\$ -	Includes FTEs (1 lead substation engineer Internal Non-Union Labor, 1 Civil, 3 Environmental, 1 protection engineer, 1 construction engineer) and Union Labor (crew work for 1 breaker is 3 people, 15 10-hour days), utilized a blended rate of \$64/hr Replacement of 2 x 12kV Capacitor banks and associated contractor costs (split total contract costs among breakers and cap banks) Replacement of 2 x 12kV breakers and install switchgear and associated contractor costs (split total contract costs among breakers and cap banks). Procurement for this equipment was in a prior year.
2	Capacitor Banks	Non-Labor	RAMP	ea	2	\$ 234,682	\$ 469,363		\$ -		\$ -	
3	Breakers	Non-Labor	RAMP	ea	2	\$ 4,928	\$ 9,857		\$ -		\$ -	
4	FTE's	Labor	RAMP	V&S	1,061	\$ 10	\$ 10,204		\$ -		\$ -	
5							\$ -		\$ -		\$ -	
6							\$ -		\$ -		\$ -	
7							\$ -		\$ -		\$ -	
8							\$ -		\$ -		\$ -	
9							\$ -		\$ -		\$ -	
10							\$ -		\$ -		\$ -	
11							\$ -		\$ -		\$ -	
12							\$ -		\$ -		\$ -	
13							\$ -		\$ -		\$ -	
14							\$ -		\$ -		\$ -	
15							\$ -		\$ -		\$ -	

*Costs should be reported in direct costs only (no overheads)

Summary		Labor	Non-Labor	RAMP	Non-RAMP	Total
Subtotal RAMP		\$ 408,420	\$ 479,220	\$ -	\$ -	\$ 887,640
Subtotal Non-RAMP		\$ -	\$ -	\$ -	\$ -	\$ -
Total Project Forecast		\$ 408,420	\$ 479,220	\$ -	\$ -	\$ 887,640

Beginning of Workpaper Group
172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17261.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	11	19	40	196	248	181	173	173
Non-Labor	Zero-Based	7	37	93	651	1,624	692	659	659
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		18	56	133	847	1,872	873	832	832
FTE	Zero-Based	0.1	0.1	0.2	0.9	1.4	1.6	1.5	1.5

Business Purpose:

This budget provides funding to replace overhead distribution switches that have shown signs of severe or quickly emerging environmental contamination and corrosion that may lead to catastrophic failure.

Physical Description:

SDG&E has identified various data attributes that characterize high risk switches and has prioritized several switches that can be removed in the near term to avoid failure. For example, SDG&E's engineering analyses of failed overhead switches have determined that various switches, such as hooksticks, often fail due to excessive corrosion of major components. SDG&E will locate and replace high risk OH switches, in-line switches, and cutouts found to be in a state of disrepair with new designs and/or dynamic protective devices.

The scope of this project includes replacement of 21 switches in 2022, 20 switches in 2023, and 20 switches in 2024.

Project Justification:

This project will reduce the risk of catastrophic switch failure by replacing high risk OH switches, in-line switches, and cutouts that are located in environmental contamination and corrosion zones. This equipment will be replaced with new and improved designs and/or dynamic protective devices. Switches in these areas have failed in as little as eight years of operation along the dense salt fog coast. Distribution switches have higher propensity for failure and/or inoperability along the coast identified by the SDG&E-defined "Contamination District One" area which includes assets within two miles of the coast. Their inoperability during an outage can extend the impact of an outage to the next upstream protection device causing a prolonged forced outage as crews are required to install additional jumpers or other workarounds. Switches that are not consistently exercised are at increased risk of being inoperable when needed. The inoperable state of the switch poses safety risks to field operating personnel due to potential flash or overexertion by the employee.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17261.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT

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	Zero-Based	181	173	173	0	0	0	181	173	173
Non-Labor	Zero-Based	692	659	659	0	0	0	692	659	659
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		873	832	832	0	0	0	873	832	832
FTE	Zero-Based	1.6	1.5	1.5	0.0	0.0	0.0	1.6	1.5	1.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17261.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	5	15	32	164	216
Non-Labor	0	32	84	622	1,624
NSE	0	0	0	0	0
Total	5	47	117	787	1,839
FTE	0.0	0.0	0.2	0.0	0.0
Adjustments (Nominal \$)**					
Labor	3	0	0	0	0
Non-Labor	6	0	0	0	0
NSE	0	0	0	0	0
Total	8	0	0	0	0
FTE	0.1	0.1	0.0	0.8	1.2
Recorded-Adjusted (Nominal \$)					
Labor	8	15	32	164	216
Non-Labor	6	32	84	622	1,624
NSE	0	0	0	0	0
Total	14	47	117	787	1,839
FTE	0.1	0.1	0.2	0.8	1.2
Vacation & Sick (Nominal \$)					
Labor	1	2	5	23	32
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	2	5	23	32
FTE	0.0	0.0	0.0	0.1	0.2
Escalation to 2021\$					
Labor	2	2	4	9	0
Non-Labor	1	5	8	28	0
NSE	0	0	0	0	0
Total	3	7	12	37	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	11	19	40	196	248
Non-Labor	7	37	93	651	1,624
NSE	0	0	0	0	0
Total	18	56	133	847	1,872
FTE	0.1	0.1	0.2	0.9	1.4

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17261.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT

Summary of Adjustments to Recorded:

In Nominal \$(000)					
Years	2017	2018	2019	2020	2021
Labor	3	0	0	0	0
Non-Labor	6	0	0	0	0
NSE	0	0	0	0	0
Total	8	0	0	0	0
FTE	0.1	0.1	0.0	0.8	1.2

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	3	6	0	8	0.1
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	3	6	0	8	0.1
2018	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	0.001	0	0	0.001	0.1
2019 Total	0	0	0	0	0.0
2020	0.001	0	0	0.001	0.8
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	0	0	0.001	0.8
2021	0.001	0	0	0.001	1.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	1.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 172610**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17261.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT
 Workpaper Detail: 172610.001 - RAMP - HIGH RISK SWITCH REPLACEMENT PROJECT
 In-Service Date: Not Applicable
 Description:

Replace high-risk OH switches, in-line switches, and cutouts from environmental contamination and corrosions with new, improved betterment designs and/or dynamic protective devices.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		181	173	173
Non-Labor		692	659	659
NSE		0	0	0
	Total	873	832	832
FTE		1.6	1.5	1.5

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17261.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172610 - RAMP- HIGH RISK SWITCH REPLACEMENT PROJECT
 Workpaper Detail: 172610.001 - RAMP - HIGH RISK SWITCH REPLACEMENT PROJECT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C04-T1&T2&T3
 RAMP Line Item Name: Distribution Overhead Switch Replacement Program
 Tranche(s): Tranche1: OH Distribution

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	1,871	873	832	832	2,537	2,286	2,825

Cost Estimate Changes from RAMP:

The GRC forecast (which is a sum of T1-T3) is within range.

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 Switches Replaced	35.00	21.00	20.00	20.00	61.00	79.00	98.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates. Units and range are a summation of T1-T3.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	276.000	101.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 172610

**Beginning of Workpaper Group
17264A - RAMP - NORTH HARBOR**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17264.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 17264A - RAMP- NORTH HARBOR

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	0	639	213
Non-Labor	Zero-Based	0	0	0	0	0	0	22,642	7,548
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	23,281	7,761
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	7.0	2.3

Business Purpose:

This project aligns with SDG&E's focus on addressing public/employee safety issues, proactively addressing potential reliability concerns, and replacing aging infrastructure. This project replaces vintage unjacketed & PILC (lead covered) feeder cables, lead-poly cable splices, and will provide quicker service restoration times with available empty conduits. Inoperable DOE switches will be replaced with new a SCADA switch.

Physical Description:

Replace underground electrical distribution conduit and cable in portions of W. Laural Street, North Harbor Drive (in front of the San Diego Airport) and Harbor Island Drive; Replace unusable (collapsed, blocked, and containing asbestos) conduit with usable spare conduit; Replace/expand existing handholes to allow sufficient space to safety work; Trench and install approximately 15,500 feet of new conduit packages ranging in quantities from approximately 4 1/2 feet to 10 1/2 feet; Replace approximately 80,820 linear feet of mixed types of cable, including PILC and unjacketed cables; Install sectionalizing switches, and remove additional cable as feasible. Also includes replacing a "do not operate energized" switches with new SCADA switch and installing empty conduit for quicker restoration time. In 2023, construction will include the installation of approximately 60,615 linear feet of cable. By the end of 2024, an additional 20,205 linear feet of cable will be installed.

Project Justification:

This project addresses identified safety and service reliability issues associated with the electrical distribution circuit providing service to the San Diego International Airport. The removal, replacement, and expansion of components of this underground cable addresses safety concerns regarding potential asbestos exposure in the area and the potential for long duration outage events and associated regulatory scrutiny and penalties associated with a cable failure.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17264.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 17264A - RAMP- NORTH HARBOR

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 17264A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17264.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 17264A - RAMP- NORTH HARBOR
 Workpaper Detail: 17264A.001 - RAMP - NORTH HARBOR
 In-Service Date: 04/30/2024

Description:

Replace underground electrical distribution conduit and cable in portions of W. Laural Street, North Harbor Drive (in front of the San Diego Airport) and Harbor Island Drive; Replace unusable (collapsed, blocked, and containing asbestos) conduit with usable spare conduit; Replace/expand existing handholes to allow sufficient space to safety work; Trench and install approximately 15,500 feet of new conduit packages ranging in quantities from approximately 4 1/2 feet to 10 1/2 feet; Replace approximately 47,800 feet of mixed types of cable, including PILC and unjacketed cables; Install sectionalizing switches, and remove additional cable as feasible. Also includes replacing a "do not operate energized" (DOE) switch with new SCADA switch and installing empty conduit for quicker restoration time.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	639	213
Non-Labor		0	22,642	7,548
NSE		0	0	0
	Total	0	23,281	7,761
FTE		0.0	7.0	2.3

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17264.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 17264A - RAMP- NORTH HARBOR
 Workpaper Detail: 17264A.001 - RAMP - NORTH HARBOR

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity

RAMP Line Item ID: C10-T3

RAMP Line Item Name: Underground Cable Replacement Program Proactive North Harbor Project

Tranche(s): Tranche1: N/A; Tranche2: N/A; Tranche3: UG Distribution

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	0	0	0	0	0	0
Tranche 2 Cost Estimate	0	0	0	0	0	0	0
Tranche 3 Cost Estimate	0	0	23,281	7,761	31,042	12,674	15,657

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 underground cable feet	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tranche 2 # of underground cable fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tranche 3 # of underground cable fee	0.00	0.00	60,615.00	20,205.00	80,820.00	38,446.00	47,492.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17264.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 17264A - RAMP- NORTH HARBOR
Workpaper Detail: 17264A.001 - RAMP - NORTH HARBOR

Tranche 2	0.000	0.000
Tranche 3	1.000	201.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 17264A

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

TY2024 GRC FORECAST - DETAILS
Budget Code: 17764
Estimated In Service Date: 4/30/2024

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	(e.g., /mile)	2022		2023		2024		Total Cost	Comments	
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*			
1	No. of hours worked	Labor	RAMP	Hours	-	\$ 50	12,484	\$ 50	4,155	\$ 50	207,500	880,950	Nearly cost per unit was determined using an average rate of internal employees working on this project. Number of units was based on historical analysis of monthly burn rate of internal labor based on stage of project.
2	No. of underground cable feet	Non-Labor	RAMP	Feet	-	\$ -	60,615	\$ 374	20,205	\$ 374	7,547,486	30,189,921	Project scope entails replacing approx. 80,820 feet of mixed cable types, which includes PIC (lead covered), vintage unjacketed and jacketed cables. Assumption is 75% of this \$80,820 will be done in the year 2023 and remaining 25% in 2024. Cost per foot was made up of material and labor. This is estimated construction cost was then divided by total anticipated footage.
3	FTE's	Labor	RAMP	M/S	-	\$ 8	2,126	\$ 8	709	\$ 8	5,323	21,292	
4						\$ -	\$ -				\$ -	\$ -	
5						\$ -	\$ -				\$ -	\$ -	
6						\$ -	\$ -				\$ -	\$ -	
7						\$ -	\$ -				\$ -	\$ -	
8						\$ -	\$ -				\$ -	\$ -	
9						\$ -	\$ -				\$ -	\$ -	
10						\$ -	\$ -				\$ -	\$ -	
11						\$ -	\$ -				\$ -	\$ -	
12						\$ -	\$ -				\$ -	\$ -	
13						\$ -	\$ -				\$ -	\$ -	
14						\$ -	\$ -				\$ -	\$ -	
15						\$ -	\$ -				\$ -	\$ -	
*Costs should be reported in direct costs only (no overheads)													
Summary													
		Labor	RAMP			\$ 639,169		\$ 713,073		\$ 852,242		852,242	
		Non-Labor	RAMP			\$ 2,547,486		\$ 7,547,486		\$ 30,189,921		30,189,921	
		Labor	Non-RAMP			\$ 23,281,610		\$ 7,760,553		\$ 31,042,163		31,042,163	
		Non-Labor	Non-RAMP			\$ -		\$ -		\$ -		-	
						\$ -		\$ -		\$ -		-	
						\$ -		\$ -		\$ -		-	
						\$ 23,281,610		\$ 7,760,553		\$ 31,042,163		31,042,163	

Beginning of Workpaper Group
172690 - RAMP- 4KV MODERNIZATION

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17269.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172690 - RAMP- 4KV MODERNIZATION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	24	31	49	1,182	1,784	1,784
Non-Labor	Zero-Based	0	0	570	3,045	4,649	2,997	4,848	4,758
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	594	3,076	4,698	4,179	6,632	6,542
FTE	Zero-Based	0.0	0.0	0.1	0.0	0.2	10.1	15.3	15.3

Business Purpose:

The purpose of this project is to increase reliability by targeting the replacement of poles, wires, equipment, hardware, degraded UG structures, transformers, switches, and other distribution equipment as necessary to accommodate conversion of 4 kV facilities to modern 12 kV distribution. At the culmination of the distribution cutover, the associated 4kV substation infrastructure will be removed as applicable.

Physical Description:

Upgrade legacy equipment as necessary to convert 4 kV infrastructure to modern 12 kV standards.

The scope of this project includes conversion of 5.9 miles of conductor in 2022, 7 miles of conductor in 2023, and 6 miles of conductor in 2024.

Project Justification:

Project utilizes risk-ranking methodology per 2016 RAMP and subsequent analyses to determine optimal cost-benefit and safety risk reduction. Work generally includes overhead and underground rebuilds and reconfigurations with considerations for added operability, including sectionalizing devices and advanced protection.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17269.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 172690 - RAMP- 4KV MODERNIZATION

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17269.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172690 - RAMP- 4KV MODERNIZATION

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	Zero-Based	1,182	1,784	1,784	0	0	0	1,182	1,784	1,784
Non-Labor	Zero-Based	2,997	4,848	4,758	0	0	0	2,997	4,848	4,758
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		4,179	6,632	6,542	0	0	0	4,179	6,632	6,542
FTE	Zero-Based	10.1	15.3	15.3	0.0	0.0	0.0	10.1	15.3	15.3

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17269.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 172690 - RAMP- 4KV MODERNIZATION

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	19	26	43
Non-Labor	0	0	520	2,926	4,649
NSE	0	0	0	0	0
Total	0	0	539	2,952	4,692
FTE	0.0	0.0	0.0	0.0	0.1
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	0	0	0	-14	0
NSE	0	0	0	0	0
Total	0	0	0	-14	0
FTE	0.0	0.0	0.1	0.0	0.1
Recorded-Adjusted (Nominal \$)					
Labor	0	0	19	26	43
Non-Labor	0	0	520	2,912	4,649
NSE	0	0	0	0	0
Total	0	0	539	2,938	4,692
FTE	0.0	0.0	0.1	0.0	0.2
Vacation & Sick (Nominal \$)					
Labor	0	0	3	4	6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	3	4	6
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	2	1	0
Non-Labor	0	0	50	133	0
NSE	0	0	0	0	0
Total	0	0	53	134	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	24	31	49
Non-Labor	0	0	570	3,045	4,649
NSE	0	0	0	0	0
Total	0	0	594	3,076	4,698
FTE	0.0	0.0	0.1	0.0	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17269.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172690 - RAMP- 4KV MODERNIZATION

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	-14	0
NSE	0	0	0	0	0
Total	0	0	0	-14	0
FTE	0.0	0.0	0.1	0.0	0.1

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	0.1
2020	-0.129	-14	0	-14	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-0.128	-14	0	-14	0.0
2021	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 172690**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17269.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172690 - RAMP- 4KV MODERNIZATION
 Workpaper Detail: 172690.001 - RAMP - 4KV MODERNIZATION
 In-Service Date: Not Applicable

Description:

Upgrade legacy equipment as necessary to convert 4 kV infrastructure to modern 12 kV standards. Work generally includes overhead and underground rebuilds and reconfigurations with considerations for added operability, including sectionalizing devices, and advanced protection.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		1,182	1,784	1,784
Non-Labor		2,997	4,848	4,758
NSE		0	0	0
	Total	4,179	6,632	6,542
FTE		10.1	15.3	15.3

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17269.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 172690 - RAMP- 4KV MODERNIZATION
 Workpaper Detail: 172690.001 - RAMP - 4KV MODERNIZATION

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C03
 RAMP Line Item Name: 4kV Modernization Program Distribution
 Tranche(s): Tranche1: OH Distribution

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	4,698	4,179	6,632	6,542	17,353	17,492	21,606

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 miles of conductor replaced	7.00	5.90	7.00	6.00	18.90	20.00	25.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	27.000	11.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 172690

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 17269
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	Conductor	Non-Labor	RAMP	ea	5.9	\$ 329,804	7	\$ 465,353	6	\$ 542,318	\$ 3,257,508	Cost per unit based on historical material spend per mile, includes labor based on historical internal labor hours and spend per mile. Based on historical service contract spend, and Vendor quote which includes contract labor and material. Assumes installation labor and equipment such as: hardware, degraded UG structures, transformers, switches, and other distribution equipment to be replaced. Unit estimates based on RAMP and urgent safety conditions, consider performing a substation to 12/4 W stepdown conversion to expedite safety mitigation and defer distribution upgrades. 2022 units are outside of the RAMP range due to design and construction timelines for the selected projects.
2	Labor	Labor	RAMP	hours	18,002	\$ 64	27,175	\$ 64	27,175	\$ 64	\$ 1,739,200	
3	Service	Non-Labor	RAMP	ea	5.9	\$ 178,109	7	\$ 227,150	6	\$ 250,113	\$ 1,500,678	
4	Labor	Labor	RAMP	hrs	3,071	\$ 10	4,636	\$ 10	4,636	\$ 10	\$ 44,665	
5						\$ 29,522					\$ 218,653	
6						\$ -					\$ -	
7						\$ -					\$ -	
8						\$ -					\$ -	
9						\$ -					\$ -	
10						\$ -					\$ -	
11						\$ -					\$ -	
12						\$ -					\$ -	
13						\$ -					\$ -	
14						\$ -					\$ -	
15						\$ -					\$ -	
*Costs should be reported in direct costs only (no overheads)												
Summary												
Subtotal RAMP		Labor	RAMP		\$ 1,181,664	\$ 1,783,765		\$ 1,783,765		\$ 4,793,175		
		Non-Labor	RAMP		\$ -	\$ -		\$ -		\$ -		
		Labor	Non-RAMP		\$ 4,178,330	\$ 6,641,321		\$ 6,641,321		\$ 17,351,603		
		Non-Labor	Non-RAMP		\$ -	\$ -		\$ -		\$ -		
Total Project Forecast					\$ 4,178,330	\$ 6,641,321		\$ 6,641,321		\$ 17,351,603		

Beginning of Workpaper Group
192520 - RAMP- URBAN SUBSTATION REBUILD

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19252.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 192520 - RAMP- URBAN SUBSTATION REBUILD

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	48	55	114	75	0
Non-Labor	Zero-Based	0	0	0	910	478	5,456	15,943	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	958	533	5,570	16,018	0
FTE	Zero-Based	0.0	0.0	0.0	0.5	0.6	1.2	0.8	0.0

Business Purpose:

Urban Substation was originally constructed in 1976. Presently, the existing 12kV switchgear and capacitors are approximately 35 years old and needs to be replaced due to aging infrastructure and reliability concerns.

Physical Description:

Remove existing screen wall and construct a new CMU wall at the property line to make space for the relocation and replacement of existing 12kV switchgear and capacitor banks. The new equipment installed consists of four 12kV ¼ switchgear sections and four 12kV capacitor banks. Fourteen (14) existing 12kV circuits will be transferred to the new switchgear. Removals will include the aging 12kV switchgear and capacitor banks. In 2022, delivery of one switchgear section will take place. In 2023, delivery of the remaining three switchgear sections will take place, along with the installation of all four sections.

Project Justification:

Work is required to replace aging infrastructure due to reliability concerns and modernize existing controls and protections. The purpose of this project is to replace the existing 12kV switchgear which currently has temporary repairs to the roof. In order to accomplish this, a new CMU wall will need to be constructed extending the current wall to the property line allowing us to reliably serve the fourteen (14) existing 12kV circuits while building the new 12kV switchgear.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 19252.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 192520 - RAMP- URBAN SUBSTATION REBUILD

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19252.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 192520 - RAMP- URBAN SUBSTATION REBUILD

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	Zero-Based	114	75	0	0	0	0	114	75	0
Non-Labor	Zero-Based	5,456	15,943	0	0	0	0	5,456	15,943	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		5,570	16,018	0	0	0	0	5,570	16,018	0
FTE	Zero-Based	1.2	0.8	0.0	0.0	0.0	0.0	1.2	0.8	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19252.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 192520 - RAMP- URBAN SUBSTATION REBUILD

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	40	48
Non-Labor	0	0	0	870	478
NSE	0	0	0	0	0
Total	0	0	0	910	526
FTE	0.0	0.0	0.0	0.4	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	0	0	40	48
Non-Labor	0	0	0	870	478
NSE	0	0	0	0	0
Total	0	0	0	910	526
FTE	0.0	0.0	0.0	0.4	0.5
Vacation & Sick (Nominal \$)					
Labor	0	0	0	6	7
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	6	7
FTE	0.0	0.0	0.0	0.1	0.1
Escalation to 2021\$					
Labor	0	0	0	2	0
Non-Labor	0	0	0	40	0
NSE	0	0	0	0	0
Total	0	0	0	42	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	48	55
Non-Labor	0	0	0	910	478
NSE	0	0	0	0	0
Total	0	0	0	958	533
FTE	0.0	0.0	0.0	0.5	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 - REVISED
 Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19252.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 192520 - RAMP- URBAN SUBSTATION REBUILD

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 192520**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19252.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 192520 - RAMP- URBAN SUBSTATION REBUILD
 Workpaper Detail: 192520.001 - RAMP - URBAN SUBSTATION REBUILD
 In-Service Date: 11/30/2023

Description:

Replace existing substation perimeter wall, install new 12kV switchgear sections and capacitor banks, transfer existing 12kV circuits to the new switchgear, and remove aging 12kV switchgear and capacitor banks.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		114	75	0
Non-Labor		5,456	15,943	0
NSE		0	0	0
	Total	5,570	16,018	0
FTE		1.2	0.8	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19252.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 192520 - RAMP- URBAN SUBSTATION REBUILD
 Workpaper Detail: 192520.001 - RAMP - URBAN SUBSTATION REBUILD

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity

RAMP Line Item ID: C24

RAMP Line Item Name: Urban Substation Rebuild

Tranche(s): Tranche1: Substation

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	533	5,570	16,018	0	21,588	3,498	4,322

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 substation equipment installed	0.00	1.00	3.00	0.00	4.00	4.00	4.00

Work Unit Changes from RAMP:

Within Range

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	63.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 192520

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

TY2024 GRC FORECAST - DETAILS
Budget Code: 19222
Estimated In Service Date: 11/30/2023

Line Item	Unit Description	Labor/Non-Labor	RAM7/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	No. of hours worked	Labor	RAMP	Hours	2,221 \$ 50	1,458 \$ 50	72,900 \$ 50	0 \$ -	0 \$ -	283,844	Hourly cost per unit was determined using an average rate of internal employees working on this project. Number of units was based on historical analysis of monthly burnrate of internal labor based on stage of project.	
2	No. of substation equipment installed	Non-Labor	RAMP	Each	1 \$ 5,455,869	3 \$ 5,455,869	15,942,858 \$ 5,312,386	0 \$ -	0 \$ -	21,398,772	Substation equipment installed is made of contracted services (design, civil, construction), and not an equipment. In the estimated construction cost was then divided by total anticipated units of equipment to be replaced.	
3	FTE's	Labor	RAMP	MES	379 \$ 8	249 \$ 8	1,868 \$ 8			4,711		
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
*Costs should be reported in direct costs only (no overheads)												
Summary												
		Labor	RAMP		\$ 113,889		\$ 79,768			\$ 188,657		
		Non-Labor	RAMP		\$ 5,455,869		\$ 16,017,626			\$ 21,587,384		
		Labor	Non-RAMP		\$ 5,455,869		\$ 16,017,626			\$ 21,587,384		
		Non-Labor	Non-RAMP		\$ -		\$ -			\$ -		
					\$ 5,455,869		\$ 16,017,626			\$ 21,587,384		
					\$ -		\$ -			\$ -		
					\$ 5,455,869		\$ 16,017,626			\$ 21,587,384		

Beginning of Workpaper Group
202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20242.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	13	149	297	0	0
Non-Labor	Zero-Based	0	0	0	819	570	872	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	832	720	1,169	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.1	1.1	2.5	0.0	0.0

Business Purpose:

Removal and replacement of circuit breakers with new 12kV breakers due to aging infrastructure, operational limitations, environmental concerns, in addition to meeting current reliability standards.

Physical Description:

Replacement of the 14 oldest 12kV circuit breakers at Torrey Pines Substation due to operational problems, aging infrastructure, environmental concerns, in addition to meeting current reliability standards.

Project Justification:

Average age of existing breakers is 41 years and many of which are oil breakers. The breakers are approaching their end of life expectancy. This replacement will add 12kV system reliability as well as environmental benefits by replacing the oil-filled breakers with a vacuum switch model.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20242.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20242.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT

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	Zero-Based	297	0	0	0	0	0	297	0	0
Non-Labor	Zero-Based	872	0	0	0	0	0	872	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,169	0	0	0	0	0	1,169	0	0
FTE	Zero-Based	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20242.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	11	130
Non-Labor	0	0	0	783	570
NSE	0	0	0	0	0
Total	0	0	0	794	700
FTE	0.0	0.0	0.0	0.1	0.9
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	0	11	130
Non-Labor	0	0	0	783	570
NSE	0	0	0	0	0
Total	0	0	0	794	700
FTE	0.0	0.0	0.0	0.1	0.9
Vacation & Sick (Nominal \$)					
Labor	0	0	0	2	20
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	2	20
FTE	0.0	0.0	0.0	0.0	0.2
Escalation to 2021\$					
Labor	0	0	0	1	0
Non-Labor	0	0	0	36	0
NSE	0	0	0	0	0
Total	0	0	0	36	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	13	149
Non-Labor	0	0	0	819	570
NSE	0	0	0	0	0
Total	0	0	0	832	720
FTE	0.0	0.0	0.0	0.1	1.1

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20242.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT

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 202420**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20242.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT
 Workpaper Detail: 202420.001 - RAMP - TORREY PINES 12KV BREAKER REPLACEMENT
 In-Service Date: 12/31/2022

Description:

Replacement of the 14 oldest 12kV circuit breakers at Torrey Pines Substation due to operational problems , aging infrastructure, environmental concerns, in addition to meeting current reliability standards.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		297	0	0
Non-Labor		872	0	0
NSE		0	0	0
	Total	1,169	0	0
FTE		2.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20242.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202420 - RAMP- TORREY PINES 12KV BREAKER REPLACEMENT
 Workpaper Detail: 202420.001 - RAMP - TORREY PINES 12KV BREAKER REPLACEMENT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW07
 RAMP Line Item Name: Torrey Pines 12kV Breaker Replacements
 Tranche(s): Tranche1: Substation

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	719	1,169	0	0	1,169	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item

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 breakers replaced	0.00	14.00	0.00	0.00	14.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item

Supplemental Workpapers for Workpaper Group 202420

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 20242
 Estimated In Service Date: 12/31/2022

Line Item	Unit Description	Labor/Non-Labor	RAM7/Non-RAMP	Unit Metric (ea./ft./mile)	# of units	2022		2023		2024		Total Cost	Comments
						Cost per unit*	Total cost	# of Co	Total co	# of Co	Total co		
1	FTE's	Labor	RAMP	hr	4,526	\$ 64	\$ 289,670	\$ -	\$ -	\$ -	\$ -	\$ 289,670	Includes FTEs (1 lead substation engineer Internal Non-Union Labor) and Union Labor (crew work for 1 breaker is 3 people, 15 10-hour days), utilized a blended rate of \$64/hr. Includes contractor and procurement costs associated with breaker replacement (14 x 12KV breakers)
2	Breakers Installed	Non-Labor	RAMP	ea	14	\$ 62,289	\$ 872,041	\$ -	\$ -	\$ -	\$ -	\$ 872,041	
3	FTE's	Labor	RAMP	V&S	772	\$ 10	\$ 7,423	\$ -	\$ -	\$ -	\$ -	\$ 7,423	
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

* Costs should be reported in direct costs only (no overheads)

Summary		Labor	Non-Labor	RAMP	Non-RAMP	Total
Subtotal RAMP		\$ 297,093	\$ 872,041	\$ -	\$ -	\$ 1,169,134
Subtotal Non-RAMP		\$ -	\$ -	\$ 1,169,134	\$ -	\$ 1,169,134
Total Project Forecast		\$ 297,093	\$ 872,041	\$ 1,169,134	\$ -	\$ 1,169,134

Beginning of Workpaper Group
202450 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20245.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202450 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	11	34	63	133	0
Non-Labor	Zero-Based	0	0	0	598	312	758	747	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	608	346	821	880	0
FTE	Zero-Based	0.0	0.0	0.0	0.1	0.3	0.5	1.0	0.0

Business Purpose:

Remove and replace 14 existing circuit breakers at El Cajon Substation with new 12kV breakers to address aging infrastructure, operation limitations, environmental concerns, and to bring the substation up to current reliability standards.

Physical Description:

Replace fourteen (14) 12kV circuit breakers (7 in 2022 and 7 in 2023), including foundation modifications and necessary trenching, at El Cajon Substation due to operational problems, aging infrastructure, environmental concerns, in addition to meeting current reliability standards.

Project Justification:

Average age of existing breakers is 42 years and many of which are oil breakers. The breakers are approaching their end of life expectancy. This replacement will add 12kV system reliability as well as environmental benefits by replacing the oil-filled breakers with a vacuum switch model.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20245.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 202450 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20245.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202450 - RAMP- EL CAJON 12KV BREAKER 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	Zero-Based	63	133	0	0	0	0	63	133	0
Non-Labor	Zero-Based	758	747	0	0	0	0	758	747	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		821	880	0	0	0	0	821	880	0
FTE	Zero-Based	0.5	1.0	0.0	0.0	0.0	0.0	0.5	1.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20245.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202450 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	9	30
Non-Labor	0	0	0	571	312
NSE	0	0	0	0	0
Total	0	0	0	580	341
FTE	0.0	0.0	0.0	0.1	0.3
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	0	9	30
Non-Labor	0	0	0	571	312
NSE	0	0	0	0	0
Total	0	0	0	580	341
FTE	0.0	0.0	0.0	0.1	0.3
Vacation & Sick (Nominal \$)					
Labor	0	0	0	1	4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	1	4
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	26	0
NSE	0	0	0	0	0
Total	0	0	0	27	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	11	34
Non-Labor	0	0	0	598	312
NSE	0	0	0	0	0
Total	0	0	0	608	346
FTE	0.0	0.0	0.0	0.1	0.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20245.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202450 - RAMP- EL CAJON 12KV BREAKER 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 202450**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20245.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202450 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS
 Workpaper Detail: 202450.001 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS
 In-Service Date: 12/31/2023

Description:

Replace fourteen (14) 12kV circuit breakers, including foundation modifications and necessary trenching, at El Cajon Substation due to operational problems, aging infrastructure, environmental concerns, in addition to meeting current reliability standards.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		63	133	0
Non-Labor		758	747	0
NSE		0	0	0
	Total	821	880	0
FTE		0.5	1.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20245.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202450 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS
 Workpaper Detail: 202450.001 - RAMP- EL CAJON 12KV BREAKER REPLACEMENTS

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW08
 RAMP Line Item Name: El Cajon 12kv Breaker Replacements
 Tranche(s): Tranche1: Substation

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	345	821	880	0	1,701	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item

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 breakers replaced	0.00	7.00	7.00	0.00	14.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item

Supplemental Workpapers for Workpaper Group 202450

**Beginning of Workpaper Group
202510 - KETTNER REBUILD**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20251.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202510 - KETTNER REBUILD

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	67	28	486	396	0
Non-Labor	Zero-Based	0	0	0	33	666	890	223	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	99	694	1,376	619	0
FTE	Zero-Based	0.0	0.0	0.0	0.3	0.2	4.6	3.7	0.0

Business Purpose:

Currently, there are 69/12kV substations on SDGE's transmission system which need various structural and/or equipment upgrades. Certain pieces of this infrastructure need to be replaced due to aging infrastructure, operational limitations, and to meet current reliability standards. The scope of this work encompasses all aspects of engineering, procurement and design that are required to engineer the construction of these various reliability projects, including work at the Kettner 69/12kV Substation to ensure operational performance of this power transmission substation.

Physical Description:

The Kettner rebuild will address the aging infrastructure, environmental and safety in the substation. The control shelter is deteriorating and at the end of its life; no 12kV capacitor circuit breaker; 12kV circuit breakers are OCB; 69kV circuit breakers are OCB; 69kV PTs are over 35years old. Kettner feeds high profile customers such as San Diego Regional Airport Authority. In 2022, construction will include one 69kV circuit breaker replacement, six 12kV circuit breaker replacements, an installation of one 12kV Capacitor Bank with step-wise switching, and one 69kV PT. In 2023, construction will include one 69kV circuit breaker replacement, an upgrade of the existing SL&P to 50kVA, and two 69kV PT's.

Project Justification:

This project addresses reliability and environmental concerns by replacing aged oil filled, and/or no longer manufactured equipment. The control shelter is a retrofitted shipping container which recently had temporary repairs completed to address rusting and leaking issues.

This project will remove 12kV bus sections that are no longer in use and install a new concrete block control shelter, replacing the current shipping container control shelter. This will also allow us to modernize the current controls and modernize our protection schemes. Oil circuit breakers will be replaced with their appropriate current standard equivalent (VCB or GCB). The remaining work entails completing design, and construction.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20251.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 202510 - KETTNER REBUILD

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20251.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202510 - KETTNER REBUILD

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	Zero-Based	486	396	0	0	0	0	486	396	0
Non-Labor	Zero-Based	890	223	0	0	0	0	890	223	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,376	619	0	0	0	0	1,376	619	0
FTE	Zero-Based	4.6	3.7	0.0	0.0	0.0	0.0	4.6	3.7	0.0

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20251.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202510 - KETTNER REBUILD

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	56	24
Non-Labor	0	0	0	31	666
NSE	0	0	0	0	0
Total	0	0	0	87	691
FTE	0.0	0.0	0.0	0.3	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	0	0	0	56	24
Non-Labor	0	0	0	31	666
NSE	0	0	0	0	0
Total	0	0	0	87	691
FTE	0.0	0.0	0.0	0.3	0.2
Vacation & Sick (Nominal \$)					
Labor	0	0	0	8	4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	8	4
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	0	3	0
Non-Labor	0	0	0	1	0
NSE	0	0	0	0	0
Total	0	0	0	4	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	67	28
Non-Labor	0	0	0	33	666
NSE	0	0	0	0	0
Total	0	0	0	99	694
FTE	0.0	0.0	0.0	0.3	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20251.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202510 - KETTNER REBUILD

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 202510**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20251.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202510 - KETTNER REBUILD
 Workpaper Detail: 202510.001 - KETTNER REBUILD
 In-Service Date: 06/30/2023

Description:

Add/replace 69kV oil circuit breakers with vacuum circuit breakers, add 12kV Capacitor Bank with step-wise switching, and construct new control shelter.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		486	396	0
Non-Labor		890	223	0
NSE		0	0	0
	Total	1,376	619	0
FTE		4.6	3.7	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 202510

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

TY2024 GRC FORECAST - DETAILS
 Budget Code: 20251
 Estimated In Service Date: 6/7/2025

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (cu./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	69kV GEB	Non-Labor	Non-RAM	ea	1	\$122,255	1	\$122,255			\$ -	Material quantity & cost derived from estimates from substation project engineers. The cost includes contracted services (design, and below grade installation). All estimates were derived from historical costs of similar scope projects.
2	12 MV VCB	Non-Labor	Non-RAM	ea	6	\$105,426		\$105,426			\$ -	Material quantity & cost derived from estimates from substation project engineers. The cost includes contracted services (design, and below grade installation) which also originated from the substation project engineer. All estimates were derived from historical costs of similar scope projects.
3	7200 kVw Capacitor Bank	Non-Labor	Non-RAM	ea	1	\$115,566		\$115,566			\$ -	Material quantity & cost derived from estimates from substation project engineers. The cost includes contracted services (design, and below grade installation) which also originated from the substation project engineer. All estimates were derived from historical costs of similar scope projects.
4	518P 500VA	Non-Labor	Non-RAM	ea		\$61,294	1	\$61,294			\$ -	Material quantity & cost derived from estimates from substation project engineers. The cost includes contracted services (design, and below grade installation) which also originated from the substation project engineer. All estimates were derived from historical costs of similar scope projects.
5	69kV PT	Non-Labor	Non-RAM	ea	1	\$19,725	2	\$19,725			\$ -	Material quantity & cost derived from estimates from substation project engineers. The cost includes contracted services (design, and below grade installation) which also originated from the substation project engineer. All estimates were derived from historical costs of similar scope projects.
6	FTE's	Labor	Non-RAM	hours	8,167	\$58	6,655	\$58			\$ -	Hourly rate is aggregate of various internal engineering positions, and internal union personnel. Number of units was based on historical analysis of monthly burnrate of internal labor based on stage of project.
7	FTE's	Labor	Non-RAM	hrs	1,293	\$9	1,131	\$9			\$ -	
8	FTE's	Labor	Non-RAM	hrs		\$	9,291	\$			\$ -	
9	FTE's	Labor	Non-RAM	hrs		\$		\$			\$ -	
10	FTE's	Labor	Non-RAM	hrs		\$		\$			\$ -	
11	FTE's	Labor	Non-RAM	hrs		\$		\$			\$ -	
12	FTE's	Labor	Non-RAM	hrs		\$		\$			\$ -	
13	FTE's	Labor	Non-RAM	hrs		\$		\$			\$ -	
14	FTE's	Labor	Non-RAM	hrs		\$		\$			\$ -	
15	FTE's	Labor	Non-RAM	hrs		\$		\$			\$ -	
*Costs should be reported in direct costs only (no overheads)												
Summary												
		Labor	RAM			\$		\$			\$	
		Non-Labor	RAM			\$		\$			\$	
		Labor	Non-RAM			\$		\$			\$	
		Non-Labor	Non-RAM			\$		\$			\$	
		Subtotal RAM				\$		\$			\$	
		Subtotal Non-RAM				\$		\$			\$	
		Total Project forecast				\$		\$			\$	

Beginning of Workpaper Group
20263A - RAMP- BERNARDO 12 KV BREAKERS AND TRANSFORMER

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20263.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20263A - RAMP- BERNARDO 12 KV BREAKERS AND TRANSFORMER

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	0	0	0	225	
Non-Labor	Zero-Based	0	0	0	0	0	0	702	
NSE	Zero-Based	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	927	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	1.9	

Business Purpose:

Proactively address safety and reliability issues associated with equipment that has reached its useful life.

Physical Description:

Replace fifteen (15) 12kV circuit breakers and 69/12kV Transformer Bank 31 bushings at Bernardo Substation.

Project Justification:

The equipment to be replaced has reached the end of its useful life and poses both a safety and reliability threat if not replaced.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20263.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 20263A - RAMP- BERNARDO 12 KV BREAKERS AND TRANSFORMER

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 20263A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20263.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20263A - RAMP- BERNARDO 12 KV BREAKERS AND TRANSFORMER
 Workpaper Detail: 20263A.001 - RAMP - BERNARDO 12 KV BREAKERS AND TRANSFORMER
 In-Service Date: 11/30/2024
 Description:

Replace fifeteen (15) 12kV circuit breakers and BK31 bushings at Bernardo Substation.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	225
Non-Labor		0	0	702
NSE		0	0	0
	Total	0	0	927
FTE		0.0	0.0	1.9

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20263.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20263A - RAMP- BERNARDO 12 KV BREAKERS AND TRANSFORMER
 Workpaper Detail: 20263A.001 - RAMP - BERNARDO 12 KV BREAKERS AND TRANSFORMER

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C20-T2
 RAMP Line Item Name: Substation Reliability for Distribution Components Bernardo 12kv Breakers Replacements
 Tranche(s): Tranche1: Substation

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	0	0	927	927	846	1,045

Cost Estimate Changes from RAMP:

Within range.

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 breakers replaced	0.00	0.00	0.00	15.00	15.00	13.00	16.00

Work Unit Changes from RAMP:

Within range.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	4.000	146.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 20263A

Beginning of Workpaper Group
20267A - RAMP- MIRAMAR 12KV REPLACEMENTS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20267.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20267A - RAMP- MIRAMAR 12KV REPLACEMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	30	254	99
Non-Labor	Zero-Based	0	0	0	0	0	42	964	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	72	1,218	99
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.3	2.2	0.8

Business Purpose:

Increase reliability by upgrading the existing 12kV circuit breakers. The replacement of the aging circuit breakers will lead to providing safe, reliable power for homes and businesses. This project will also increase safety with site improvements and reduce environmental concerns.

Physical Description:

Replace sixteen (16) 12kV oil circuit breakers (OCB) at Miramar Substation (install in 2023) with new vacuum switch models, replace the AC panel and safety switches, and improve site conditions.

Project Justification:

This project will increase the safety and reduce environmental concerns. The project will address the replacement of sixteen 12kV circuit breakers. The oldest of these circuit breakers was manufactured in 1972, with an average age of 44 years for oil and 34 years for vacuum. based on manufacturer recommendations and SDG&E equipment failure history, all sixteen 12kV breakers will be near or past the five-year range of their end-of-life expectancy of 30 years for vacuum and 50 years for oil circuit breakers.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20267.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 20267A - RAMP- MIRAMAR 12KV REPLACEMENTS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 20267A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20267.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20267A - RAMP- MIRAMAR 12KV REPLACEMENTS
 Workpaper Detail: 20267A.001 - RAMP - MIRAMAR 12KV REPLACEMENTS
 In-Service Date: 07/31/2024

Description:

Replace sixteen (16) 12kV oil circuit breakers (OCB) at Miramar Substation with new vacuum switch models, replace the AC panel and safety switches, and improve site conditions.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		30	254	99
Non-Labor		42	964	0
NSE		0	0	0
	Total	<u>72</u>	<u>1,218</u>	<u>99</u>
FTE		0.3	2.2	0.8

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20267.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20267A - RAMP- MIRAMAR 12KV REPLACEMENTS
 Workpaper Detail: 20267A.001 - RAMP - MIRAMAR 12KV REPLACEMENTS

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C20-T5
 RAMP Line Item Name: Substation Reliability for Distribution Components Miramar 12kv Replacements
 Tranche(s): Tranche1: Substation

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	72	1,218	99	1,389	1,112	1,374

Cost Estimate Changes from RAMP:
 The GRC forecast is outside the RAMP range due to forecast updates.

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 breakers replaced	0.00	0.00	16.00	0.00	16.00	14.00	17.00

Work Unit Changes from RAMP:
 Within range.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	40.000	101.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 20267A

Beginning of Workpaper Group
202680 - RAMP- MISSION 12KV REPLACEMENTS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20268.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202680 - RAMP- MISSION 12KV REPLACEMENTS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	3	24	382	73	0
Non-Labor	Zero-Based	0	0	0	51	1,217	1,684	483	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	55	1,241	2,066	556	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.2	3.3	0.6	0.0

Business Purpose:

Removal and replacement of circuit breaker(s) and relay(s) due to aging infrastructure, operational limitations, environmental concerns, and to meet current reliability standards.

Physical Description:

Installation the following infrastructure: Thirteen 12kV feeder circuit breakers with relays on Circuits 708, 703, 700, 707, 147, 702, 143, 141, 701, 146, 149, 704, 706, three 12 kV bank circuit breakers on Bank 30, Bank 31, and Bank 32, eighteen new line bus and transfer disconnects and associated insulators, new pad foundations, conduits, and grounding, four bank protection relay panels, one bus protection relay panel with two relays, new auxiliary equipment, all associated control cables and protection wiring, and new distribution SCADA RTU. Scope will also include the removal of obsolete equipment and foundations.

13 breakers will be installed in 2022 and 3 breakers will be installed in 2024.

Replace:

(13) 12 kV feeder circuit breakers with relays (3) 12 kV bank circuit breakers, and (18) disconnects.

Project Justification:

The existing 12kV oil and vacuum breakers have exceeded their life expectancy with an average age of 46 years old. The disconnects have known mechanical issues causing operational limitations along with aged brown-glass insulators. This is the last station to use DPU relays that have recently failed raising future reliability concerns as this site feeds nearly 30K customers, the fifth largest customer base in the SDG&E service territory. This replacement will add 12kV system reliability, as well as environmental benefits by replacing the oil-filled breakers with a vacuum switch model.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20268.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 202680 - RAMP- MISSION 12KV REPLACEMENTS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20268.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202680 - RAMP- MISSION 12KV 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	Zero-Based	382	73	0	0	0	0	382	73	0
Non-Labor	Zero-Based	1,684	483	0	0	0	0	1,684	483	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		2,066	556	0	0	0	0	2,066	556	0
FTE	Zero-Based	3.3	0.6	0.0	0.0	0.0	0.0	3.3	0.6	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20268.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202680 - RAMP- MISSION 12KV REPLACEMENTS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	3	20
Non-Labor	0	0	0	49	1,217
NSE	0	0	0	0	0
Total	0	0	0	52	1,238
FTE	0.0	0.0	0.0	0.0	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	0	0	0	3	20
Non-Labor	0	0	0	49	1,217
NSE	0	0	0	0	0
Total	0	0	0	52	1,238
FTE	0.0	0.0	0.0	0.0	0.2
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	3
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	3
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	2	0
NSE	0	0	0	0	0
Total	0	0	0	2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	3	24
Non-Labor	0	0	0	51	1,217
NSE	0	0	0	0	0
Total	0	0	0	55	1,241
FTE	0.0	0.0	0.0	0.0	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20268.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202680 - RAMP- MISSION 12KV 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 202680**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20268.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202680 - RAMP- MISSION 12KV REPLACEMENTS
 Workpaper Detail: 202680.001 - RAMP - MISSION 12KV REPLACEMENTS
 In-Service Date: 06/30/2023

Description:

Replace 12kV oil and vacuum circuit breakers, disconnects, insulators, and upgrade relays.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		382	73	0
Non-Labor		1,684	483	0
NSE		0	0	0
	Total	2,066	556	0
FTE		3.3	0.6	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20268.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 202680 - RAMP- MISSION 12KV REPLACEMENTS
 Workpaper Detail: 202680.001 - RAMP - MISSION 12KV REPLACEMENTS

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW01
 RAMP Line Item Name: Mission 12KV Replacements
 Tranche(s): Tranche1: Substation

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	1,240	2,066	556	0	2,622	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item.

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 breakers installed	1.00	13.00	3.00	0.00	16.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item.

Supplemental Workpapers for Workpaper Group 202680

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

TY2024 GRC FORECAST - DETAILS
Budget Code:
Estimated In Service Date:

20268
6/30/2023

Line Item	Unit Description	Labor/Non-Labor	RAM7/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Comments
					# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost	
1	FTEs	Labor	RAMP	hr	5,812	\$ 64	\$ 371,974	1,110	\$ 64	\$ 71,069	
2	Breakers Installed	Non-Labor	RAMP	ea	13,00	\$ 129,511	\$ 1,683,647	3,00	\$ 160,966	\$ 482,899	Includes FTEs (1 lead substation engineer Internal Non-Union Labor, 1 construction engineer) and Union Labor (crew work for 1 breaker is 3 people, 15.10-hour days), utilized a blended rate of \$64/hr
3	FTEs	Labor	RAMP	V8S	992	\$ 10	\$ 9,532	189	\$ 10	\$ 1,821	Includes contractor spend and procurement associated with breaker replacement (16 x 12kV breakers)
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											Not previously included in RAMP

*Costs should be reported in direct costs only (no overheads)

Summary		Labor	Non-Labor	RAMP	Non-RAMP	Total
		\$ 72,891	\$ 482,899	\$ 381,505	\$ 1,683,647	\$ 2,065,153
	Subtotal RAMP	\$ 72,891	\$ 482,899	\$ 381,505	\$ 1,683,647	\$ 2,065,153
	Subtotal Non-RAMP	\$ -	\$ -	\$ -	\$ -	\$ -
	Total Project Forecast	\$ 72,891	\$ 482,899	\$ 381,505	\$ 1,683,647	\$ 2,065,153

Beginning of Workpaper Group
20270A - RAMP - Stuart 12kV Transformer Replacement

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20270.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20270A - RAMP - Stuart 12kV Transformer Replacement

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	0	62	81
Non-Labor	Zero-Based	0	0	0	0	0	0	595	789
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	657	870
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7

Business Purpose:

This project addresses safety, reliability and environmental concerns associated with aging infrastructure, equipment with operational limits and/or does not meet current standards, and unsafe site conditions.

Physical Description:

Replace 69/12kV transformer at Stuart Substation. Transformer will be installed in 2024.

Project Justification:

Replacing aging infrastructure addresses safety, reliability, and environmental concerns associated with the equipment maintenance issues and leaking.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20270.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 20270A - RAMP - Stuart 12kV Transformer Replacement

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

**Beginning of Workpaper Sub Details for
Workpaper Group 20270A**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20270.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20270A - RAMP - Stuart 12kV Transformer Replacement
 Workpaper Detail: 20270A.001 - RAMP - Stuart 12kV Transformer Replacement
 In-Service Date: 10/31/2024

Description:

Replace 69/12kV transformer at Stuart Substation.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	62	81
Non-Labor		0	595	789
NSE		0	0	0
	Total	0	657	870
FTE		0.0	0.5	0.7

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20270.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 20270A - RAMP - Stuart 12kV Transformer Replacement
 Workpaper Detail: 20270A.001 - RAMP - Stuart 12kV Transformer Replacement

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW02
 RAMP Line Item Name: Stuart 12kV Transformer Replacement
 Tranche(s): Tranche1: Substation

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	0	657	870	1,527	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item

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 transformers replaced	0.00	0.00	1.00	0.00	1.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	1.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item

Supplemental Workpapers for Workpaper Group 20270A

**Beginning of Workpaper Group
212750 - CRISTIANITOS RFS**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 212750 - CRISTIANITOS RFS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	43	81	0	0
Non-Labor	Zero-Based	0	0	0	0	384	905	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	427	986	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.4	1.0	0.0	0.0

Business Purpose:

Cristianito Substation was commissioned in 1958 and due to its aging infrastructure the station will be removed from service. This will reduce safety and environmental concerns from the aging infrastructure as well as reduce maintenance costs while increasing system reliability. The current load at Cristianitos substation is relatively low, servicing approximately 23 customers, and transferring the load to the Pico substation will ensure continued reliability of service to customers

Physical Description:

Transfer all distribution load from C204, C338 & C339 to Pico Sub C991. This will allow substation engineering to RFS Cristianitos substation and transmission engineering to RFS Tie Line 695 (69 kV). Four pole structures will be topped above distribution and one structure will be replaced with a distribution steel pole within HFTD 2. Three locations are being topped above distribution and reframed from armless construction to crossarm construction. All facilities being transferred from C204, C338 and C339 to C991 will be retagged. Approximately 0.20 miles of remaining distribution conductor and equipment for C338 & C339 will be removed from Cristianitos substation. Once the circuits are connected, the Cristianitos substation and TL695 from Talega substation to Cristianitos substation will be removed from service.

Project Justification:

Address the aging infrastructure of the existing Cristianitos substation. Removing the substation from service and transferring the existing load to the Pico substation will ensure the reliability of service to customers currently fed from Cristianitos substation. This will mitigate safety and environmental concerns from the aging infrastructure as well as reduce maintenance costs while increasing system reliability.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21275.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 212750 - CRISTIANITOS RFS

Forecast Methodology:

Labor - Zero-Based

The forecast method used is zero-based. The forecast is based on cost estimates developed based on the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actuals costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used is zero-based. The forecast is based on cost estimates developed based on the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actuals costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 212750 - CRISTIANITOS RFS

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	Zero-Based	81	0	0	0	0	0	81	0	0
Non-Labor	Zero-Based	905	0	0	0	0	0	905	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		986	0	0	0	0	0	986	0	0
FTE	Zero-Based	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 212750 - CRISTIANITOS RFS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	38
Non-Labor	0	0	0	0	384
NSE	0	0	0	0	0
Total	0	0	0	0	422
FTE	0.0	0.0	0.0	0.0	0.3
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	0	0	38
Non-Labor	0	0	0	0	384
NSE	0	0	0	0	0
Total	0	0	0	0	422
FTE	0.0	0.0	0.0	0.0	0.3
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	6
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	43
Non-Labor	0	0	0	0	384
NSE	0	0	0	0	0
Total	0	0	0	0	427
FTE	0.0	0.0	0.0	0.0	0.4

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 212750 - CRISTIANITOS RFS

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 212750**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21275.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 212750 - CRISTIANITOS RFS
 Workpaper Detail: 212750.001 - CHRISTIANITOS RFS
 In-Service Date: 12/31/2022

Description:

Remove 69kV structures and conductors along approximately 0.67 miles of TL695 from structures North of Talega substation to East of Cristianitos substation within SDG&E's right of way and easement. Distribution equipment for circuits on transmission poles will remain. Once the circuits are connected, the Cristianitos substation and TL695 from Talega substation to Cristianitos substation will be removed from service .

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		81	0	0
Non-Labor		905	0	0
NSE		0	0	0
	Total	986	0	0
FTE		1.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 212750

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 23275
 Estimated In Service Date: 12/19/2022

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM Unit Metric (ea./ft./# of units)	2022		2023		2024		Total Cost	Comments
				# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
Project Support - Labor	Labor		Hours	1,792	\$ 544	0				\$ 78,848	Labor units was based on historical project average and the labor rate is an average system for internal project support. Lump sum for underground (UG) installation costs.
UG Installation	Non-Labor		Each	1	\$408,376	0				\$ -	
DHI Installation	Non-Labor		Each	1	\$273,687	0				\$ -	
DHI Installation	Non-Labor		Each	1	\$273,687	0				\$ -	
Substation Removal	Non-Labor		Each	1	\$233,029	0				\$ -	Lump sum for the distribution portion of Substation removal
Distribution Removal & Install - Labor	Labor		Y&S	306	\$ 7	7				\$ 2,020	
										\$ -	
										\$ -	
										\$ -	

* Costs should be reported in direct costs only (no overheads)

Summary		Labor	RAM/Non-RAM	Total Cost	# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost
Subtotal RAMP		Labor	RAM/Non-RAM	\$ -	-		\$ -	-		\$ -	-		\$ -
Subtotal Non-RAMP		Labor	Non-RAMP	\$ 80,888	-		\$ -	-		\$ -	-		\$ -
Total Project Forecast		Non-Labor	Non-RAMP	\$ 952,929	-		\$ -	-		\$ -	-		\$ -
		Non-Labor	Non-RAMP	\$ 985,960	-		\$ -	-		\$ -	-		\$ -
				\$ 985,960	-		\$ -	-		\$ -	-		\$ -

Beginning of Workpaper Group
932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	147	192	69	423	347	264	1,062	1,062
Non-Labor	Zero-Based	898	2,766	368	4,100	3,913	3,190	3,062	3,062
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		1,045	2,958	437	4,523	4,260	3,454	4,124	4,124
FTE	Zero-Based	0.9	1.0	0.4	2.2	1.7	2.3	9.1	9.1

Business Purpose:

This project provides funds for equipment upgrades/replacements necessary to improve service reliability of electric customers and maintain corporate reliability standards.

Physical Description:

This budget code supports construction of projects that include installation of fuses, overhead and underground manual switches, SCADA service restorers, SCADA switches, overhead fault indicators, overhead line extensions and circuit reconductoring for improving electric system reliability.

The scope of this project includes installation of 15 switches in 2022, 14 switches in 2023 and 14 switches in 2024.

Project Justification:

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Forecast Methodology:

Labor - Zero-Based

The forecast method used is zero-based. The forecast is based on cost estimates developed based on the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

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	Zero-Based	264	1,062	1,062	0	0	0	264	1,062	1,062
Non-Labor	Zero-Based	3,190	3,062	3,062	0	0	0	3,190	3,062	3,062
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		3,454	4,124	4,124	0	0	0	3,454	4,124	4,124
FTE	Zero-Based	2.3	9.1	9.1	0.0	0.0	0.0	2.3	9.1	9.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	78	147	55	354	302
Non-Labor	561	2,425	336	3,932	3,913
NSE	0	0	0	0	0
Total	639	2,572	391	4,286	4,215
FTE	0.6	0.8	0.3	1.7	0.3
Adjustments (Nominal \$)**					
Labor	29	0	0	0	0
Non-Labor	190	0	0	-11	0
NSE	0	0	0	0	0
Total	218	0	0	-11	0
FTE	0.2	0.1	0.1	0.2	1.2
Recorded-Adjusted (Nominal \$)					
Labor	107	147	55	354	302
Non-Labor	750	2,425	336	3,921	3,913
NSE	0	0	0	0	0
Total	857	2,572	391	4,275	4,215
FTE	0.8	0.9	0.4	1.9	1.5
Vacation & Sick (Nominal \$)					
Labor	16	22	8	50	45
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	16	22	8	50	45
FTE	0.1	0.1	0.0	0.3	0.2
Escalation to 2021\$					
Labor	24	24	6	18	0
Non-Labor	147	340	33	179	0
NSE	0	0	0	0	0
Total	172	364	39	198	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	147	192	69	423	347
Non-Labor	898	2,766	368	4,100	3,913
NSE	0	0	0	0	0
Total	1,045	2,958	437	4,523	4,260
FTE	0.9	1.0	0.4	2.2	1.7

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	29	0	0	0	0	
Non-Labor	190	0	0	-11	0	
NSE	0	0	0	0	0	
Total	218	0	0	-11	0	
FTE	0.2	0.1	0.1	0.2	1.2	

Detail of Adjustments to Recorded in Nominal \$:

Year	Labor	NLbr	NSE	Total	FTE
2017	29	190	0	218	0.2
Explanation:	One sided adjustment to add back missing CPD orders from 2017 electric capital				
2017 Total	29	190	0	218	0.2
2018	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	0.001	0	0	0.001	0.1
2019	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	0.1
2020	0	-11	0	-11	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	-11	0	-11	0.2
2021	0.001	0	0	0.001	1.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	1.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 932400**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
 Workpaper Detail: 932400.001 - RAMP - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
 In-Service Date: Not Applicable
 Description:

Mitigate existing electric system deficiencies through projects for system performance improvements as follows
 General Reliability, SCADA Initiatives and the Community Fire Safety Program.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		219	881	881
Non-Labor		2,648	2,541	2,541
NSE		0	0	0
	Total	2,867	3,422	3,422
FTE		1.9	7.6	7.6

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
 Workpaper Detail: 932400.001 - RAMP - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C18
 RAMP Line Item Name: Distribution Circuit Reliability
 Tranche(s): Tranche1: OH Distribution; Tranche2: UG Distribution

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	1,414	1,147	1,369	1,369	3,885	9,947	12,288
Tranche 2 Cost Estimate	2,122	1,720	2,053	2,053	5,826	9,947	12,288

Cost Estimate Changes from RAMP:

The GRC forecast is split among two workpapers (see also 932400.002) and is outside the RAMP range due to forecast updates. The GRC forecast for this mitigation is allocated associated with revised tranching.

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 switches installed	6.00	6.00	5.00	5.00	16.00	57.00	71.00
Tranche 2 # of switches installed	8.00	9.00	9.00	9.00	27.00	57.00	71.00

Work Unit Changes from RAMP:

The GRC forecast is split among two workpapers (see also 932400.002) and is outside the RAMP range due to forecast updates. The GRC forecast for this mitigation is allocated associated with revised tranching.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	506.000	15.000
Tranche 2	500.000	15.000

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
Workpaper Detail: 932400.001 - RAMP - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
 Workpaper Detail: 932400.002 - RAMP - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION - GENERAL PLANT
 In-Service Date: Not Applicable
 Description:

Mitigate existing electric system deficiencies through projects for system performance improvements as follows
 General Reliability, SCADA Initiatives and the Community Fire Safety Program.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		45	181	181
Non-Labor		542	521	521
NSE		0	0	0
	Total	587	702	702
FTE		0.4	1.5	1.5

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 93240.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
 Workpaper Detail: 932400.002 - RAMP - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION - GENERAL PLANT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C18
 RAMP Line Item Name: Distribution Circuit Reliability
 Tranche(s): Tranche1: OH Distribution; Tranche2: UG Distribution

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	290	235	281	281	797	9,947	12,288
Tranche 2 Cost Estimate	434	352	421	421	1,194	9,947	12,288

Cost Estimate Changes from RAMP:

The GRC forecast is split among two workpapers (see also 932400.002) and is outside the RAMP range due to forecast updates. The GRC forecast for this mitigation is allocated associated with revised tranching.

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 switches	6.00	6.00	5.00	5.00	16.00	57.00	71.00
Tranche 2 # of switches	8.00	9.00	9.00	9.00	27.00	57.00	71.00

Work Unit Changes from RAMP:

The GRC forecast is split among two workpapers (see also 932400.002) and is outside the RAMP range due to forecast updates. The GRC forecast for this mitigation is allocated associated with revised tranching.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	506.000	15.000
Tranche 2	500.000	15.000

RSE Changes from RAMP:

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 932400 - RAMP- DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
Workpaper Detail: 932400.002 - RAMP - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION - GENERAL PLANT

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 932400

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

TY2024 GRC FORECAST - DETAILS
Budget Code:
Estimated In Service Date:

93240
Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments	
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*			
1	Labor	Labor	RAMP	hours	4,021	\$ 64	16,175	\$ 64	16,175	\$ 64	\$ 1,035,200	\$ 2,327,744	Cost per unit based on historical spend. Assumptions: Crew switch 1, 2 (H) man (key), 2023 and 2024 assumes crew increased labor hours.
2	Service	Non-Labor	RAMP	ea	15	\$ 105,134	14	\$ 111,134	14	\$ 111,134	\$ 1,555,876	\$ 4,688,762	Crew 3-man and then OH crew 2 - 4 man. 1 day each possible 2 days. Assumes LG crew 1-2 man when trenching and surfacing necessary. Service cost assumes daily use of crane rentals, 5-8' troubleshooting/mode, 1 working foreman, 1 safety contact, 2 linemen, apprentice (1 or 2 for backup). Line cost based on 2023-24 assumes contact cost increase due to SPS and inflation cost increase.
3	Switches	Non-Labor	RAMP	ea	15	\$ 107,564	14	\$ 107,566	14	\$ 107,566	\$ 1,505,224	\$ 4,625,208	Estimated number of units based on circuit reliability including expanding the distribution SCADA switching infrastructure and/or removing reliability deficiencies in 2022 - 2024. Cost per unit based on historical spend
4	Labor	Labor	RAMP	WBS	686	\$ 10	2,759	\$ 10	2,759	\$ 10	\$ 26,526	\$ 59,646	
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
*Costs should be reported in direct costs only (no overheads)													
Summary													
Subtotal RAMP		Labor	RAMP		263,598	\$ 1,061,726		\$ 1,061,726		\$ 2,387,990			
		Non-Labor	RAMP		3,454,408	\$ 4,123,526		\$ 4,123,526		\$ 11,701,460			
		Labor	Non-RAMP										
		Non-Labor	Non-RAMP										
Subtotal Non-RAMP													
Total Project Forecast													

Beginning of Workpaper Group
942410 - RAMP- POWER QUALITY PROGRAM

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	20	20	1	18	120	46	46	46
Non-Labor	3-YR Average	206	43	23	912	1,326	2,254	2,254	2,254
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	226	63	24	930	1,446	2,300	2,300	2,300
FTE	3-YR Average	0.1	0.1	0.0	0.1	0.8	0.3	0.3	0.3

Business Purpose:

This project provides funding for the expansion of the substation power quality monitoring system (PQ Nodes) and associated communication system. This system improvement will allow an increase of data to be collected which will result in a more effective grid reliability assessment.

Physical Description:

The scope of work includes installing and/or upgrading PQ meters (20 in 2022, 15 in 2023, 5 in 2024).

This includes:

- Replacing one PQ meter model with another.
- Replacing voltage and current pod. Potentially replacing or adjusting wiring for voltage with current pods (for sites with multiple boxes).
- Upgrading PQ nodes and support equipment. Installing field and communication systems and equipment.
- Provide time synchronization and network connections to existing monitors.

Project Justification:

The substation PQ monitoring system provides benefits as follows:

- 1) Distribution system health information. System parameters including RMS voltage, voltage & current transient events, system harmonics (including spectra), real & reactive power flow, power factor, flicker and others
- 2) Event logging and notification for events occurring on transmission, distribution and customer systems that are perceptible at the distribution substation.
- 3) Advanced analytics processes including incipient fault detection (fault anticipation), and advanced fault locating.
- 4) A data source with analytics for historical events and steady state trends
- 5) Data collected via the substation PQ monitoring system is regularly utilized by several groups within the company including C&I Services, Electric Transmission and Distribution Engineering and Planning

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 94241.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program. PQ Team switched departments, expanded it's focus and updated it's charter in 2019. Prior years spend is not representative.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program. PQ Team switched departments, expanded it's focus and updated it's charter in 2019. Prior years spend is not representative.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM

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	3-YR Average	46	46	46	0	0	0	46	46	46
Non-Labor	3-YR Average	754	754	754	1,500	1,500	1,500	2,254	2,254	2,254
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		800	800	800	1,500	1,500	1,500	2,300	2,300	2,300
FTE	3-YR Average	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
2022	0	1,500	0	1,500	0.0
Explanation: iPredict software license costs					
2022 Total	0	1,500	0	1,500	0.0
2023	0	1,500	0	1,500	0.0
Explanation: iPredict software license costs					
2023 Total	0	1,500	0	1,500	0.0
2024	0	1,500	0	1,500	0.0
Explanation: iPredict software license costs					
2024 Total	0	1,500	0	1,500	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	15	15	1	15	104
Non-Labor	172	38	21	873	1,326
NSE	0	0	0	0	0
Total	186	53	22	887	1,430
FTE	0.1	0.1	0.0	0.1	0.7
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	15	15	1	15	104
Non-Labor	172	38	21	873	1,326
NSE	0	0	0	0	0
Total	186	53	22	887	1,430
FTE	0.1	0.1	0.0	0.1	0.7
Vacation & Sick (Nominal \$)					
Labor	2	2	0	2	16
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	2	2	0	2	16
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2021\$					
Labor	3	2	0	1	0
Non-Labor	34	5	2	40	0
NSE	0	0	0	0	0
Total	37	8	2	41	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	20	20	1	18	120
Non-Labor	206	43	23	912	1,326
NSE	0	0	0	0	0
Total	226	63	24	930	1,446
FTE	0.1	0.1	0.0	0.1	0.8

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM

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 942410**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM
 Workpaper Detail: 942410.001 - RAMP - POWER QUALITY PROGRAM
 In-Service Date: Not Applicable

Description:

Expand substation power quality monitoring system (PQ Nodes) and associated communication system. Swap Signature System Box with Encore Monitor. Replace voltage and current pod. Potentially replace or adjust wiring for voltage with current pods (for sites with multiple boxes). Upgrade PQ nodes and support equipment. Install field and communication systems and equipment. Provide time synchronization and network connections to existing monitors.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		35	35	35
Non-Labor		567	567	567
NSE		0	0	0
	Total	602	602	602
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM
 Workpaper Detail: 942410.001 - RAMP - POWER QUALITY PROGRAM

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C26
 RAMP Line Item Name: Power Quality Monitor Deployment and Replacement
 Tranche(s): Tranche1: N/A

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	1,099	602	602	602	1,806	1,332	1,647

Cost Estimate Changes from RAMP:

The GRC forecast is split among three workpapers (see also 942410.002 and 942410.003) and is outside the RAMP range due to forecast and scope updates.

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 Power Quality Meters	8.00	20.00	15.00	5.00	40.00	27.00	34.00

Work Unit Changes from RAMP:

Outside of the RAMP range due to forecast and scope updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM
 Workpaper Detail: 942410.002 - RAMP - POWER QUALITY PROGRAM - GENERAL PLANT
 In-Service Date: Not Applicable
 Description:

Expand substation power quality monitoring system (PQ Nodes) and associated communication system. Swap Signature System Box with Encore Monitor. Replace voltage and current pod. Potentially replace or adjust wiring for voltage with current pods (for sites with multiple boxes). Upgrade PQ nodes and support equipment. Install field and communication systems and equipment. Provide time synchronization and network connections to existing monitors.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		11	11	11
Non-Labor		187	187	187
NSE		0	0	0
	Total	198	198	198
FTE		0.1	0.1	0.1

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM
 Workpaper Detail: 942410.002 - RAMP - POWER QUALITY PROGRAM - GENERAL PLANT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C26
 RAMP Line Item Name: Power Quality Monitor Deployment and Replacement
 Tranche(s): Tranche1: N/A

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	347	198	198	198	594	1,332	1,647

Cost Estimate Changes from RAMP:

The GRC forecast is split among three workpapers (see also 942410.001 and 942410.003) and is outside the RAMP range due to forecast and scope updates.

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 Power Quality Meters	8.00	20.00	15.00	5.00	40.00	27.00	34.00

Work Unit Changes from RAMP:

Outside of the RAMP range due to forecast and scope updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM
 Workpaper Detail: 942410.003 - RAMP - POWER QUALITY PROGRAM - SOFTWARE
 In-Service Date: Not Applicable
 Description:

iPredict software license costs

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,500	1,500	1,500
NSE		0	0	0
	Total	1,500	1,500	1,500
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 94241.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 942410 - RAMP- POWER QUALITY PROGRAM
 Workpaper Detail: 942410.003 - RAMP - POWER QUALITY PROGRAM - SOFTWARE

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C26
 RAMP Line Item Name: Power Quality Monitor Deployment and Replacement
 Tranche(s): Tranche1: N/A

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	1,500	1,500	1,500	4,500	1,332	1,647

Cost Estimate Changes from RAMP:

The GRC forecast is split among three workpapers (see also 942410.001 and 942410.002). The GRC forecast is outside the RAMP range due to forecast updates.

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 Power Quality Meters	8.00	20.00	15.00	5.00	40.00	27.00	34.00

Work Unit Changes from RAMP:

Outside of the RAMP range due to forecast and scope updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Beginning of Workpaper Group
992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 99282.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	3-YR Average	529	1,092	26	885	469	460	460	460
Non-Labor	3-YR Average	5,762	1,771	29	3,373	1,538	1,647	1,647	1,647
NSE	3-YR Average	0	0	0	0	0	0	0	0
	Total	6,291	2,863	54	4,258	2,007	2,107	2,107	2,107
FTE	3-YR Average	4.0	6.7	0.1	6.0	3.2	3.1	3.1	3.1

Business Purpose:

This project will improve safety and reliability related to the replacement of obsolete and problematic substation equipment. This project will focus primarily on distribution substation bank transformers and circuit breaker replacements.

Physical Description:

The Substation Equipment Assessment Team will develop alternatives to replace or remove obsolete and problematic equipment. A condition assessment process and evaluation criteria have been created using probability and risk analysis, financial impacts and present value analysis to justify projects. Equipment that is truly obsolete such as equipment that cannot be maintained (no spare parts available), or that which poses a safety risk will be replaced. Each year the average age of all substation equipment increases, with the oldest transformer currently 80+ years old. The ranking of substation equipment is an ongoing process and involves identifying equipment that presents a significant risk to the system.

The scope of this project includes installed 3 substation equipment annually.

Project Justification:

Substations are essential to the operation of the electric system and must be kept in reliable condition. The sum of all distribution substations contain a total of approximately 648 transformers with an average age of approximately 20 years and 1557 circuit breakers with an average age of 20 years.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 99282.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. Other Reliability/Impr
Workpaper Group: 992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

Forecast Methodology:

Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.

Non-Labor - 3-YR Average

The forecast method developed for this cost category is a 3-year average based on historical spend. This is the most appropriate methodology, as workload can vary from year to year. The 3-year average levels out the peaks and valleys in this blanket budget code over an appropriate period of time to forecast the necessary level of funding for the work that falls within this budget code while accounting for recent changes in the program.

NSE - 3-YR Average

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 99282.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

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	3-YR Average	460	460	460	0	0	0	460	460	460
Non-Labor	3-YR Average	1,647	1,647	1,647	0	0	0	1,647	1,647	1,647
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		2,107	2,107	2,107	0	0	0	2,107	2,107	2,107
FTE	3-YR Average	3.1	3.1	3.1	0.0	0.0	0.0	3.1	3.1	3.1

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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 99282.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	385	831	20	741	408
Non-Labor	4,816	1,553	26	3,226	1,538
NSE	0	0	0	0	0
Total	5,201	2,384	46	3,967	1,946
FTE	3.4	5.7	0.1	5.2	2.7
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	385	831	20	741	408
Non-Labor	4,816	1,553	26	3,226	1,538
NSE	0	0	0	0	0
Total	5,201	2,384	46	3,967	1,946
FTE	3.4	5.7	0.1	5.2	2.7
Vacation & Sick (Nominal \$)					
Labor	57	126	3	105	61
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	57	126	3	105	61
FTE	0.6	1.0	0.0	0.8	0.5
Escalation to 2021\$					
Labor	87	134	2	39	0
Non-Labor	946	218	3	147	0
NSE	0	0	0	0	0
Total	1,033	352	5	186	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	529	1,092	26	885	469
Non-Labor	5,762	1,771	29	3,373	1,538
NSE	0	0	0	0	0
Total	6,291	2,863	54	4,258	2,007
FTE	4.0	6.7	0.1	6.0	3.2

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 99282.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

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 992820**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 99282.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT
 Workpaper Detail: 992820.001 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT
 In-Service Date: Not Applicable

Description:

Replace obsolete and problematic substation equipment, primarily distribution substation bank transformers and circuit breakers.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		460	460	460
Non-Labor		1,647	1,647	1,647
NSE		0	0	0
	Total	<u>2,107</u>	<u>2,107</u>	<u>2,107</u>
FTE		3.1	3.1	3.1

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
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Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 99282.0
 Category: H. RELIABILITY/IMPROVEMENTS
 Category-Sub: 2. Other Reliability/Impr
 Workpaper Group: 992820 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT
 Workpaper Detail: 992820.001 - RAMP - REPLACE OBSOLETE SUBSTATION EQUIPMENT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C21
 RAMP Line Item Name: Distribution Substation Obsolete Equipment
 Tranche(s): Tranche1: Substation

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	2,006	2,107	2,107	2,107	6,321	6,663	8,232

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 major substation equipment installed	3.00	3.00	3.00	3.00	9.00	9.00	10.00

Work Unit Changes from RAMP:

Within Range

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	1.000	8.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: I. SAFETY & RISK MANAGEMENT
Workpaper: VARIOUS

Summary for Category: I. SAFETY & RISK MANAGEMENT

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	1,510	2,422	2,839	4,036
Non-Labor	26,698	19,888	29,504	28,989
NSE	0	0	0	0
Total	28,208	22,310	32,343	33,025
FTE	8.0	20.5	24.3	35.0

062470 RAMP- Replacement Of Live Front Equipment

Labor	40	109	109	109
Non-Labor	792	256	256	256
NSE	0	0	0	0
Total	832	365	365	365
FTE	0.2	0.9	0.9	0.9

142490 SF6 SWITCH REPLACEMENT

Labor	441	532	1,005	828
Non-Labor	6,517	3,099	6,593	5,454
NSE	0	0	0	0
Total	6,958	3,631	7,598	6,282
FTE	2.1	4.6	8.6	7.1

162760 SCADA HEAD-END REPLACEMENT

Labor	79	281	0	0
Non-Labor	590	804	0	0
NSE	0	0	0	0
Total	669	1,085	0	0
FTE	0.7	2.2	0.0	0.0

162770 RAMP- RTU MODERNIZATION

Labor	239	152	72	72
Non-Labor	793	966	550	560
NSE	0	0	0	0
Total	1,032	1,118	622	632
FTE	1.6	1.3	0.6	0.6

172550 RAMP- TEE MODERNIZATION PROGRAM

Labor	485	424	276	276
Non-Labor	4,100	3,310	3,309	3,259
NSE	0	0	0	0
Total	4,585	3,734	3,585	3,535
FTE	2.3	3.6	2.4	2.4

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: I. SAFETY & RISK MANAGEMENT
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
172590 RAMP- ENERGIZED TEST YARD				
Labor	4	14	0	0
Non-Labor	-118	794	0	0
NSE	0	0	0	0
Total	-114	808	0	0
FTE	0.0	0.1	0.0	0.0
192410 RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY				
Labor	78	142	142	142
Non-Labor	570	564	564	564
NSE	0	0	0	0
Total	648	706	706	706
FTE	0.4	1.2	1.2	1.2
202410 RAMP- OH PUBLIC SAFETY (OPS)				
Labor	144	756	864	864
Non-Labor	12,986	4,503	5,296	5,888
NSE	0	0	0	0
Total	13,130	5,259	6,160	6,752
FTE	0.7	6.5	7.4	7.4
202870 REBUILDING OF SKILLS TRAINING YARD				
Labor	0	0	0	0
Non-Labor	468	4,860	2,950	0
NSE	0	0	0	0
Total	468	4,860	2,950	0
FTE	0.0	0.0	0.0	0.0
212670 Mission DCC Remodel Project				
Labor	0	12	66	65
Non-Labor	0	732	9,212	8,695
NSE	0	0	0	0
Total	0	744	9,278	8,760
FTE	0.0	0.1	0.5	0.5
222410 RAMP-Strategic Pole Replacement Program (Non-HFTD)				
Labor	0	0	305	1,680
Non-Labor	0	0	774	4,313
NSE	0	0	0	0
Total	0	0	1,079	5,993
FTE	0.0	0.0	2.7	14.9

Note: Totals may include rounding differences.

Beginning of Workpaper Group
062470 - RAMP- Replacement Of Live Front Equipment

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06247.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 062470 - RAMP- Replacement Of Live Front Equipment

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	10	23	0	98	40	109	109	109
Non-Labor	Zero-Based	-11	429	-2	440	792	256	256	256
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	452	-2	539	832	365	365	365
FTE	Zero-Based	0.1	0.1	0.0	0.3	0.2	0.9	0.9	0.9

Business Purpose:

Replace live front (energized) padmounted distribution equipment with dead front (de-energized) padmounted distribution equipment when it is encountered during normal SDG&E work. Live front equipment was primarily installed on SDG&E's electric distribution system during the 1960's and 1970's and has since become obsolete. This program will improve operational flexibility, reliability, and safety for SDG&E field personnel, as well as the public. For this program, when a job is being worked on the SDG&E distribution system that involves working with live front equipment, the equipment that is involved will be replaced with dead front equipment. With new technologies, many of the units can be changed out directly with a dead front unit, but in some cases additional equipment has to be installed to convert to the dead front design.

Physical Description:

Live front equipment is defined by having the primary connections exposed with no insulative covering. Thus, when the equipment is opened, there are energized (or live) conductors present.

Project scope includes 6 terminators annually.

Project Justification:

The primary objective of this program is to increase employee safety, public safety, operational flexibility, and the reliability of the SDG&E electric distribution system. SDG&E has been working with live front equipment since the 1960's and is one of the few utilities that still allows its linemen to perform operations on this type of equipment while energized. This has been done safely in the past due to training and the use of proper tools, but as SDG&E's workforce matures and linemen come in from other utilities, it is losing this live front equipment experience. The replacement of live front equipment will increase operational safety for our workforce and for the public by insulating the primary conductors in distribution equipment. Even though the connections to distribution equipment are behind locked cabinet doors, live front equipment poses a significantly higher risk for wire entry conditions. Live front equipment is also more difficult to work with in comparison to dead front equipment. Electric service isolation and restoration procedures are performed with greater ease and speed on dead front equipment, thus improving SDG&E's operational flexibility and electric reliability to its customers. In addition to the justifications given, the manufacturing of this type of equipment has slowed in recent years and SDG&E has been paying a premium for manufacturers to build live front equipment for like-for-like replacements. Rodent and reptile contacts to exposed primary connections are also eliminated on dead front equipment, which also improves electric reliability to SDG&E's customers.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 06247.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 062470 - RAMP- Replacement Of Live Front Equipment

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
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 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 062470 - RAMP- Replacement Of Live Front Equipment

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	Zero-Based	109	109	109	0	0	0	109	109	109
Non-Labor	Zero-Based	256	256	256	0	0	0	256	256	256
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		365	365	365	0	0	0	365	365	365
FTE	Zero-Based	0.9	0.9	0.9	0.0	0.0	0.0	0.9	0.9	0.9

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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
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 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 062470 - RAMP- Replacement Of Live Front Equipment

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	8	17	0	87	34
Non-Labor	-9	376	-1	422	792
NSE	0	0	0	0	0
Total	-1	394	-1	510	827
FTE	0.1	0.0	0.0	0.3	0.0
Adjustments (Nominal \$)**					
Labor	0	0	0	-5	0
Non-Labor	0	0	0	-1	0
NSE	0	0	0	0	0
Total	0	0	0	-6	0
FTE	0.0	0.1	0.0	0.0	0.2
Recorded-Adjusted (Nominal \$)					
Labor	8	17	0	82	34
Non-Labor	-9	376	-1	421	792
NSE	0	0	0	0	0
Total	-1	394	-1	504	827
FTE	0.1	0.1	0.0	0.3	0.2
Vacation & Sick (Nominal \$)					
Labor	1	3	0	12	5
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	3	0	12	5
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	2	3	0	4	0
Non-Labor	-2	53	0	19	0
NSE	0	0	0	0	0
Total	0	56	0	24	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	10	23	0	98	40
Non-Labor	-11	429	-2	440	792
NSE	0	0	0	0	0
Total	0	452	-2	539	832
FTE	0.1	0.1	0.0	0.3	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
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Capital Workpapers

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 Budget Code: 06247.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 062470 - RAMP- Replacement Of Live Front Equipment

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		0	0	0	-5	0
Non-Labor		0	0	0	-1	0
NSE		0	0	0	0	0
	Total	0	0	0	-6	0
FTE		0.0	0.1	0.0	0.0	0.2

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 Total	0	0	0	0	0.0
2018	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2018 Total	0.001	0	0	0.001	0.1
2019 Total	0	0	0	0	0.0
2020	-5	-1	0	-6	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-5	-1	0	-6	0.0
2021	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.2

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 062470**

San Diego Gas & Electric Company
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Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06247.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 062470 - RAMP- Replacement Of Live Front Equipment
 Workpaper Detail: 062470.001 - RAMP - Replacement Of Live Front Equipment
 In-Service Date: Not Applicable

Description:

Replace live front (energized) padmounted distribution equipment with dead front (de-energized) padmounted distribution equipment when it is encountered during normal SDG&E work.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		109	109	109
Non-Labor		256	256	256
NSE		0	0	0
	Total	365	365	365
FTE		0.9	0.9	0.9

Note: Totals may include rounding differences.

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

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 Witness: Oliva L. Reyes
 Budget Code: 06247.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 062470 - RAMP- Replacement Of Live Front Equipment
 Workpaper Detail: 062470.001 - RAMP - Replacement Of Live Front Equipment

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C12
 RAMP Line Item Name: Replacement of Live Front Equipment - Reactive
 Tranche(s): Tranche1: N/A

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	830	365	365	365	1,095	1,131	1,399

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 terminators replaced	10.00	6.00	6.00	6.00	18.00	30.00	39.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 062470

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 6247
Estimated In Service Date: ongoing

Line Item	Replace Live Front Equipment	Unit Description	Unit Metric (ea./ft./mils)	2022		2023		2024		Total Cost	Comments
				# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	Labor	Labor	hours	1,667	\$	1,667	\$	64	\$	\$ 320,064	This is forecasted based on a typical crew consisting of 2 troubleman, 1 substation support, 1 vehicle labor and the historical average amount of hours spent on equipment replacement.
2	Service	Non-Labor	ea	6	\$	6	\$	36,093	\$	\$ 649,674	This is a reactive program in that the equipment is replaced when it is encountered in the field and replacement of such equipment. Cost based on average of historical spend.
3	Material (Terminators)	Non-Labor	ea	6	\$	6	\$	6,635	\$	\$ 719,430	Service contract labor assumptions include electrical utilities services, tree trimming, traffic control, etc.
4	Labor	Labor	V&S	284	\$	284	\$	10	\$	\$ 8,207	This is based on historical spend for this type of terminator.
Summary											
		Labor			\$		\$		\$	\$ 328,265	
		Non-Labor			\$		\$		\$	\$ 769,104	
		Subtotal RAMP			\$		\$		\$	\$ 1,097,369	
		Labor			\$		\$		\$	\$ -	
		Non-Labor			\$		\$		\$	\$ -	
		Subtotal Non-RAMP			\$		\$		\$	\$ -	
		Total Project Forecast			\$		\$		\$	\$ 1,097,369	

Beginning of Workpaper Group
142490 - SF6 SWITCH REPLACEMENT

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14249.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 142490 - SF6 SWITCH REPLACEMENT

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	344	825	501	133	441	532	1,005	828
Non-Labor	Zero-Based	3,669	6,353	3,469	2,642	6,517	3,099	6,593	5,454
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		4,013	7,177	3,970	2,775	6,958	3,631	7,598	6,282
FTE	Zero-Based	1.3	4.1	2.8	0.7	2.1	4.6	8.6	7.1

Business Purpose:

The company initiated this conversion program in 2016 and it aligns with SDG&E's environmental policies by replacing switches that contain the high green house gas (GHG) sulfur hexafluoride (SF6) with non-gas switches.

Physical Description:

This forecast supports the replacement of sulfur hexafluoride (SF6) gas switches with non-gas switches. The majority of these switches are submersible or padmount designs currently installed on the underground distribution system. Some of these switches will not be able to be replaced in-kind in their existing locations and may require circuit reconfigurations or full switch relocations to facilitate the replacement.

The scope of this project includes replacement of 18 switches in 2022, 34 switches in 2023, and 28 switches in 2024.

Project Justification:

SDG&E installed SF6 gas switched during the 1980-2000 time period due in part to SF6 gas being considered at that time as the best and most widely available electrical insulating medium available. However, SF6 is now recognized as a large contributor to elevated GHG emissions and is facing increased federal and statewide scrutiny against its continued use and deployment. These switches also impart a burden on SDG&E's operations and maintenance organizations due to the aging inventory of these switches requiring far more effort to maintain and track than non-gas switches.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 14249.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 142490 - SF6 SWITCH REPLACEMENT

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14249.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 142490 - SF6 SWITCH REPLACEMENT

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	Zero-Based	532	1,005	828	0	0	0	532	1,005	828
Non-Labor	Zero-Based	3,099	6,593	5,454	0	0	0	3,099	6,593	5,454
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		3,631	7,598	6,282	0	0	0	3,631	7,598	6,282
FTE	Zero-Based	4.6	8.6	7.1	0.0	0.0	0.0	4.6	8.6	7.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14249.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 142490 - SF6 SWITCH REPLACEMENT

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	250	628	400	111	384
Non-Labor	3,067	5,571	3,162	2,527	6,517
NSE	0	0	0	0	0
Total	3,317	6,199	3,562	2,638	6,900
FTE	1.1	3.5	2.2	0.6	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	0.2	0.0	1.6
Recorded-Adjusted (Nominal \$)					
Labor	250	628	400	111	384
Non-Labor	3,067	5,571	3,162	2,527	6,517
NSE	0	0	0	0	0
Total	3,317	6,199	3,562	2,638	6,900
FTE	1.1	3.5	2.4	0.6	1.8
Vacation & Sick (Nominal \$)					
Labor	37	95	57	16	58
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	37	95	57	16	58
FTE	0.2	0.6	0.4	0.1	0.3
Escalation to 2021\$					
Labor	56	102	44	6	0
Non-Labor	602	782	307	115	0
NSE	0	0	0	0	0
Total	659	884	351	121	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	344	825	501	133	441
Non-Labor	3,669	6,353	3,469	2,642	6,517
NSE	0	0	0	0	0
Total	4,013	7,177	3,970	2,775	6,958
FTE	1.3	4.1	2.8	0.7	2.1

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14249.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 142490 - SF6 SWITCH REPLACEMENT

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	0.2	0.0	1.6

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	0.2
2020 Total	0	0	0	0	0.0
2021	0.001	0	0	0.001	1.6
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	1.6

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 142490**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14249.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 142490 - SF6 SWITCH REPLACEMENT
 Workpaper Detail: 142490.001 - SF6 SWITCH REPLACEMENT
 In-Service Date: Not Applicable

Description:

Replace all SF6 gas switches with non-gas switches over multiple years.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		516	975	803
Non-Labor		3,006	6,395	5,291
NSE		0	0	0
	Total	3,522	7,370	6,094
FTE		4.5	8.3	6.9

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14249.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 142490 - SF6 SWITCH REPLACEMENT
 Workpaper Detail: 142490.002 - SF6 SWITCH REPLACEMENT- GENERAL PLANT
 In-Service Date: Not Applicable

Description:

Replace all SF6 gas switches with non-gas switches over multiple years.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		16	30	25
Non-Labor		93	198	163
NSE		0	0	0
	Total	109	228	188
FTE		0.1	0.3	0.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 142490

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 14249
Estimated In Service Date: ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Measure (ea./ft./mile)	2022		2023		2024		Total Cost	Comments	
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*			
1	Labor	Labor	Non-RAMP	hours	8,107	\$ 518,848	15,313	\$ 64	12,611	\$ 64	\$ 807,104	\$ 2,305,984	Crew of 5-8 people (On average) involved for a job. If there are 2 structures or multiple circuits involved - it's possible they will assign 2 crews to the job. So that 5-8 people would double in size.
2	Service	Non-Labor	Non-RAMP	ea	18	\$ 54,344	34	\$ 52,869	28	\$ 53,767	\$ 1,505,676	\$ 4,284,034	80% of total labor expected to be involved in construction services. This includes removing old switches and new switch installations, trench work for cabling (expenses vary per jurisdictions) and includes field paving.
3	Switches	Non-Labor	Non-RAMP	ea	18	\$ 2,120,994	34	\$ 141,033	28	\$ 141,033	\$ 3,948,924	\$ 10,865,040	New SFG Switches and Cables. Cost per unit based on historical spend assumes price increase in 2023.
4	Labor	Labor	RAMP	WGS	1,383	\$ 13,295	2,612	\$ 70	2,151	\$ 70	\$ 20,681	\$ 59,089	
Subtotal RAMP						\$ 13,295		\$ 20,681		\$ 20,681	\$ 59,089		
Subtotal Non-RAMP						\$ 518,848		\$ 807,104		\$ 807,104	\$ 2,305,984		
Total Project Forecast						\$ 3,617,854		\$ 6,261,504		\$ 6,261,504	\$ 17,452,058		
Summary						\$ 3,617,854		\$ 6,261,504		\$ 6,261,504	\$ 17,452,058		

Beginning of Workpaper Group
162760 - SCADA HEAD-END REPLACEMENT

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16276.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162760 - SCADA HEAD-END REPLACEMENT

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	50	103	249	235	79	281	0	0
Non-Labor	Zero-Based	2,886	4,591	4,504	3,106	590	804	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		2,936	4,693	4,753	3,342	669	1,085	0	0
FTE	Zero-Based	0.4	0.7	2.3	1.9	0.7	2.2	0.0	0.0

Business Purpose:

The forecast represents phase 2 of The SCADA Headend Replacement project. Phase 1 of the SCADA Headend Replacement project resolved technical constraints and issues with the previous ACS SCADA system, as it allowed SDG&E to address the issues and move away from unsupported legacy communication protocol. The new system also allows for a more transparent view to the distribution grid, enhancing reliability and security of the distribution system. The SCADA Headend Replacement Phase 2 will create a full duplicate of the system at the back-up control center from operations to maintenance, provide simulation to allow additional testing and training capability, and prepare for SCADA system growth by adding additional RTU licenses and SCADA data points. Phase II will migrate outdated serial communication protocol with new and more reliable DNP3 IP communications, and balance SCADA communication mountaintops.

Physical Description:

The SCADA Headend Replacement Phase 2 will 1) add both a SCADA PDS and QAS system to the backup control center; 2) migrate all serial communication to DNP3 IP; 3) segment DAC server processes from FEP processes; 4) add an NMS integration server; 5) purchase additional RTU licenses and SCADA points for future SCADA system growth, an ACRONIS license for PDS, QAS, and integration servers, additional channel licenses for migration from serial to IP, and a secure DNP license to meet the new secure DNP standard; 6) add a simulator environment for EDOT development testing and training; 7) add a SCADA simulator environment at the ITF lab.

4 RF Master radios will be purchased in 2022.

Project Justification:

At post go-live of the new SCADA Headend system, all maintenance of the SCADA system will need to be done in the production environment if the primary control center is unavailable, as only the SCADA production system, and none of the maintenance system, is available at the backup control center. Phase 2 of the SCADA Headend Replacement will add the necessary components to the back-up control center SCADA system so maintenance and SCADA testing can resume in the event the primary control center is unavailable for an extended period of time. Converting SCADA serial communication to IP will allow more secure messaging and monitoring capabilities, improving system performance and reliability. Adding an additional simulator environment at the ITF lab will allow for switching of non-SCADA and SCADA devices in the SCADA system when NMS is temporarily unavailable during patching, improving reliability and safety for real time operations.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 16276.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 162760 - SCADA HEAD-END REPLACEMENT

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16276.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162760 - SCADA HEAD-END REPLACEMENT

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	Zero-Based	281	0	0	0	0	0	281	0	0
Non-Labor	Zero-Based	804	0	0	0	0	0	804	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,085	0	0	0	0	0	1,085	0	0
FTE	Zero-Based	2.2	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16276.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162760 - SCADA HEAD-END REPLACEMENT

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	36	78	199	197	69
Non-Labor	1,983	3,333	3,477	2,518	497
NSE	0	0	0	0	0
Total	2,020	3,412	3,675	2,715	565
FTE	0.3	0.6	2.0	1.6	0.6
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	429	692	629	452	93
NSE	0	0	0	0	0
Total	429	692	629	452	93
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	36	78	199	197	69
Non-Labor	2,412	4,026	4,106	2,971	590
NSE	0	0	0	0	0
Total	2,449	4,104	4,305	3,168	658
FTE	0.3	0.6	2.0	1.6	0.6
Vacation & Sick (Nominal \$)					
Labor	5	12	28	28	10
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	5	12	28	28	10
FTE	0.1	0.1	0.3	0.3	0.1
Escalation to 2021\$					
Labor	8	13	22	10	0
Non-Labor	474	565	398	136	0
NSE	0	0	0	0	0
Total	482	578	420	146	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	50	103	249	235	79
Non-Labor	2,886	4,591	4,504	3,106	590
NSE	0	0	0	0	0
Total	2,936	4,693	4,753	3,342	669
FTE	0.4	0.7	2.3	1.9	0.7

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16276.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162760 - SCADA HEAD-END REPLACEMENT

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		0	0	0	0	0
Non-Labor		429	692	629	452	93
NSE		0	0	0	0	0
	Total	429	692	629	452	93
FTE		0.0	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	429	0	429	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2017 Total	0	429	0	429	0.0
2018	0	692	0	692	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2018 Total	0	692	0	692	0.0
2019	0	629	0	629	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2019 Total	0	629	0	629	0.0
2020	0	452	0	452	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2020 Total	0	452	0	452	0.0
2021	0	93	0	93	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2021 Total	0	93	0	93	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 162760**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16276.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162760 - SCADA HEAD-END REPLACEMENT
 Workpaper Detail: 162760.001 - SCADA HEAD-END REPLACEMENT
 In-Service Date: 12/31/2022

Description:

The SCADA Headend Replacement Phase 2 will 1) add both a SCADA PDS and QAS system to the backup control center; 2) migrate all serial communication to DNP3 IP; 3) segment DAC server processes from FEP processes; 4) add an NMS integration server; 5) purchase additional RTU licenses and SCADA points for future SCADA system growth, an ACRONIS license for PDS, QAS, and integration servers, additional channel licenses for migration from serial to IP, and a secure DNP license to meet the new secure DNP standard; 6) add a simulator environment for EDOT development testing and training; 7) add a SCADA simulator environment at the ITF lab.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		281	0	0
Non-Labor		804	0	0
NSE		0	0	0
	Total	<u>1,085</u>	<u>0</u>	<u>0</u>
FTE		2.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 162760

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 16276
Estimated In Service Date: 12/31/2022

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTE's	Labor	RAMP	hours	2392	\$55					\$ 131,560	SDG&E Technical Project Manager
2	Union Labor	Labor	RAMP	hours	1,500	\$ 95					\$ 142,500	Electronic Control Technicians required to complete on-site radio testing at more remote locations. Approximate time: 2-hours per site, regular working hours.
3	Contractor (Services)	Non-Labor	RAMP	hours	2,080	\$ 271					\$ 563,680	Technical project consultant fills a critical need to provide support for the creation and implementation of strategic technological solutions and overall system architecture.
4	4/RF Master Radio	Non-Labor	RAMP	ea	4	\$ 60,000					\$ 240,000	New master radios. Cost per unit based on quotation.
5	FTE's	Labor	RAMP	V8S	408	\$ 8					\$ 3,371	
6	Union Labor	Labor	RAMP	V8S	256	\$ 14					\$ 3,651	
Summary												
		Labor	RAMP			\$ 281,083					\$ 281,083	
		Non-Labor	RAMP			\$ 809,680					\$ 809,680	
	Subtotal RAMP					\$ 1,084,763					\$ 1,084,763	
		Labor	Non-RAMP			\$ -					\$ -	
		Non-Labor	Non-RAMP			\$ -					\$ -	
	Subtotal Non-RAMP					\$ -					\$ -	
	Total Project Forecast					\$ 1,084,763					\$ 1,084,763	

Beginning of Workpaper Group
162770 - RAMP- RTU MODERNIZATION

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16277.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162770 - RAMP- RTU MODERNIZATION

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	62	382	95	86	239	152	72	72
Non-Labor	Zero-Based	2,149	1,903	43	1,722	793	966	550	560
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		2,211	2,286	137	1,807	1,033	1,118	622	632
FTE	Zero-Based	0.4	2.2	0.6	0.6	1.6	1.3	0.6	0.6

Business Purpose:

This project helps ensure safe operation of the distribution system by replacing legacy and end-of-life RMS900 RTUs in existing pad mounted transformers. The RTUs help remotely communicate operational data to the headend of the SCADA systems, and RTUs that have reached their end-of-life are prone to failure which causes loss of visibility of the distribution system in specific locations. SDG&E considers SCADA enhancements such as this project to replace end-of-life RTUs with state-of-the-art replacements as paramount to ensuring the safe operation of the distribution system.

Physical Description:

This project will retrofit legacy RTUs which are past or towards the end of their life cycle and are no longer supported by the vendor. Retrofit existing RTUs with updated technology at prioritized PME SCADA Cabinets (27 in 2022, 15 in 2023, and 15 in 2024). Re-establish communications with SCADA master. - Re-commission SCADA cabinets. Release SCADA cabinets back to SCADA operations, with upgraded functionality.

Project Justification:

Replacing these devices is vital for Electric Distribution Operations and SDG&E's grid reliability. This RTU modernization project will allow SDG&E to accomplish reliability goals, control costs, and better serve customers.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 16277.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 162770 - RAMP- RTU MODERNIZATION

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16277.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162770 - RAMP- RTU MODERNIZATION

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	Zero-Based	152	72	72	0	0	0	152	72	72
Non-Labor	Zero-Based	966	550	560	0	0	0	966	550	560
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,118	622	632	0	0	0	1,118	622	632
FTE	Zero-Based	1.3	0.6	0.6	0.0	0.0	0.0	1.3	0.6	0.6

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 16277.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 162770 - RAMP- RTU MODERNIZATION

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	45	291	76	72	208
Non-Labor	1,796	1,669	39	1,646	793
NSE	0	0	0	0	0
Total	1,841	1,960	114	1,718	1,001
FTE	0.3	1.9	0.5	0.5	1.3
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	0.1
Recorded-Adjusted (Nominal \$)					
Labor	45	291	76	72	208
Non-Labor	1,796	1,669	39	1,646	793
NSE	0	0	0	0	0
Total	1,841	1,960	114	1,718	1,001
FTE	0.3	1.9	0.5	0.5	1.4
Vacation & Sick (Nominal \$)					
Labor	7	44	11	10	31
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	7	44	11	10	31
FTE	0.1	0.3	0.1	0.1	0.2
Escalation to 2021\$					
Labor	10	47	8	4	0
Non-Labor	353	234	4	75	0
NSE	0	0	0	0	0
Total	363	281	12	79	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	62	382	95	86	239
Non-Labor	2,149	1,903	43	1,722	793
NSE	0	0	0	0	0
Total	2,211	2,286	137	1,807	1,033
FTE	0.4	2.2	0.6	0.6	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16277.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162770 - RAMP- RTU MODERNIZATION

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	0.1

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 Total	0	0	0	0	0.0
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	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 162770**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16277.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162770 - RAMP- RTU MODERNIZATION
 Workpaper Detail: 162770.001 - RAMP- RTU MODERNIZATION
 In-Service Date: Not Applicable

Description:

Retrofit legacy RTUs which are past or towards the end of their life cycle and are no longer supported by the vendor .
 Retrofit existing RTUs with updated technology at prioritized PME SCADA Cabinets . Re-establish communications with SCADA master. Re-commission SCADA cabinets. Release SCADA cabinets back to SCADA operations with upgraded functionality.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		152	72	72
Non-Labor		966	550	560
NSE		0	0	0
	Total	1,118	622	632
FTE		1.3	0.6	0.6

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 16277.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 162770 - RAMP- RTU MODERNIZATION
 Workpaper Detail: 162770.001 - RAMP- RTU MODERNIZATION

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity

RAMP Line Item ID: C28

RAMP Line Item Name: Field SCADA RTU Replacement

Tranche(s): Tranche1: UG Distribution

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	1,032	1,118	622	632	2,372	1,924	2,378

Cost Estimate Changes from RAMP:

Within range.

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 RTUs replaced	20.00	27.00	15.00	15.00	57.00	69.00	86.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	1,137.000	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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 162770

Beginning of Workpaper Group
172550 - RAMP- TEE MODERNIZATION PROGRAM

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17255.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172550 - RAMP- TEE MODERNIZATION PROGRAM

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	150	172	200	446	485	424	276	276
Non-Labor	Zero-Based	1,471	2,384	439	1,384	4,100	3,310	3,309	3,259
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	1,621	2,556	639	1,830	4,584	3,734	3,585	3,535
FTE	Zero-Based	0.7	0.8	1.0	2.1	2.3	3.6	2.4	2.4

Business Purpose:

This program's main focus is to remove and replace at risk 600 amp Tee connectors with upgraded devices. The program also installs upgraded equipment in strategic areas to improve reliability.

Physical Description:

This project will replace at-risk 600A Tees with a new connector that will allow for quicker restorations and increased sectionalizing capabilities during outages. 600A Tees have been failing at an accelerated rate and have become a safety and reliability concern. These Tees are located on cable on the main feeder and when they fail, the circuit breaker is often the isolating device, taking all or many customers on the circuit out for a sustained outage.

Project scope includes replacement of 120 tees in 2022, 130 tees in 2023, and 130 tees in 2024.

Project Justification:

The primary objective of this project is to improve reliability. Tee connector failures have become one of the largest contributors to system SAIDI and SAIFI over the last few years. One of the most frequently failed components of Tees are the double-ended plug. This component is not used with the modern replacement for the tee; the Cleer connector. This new design will improve reliability by removing the known common point of failure and also provide additional sectionalizing capabilities for overall circuit operation.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17255.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 172550 - RAMP- TEE MODERNIZATION PROGRAM

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17255.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172550 - RAMP- TEE MODERNIZATION PROGRAM

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	Zero-Based	424	276	276	0	0	0	424	276	276
Non-Labor	Zero-Based	3,310	3,309	3,259	0	0	0	3,310	3,309	3,259
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		3,734	3,585	3,535	0	0	0	3,734	3,585	3,535
FTE	Zero-Based	3.6	2.4	2.4	0.0	0.0	0.0	3.6	2.4	2.4

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17255.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172550 - RAMP- TEE MODERNIZATION PROGRAM

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	109	131	160	373	421
Non-Labor	1,229	2,090	400	1,323	4,100
NSE	0	0	0	0	0
Total	1,339	2,221	560	1,697	4,521
FTE	0.6	0.7	0.7	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	0.2	1.7	2.0
Recorded-Adjusted (Nominal \$)					
Labor	109	131	160	373	421
Non-Labor	1,229	2,090	400	1,323	4,100
NSE	0	0	0	0	0
Total	1,339	2,221	560	1,697	4,521
FTE	0.6	0.7	0.9	1.8	2.0
Vacation & Sick (Nominal \$)					
Labor	16	20	23	53	63
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	16	20	23	53	63
FTE	0.1	0.1	0.1	0.3	0.3
Escalation to 2021\$					
Labor	25	21	18	19	0
Non-Labor	242	293	39	60	0
NSE	0	0	0	0	0
Total	266	315	56	80	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	150	172	200	446	485
Non-Labor	1,471	2,384	439	1,384	4,100
NSE	0	0	0	0	0
Total	1,621	2,556	639	1,830	4,584
FTE	0.7	0.8	1.0	2.1	2.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17255.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172550 - RAMP- TEE MODERNIZATION PROGRAM

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	0.2	1.7	2.0	

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019	0.001	0	0	0.001	0.2
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2019 Total	0.001	0	0	0.001	0.2
2020	0.001	0	0	0.001	1.7
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	0	0	0.001	1.7
2021	0.001	0	0	0.001	2.0
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	2.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 172550**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17255.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172550 - RAMP- TEE MODERNIZATION PROGRAM
 Workpaper Detail: 172550.001 - RAMP - TEE MODERNIZATION PROGRAM
 In-Service Date: Not Applicable

Description:

Replace 600A Tees with a new connector that will allow for quicker restorations and increased sectionalizing capabilities during outages.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		424	276	276
Non-Labor		3,310	3,309	3,259
NSE		0	0	0
	Total	<u>3,734</u>	<u>3,585</u>	<u>3,535</u>
FTE		3.6	2.4	2.4

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17255.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172550 - RAMP- TEE MODERNIZATION PROGRAM
 Workpaper Detail: 172550.001 - RAMP - TEE MODERNIZATION PROGRAM

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity

RAMP Line Item ID: C11

RAMP Line Item Name: Tee Modernization Program

Tranche(s): Tranche1: UG Distribution

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	4,584	3,734	3,585	3,535	10,854	9,750	12,042

Cost Estimate Changes from RAMP:

Within Range

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 sets of tees replaced	148.00	120.00	130.00	130.00	380.00	384.00	474.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	1,406.000	938.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 172550

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 17255
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	Labor	Labor	RAMP	hours	6,455	\$ 64	4,207	\$ 64	64	\$ 269,247	\$ 951,604	Installation crew 4 person working 8 hours per Tee per structure. Rate estimate based on historical spend. The installation requires a 4 person crew working 8 hours per Tee per structure. The use of an UG Construction Truck is needed as well. 1 fee for each project, cost based on historical spend.
2	Service	Non-Labor	RAMP	ea	120	\$ 13,626	130	\$ 12,675	130	\$ 1,572,727	\$ 4,855,599	
3	Tees	Non-Labor	RAMP	ea	120	\$ 13,958	130	\$ 12,777	12,970	\$ 1,686,064	\$ 5,022,680	
4	Labor	Labor	RAMP	V&S	1,101	\$ 10	718	\$ 10	10	\$ 6,899	\$ 24,584	
Summary												
		Labor	RAMP			\$ 429,696		\$ 276,146		\$ 276,146	\$ 975,988	
		Non-Labor	RAMP			\$ 3,310,098		\$ 3,288,791		\$ 3,288,791	\$ 9,877,679	
			Subtotal RAMP			\$ 3,739,794		\$ 3,564,936		\$ 3,564,937	\$ 10,853,667	
		Labor	Non-RAMP			\$ -		\$ -		\$ -	\$ -	
		Non-Labor	Non-RAMP			\$ -		\$ -		\$ -	\$ -	
			Subtotal Non-RAMP			\$ -		\$ -		\$ -	\$ -	
			Total Project Forecast			\$ 3,739,794		\$ 3,564,936		\$ 3,564,937	\$ 10,853,667	

Beginning of Workpaper Group
172590 - RAMP- ENERGIZED TEST YARD

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17259.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172590 - RAMP- ENERGIZED TEST YARD

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	1	4	4	14	0	0
Non-Labor	Zero-Based	338	317	16	1,258	-118	794	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		338	317	17	1,262	-114	808	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

Complete and install the required process and assets (including equipment, structures, site development) to test and evaluate all equipment related to the Electric Distribution System prior to field installation. The collaborative efforts with Skills Training Center, Electric Regional Operations, SPACE, Kearny and Distribution Planning aim to provide enhancements to training, engineering/design, and quality control processes, are expected to result in improved safety, operational efficiencies, and long-term cost savings. This yard will provide an enhanced controlled environment for SDG&E to safely energize new equipment and train staff appropriately on operational of the equipment .

Physical Description:

In collaboration with the Skills Training Center and Facilities personnel , a site has been identified to accommodate the development of the Energized Test Yard. The site will contain overhead and underground primary electric facilities to be energized. For underground, this would allow the capability of utilizing existing conduit where present, new conduit, packages and cable trays with handholes, manholes, and pad-mounts. The Overhead capability would allow the installation of different classes of poles and incorporate different equipment challenges . The site will also include a equipment evaluation to be used for analysis of failed distribution equipment. Additional equipment (i.e. relays, communication equipment, etc.) may be purchased for testing at other SDG&E facilities when necessary to be incorporated at this yard at a later time.

Project Justification:

With increase in retirements, reliability and personnel safety are at risk due to lack of sufficient training facilities and an effective means of transferring field knowledge. Modeled after other California IOUs who already have such facilities, the proposed site aims to enhance the simulated field environment at Skills Training Center , providing a world-class hands-on training environment for apprentices and journeymen alike. With improved effectiveness in training and development , Standards, Practices and Work Methods can be improved reducing risks in reliability and safety .

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17259.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 172590 - RAMP- ENERGIZED TEST YARD

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17259.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172590 - RAMP- ENERGIZED TEST YARD

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	Zero-Based	14	0	0	0	0	0	14	0	0
Non-Labor	Zero-Based	794	0	0	0	0	0	794	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		808	0	0	0	0	0	808	0	0
FTE	Zero-Based	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17259.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 172590 - RAMP- ENERGIZED TEST YARD

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	1	4	4
Non-Labor	282	278	15	1,203	-118
NSE	0	0	0	0	0
Total	282	278	16	1,206	-114
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	4	4
Non-Labor	282	278	15	1,203	-118
NSE	0	0	0	0	0
Total	282	278	16	1,206	-114
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	0	0	1	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	1	1
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	0	0	0	0	0
Non-Labor	55	39	1	55	0
NSE	0	0	0	0	0
Total	55	39	2	55	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	1	4	4
Non-Labor	338	317	16	1,258	-118
NSE	0	0	0	0	0
Total	338	317	17	1,262	-114
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17259.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172590 - RAMP- ENERGIZED TEST YARD

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 172590**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17259.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172590 - RAMP- ENERGIZED TEST YARD
 Workpaper Detail: 172590.001 - RAMP - ENERGIZED TEST YARD
 In-Service Date: 12/31/2022

Description:

Energized overhead and underground primary electric facilities. Additional equipment (i.e. relays, communication equipment, etc.) may be purchased for testing at other SDG&E facilities when necessary to be incorporated at a later time.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		14	0	0
Non-Labor		794	0	0
NSE		0	0	0
	Total	808	0	0
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17259.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 172590 - RAMP- ENERGIZED TEST YARD
 Workpaper Detail: 172590.001 - RAMP - ENERGIZED TEST YARD

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-8 Incident Involving an Employee
 RAMP Line Item ID: C16
 RAMP Line Item Name: Energized Skills Training and Testing Yard
 Tranche(s): Tranche1: N/A

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	-113	808	0	0	808	0	0

Cost Estimate Changes from RAMP:

RAMP filing did not include a forecast. Project was expected to be in-serviced in 2021 in RAMP filing but will now be in-serviced in 2022.

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 padmount transformer installed	0.00	1.00	0.00	0.00	1.00	0.00	0.00

Work Unit Changes from RAMP:

RAMP filing did not include a forecast. Project was expected to be in-serviced in 2021 in RAMP filing but will now be in-serviced in 2022.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 172590

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 17259
Estimated In Service Date: 12/30/2022

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	Union Labor	Labor	Ramp	Hours	210	\$ 60	\$ 12,600				\$ 12,600	Keary labor estimated 210 man hours.
2	Appliances for Equip Room	non-Labor	Ramp	ea	1	\$ 20,000	\$ 20,000				\$ 20,000	Estimated costs for appliances to support functions of the equipment room
3	Padmount Transformer	non-Labor	Ramp	ea	1	\$ 3,800	\$ 3,800				\$ 3,800	Padmount transformer to be used to feed power into the equipment room
4	Man crew	Labor	Ramp	hrs	231	\$ 1,000	\$ 231,000				\$ 231,000	Man crew for construction of vault
5	Material for Construction of Vault and Building	Non-Labor	Ramp	ea	1	\$ 562,000	\$ 562,000				\$ 562,000	Estimated costs based on quotes from various vendors
6	Union Labor	Labor	Ramp	V&S	36	\$ 9	\$ 323				\$ 323	
Summary												
Subtotal RAMP		Labor	RAMP				\$ 12,923				\$ 12,923	
		Non-Labor	RAMP				\$ 794,250				\$ 794,250	
Subtotal Non-RAMP		Labor	Non-RAMP				\$ 807,173				\$ 807,173	
		Non-Labor	Non-RAMP				\$ -				\$ -	
Total Project Forecast							\$ 807,173				\$ 807,173	

Beginning of Workpaper Group
192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	89	78	142	142	142
Non-Labor	Zero-Based	0	0	0	370	570	564	564	564
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	459	648	706	706	706
FTE	Zero-Based	0.0	0.0	0.0	0.2	0.4	1.2	1.2	1.2

Business Purpose:

This project targets deployment of dead front terminators for increased safety and reliability. This project encompasses system-wide proactive deployments of dead front terminator devices (e.g. UG 3517/3518) to improve reliability by increasing sectionalized capabilities on 600/200-amp distribution systems and reducing safety risks associated with existing live front terminator devices where applicable.

Physical Description:

The new dead front terminators (UG 3517, 3518) will be deployed in strategic areas to improve distribution circuit reliability such as where large customer segments can be further sectionalized in small padmount applications. Funding for this program assumes a target of 15 locations each year where live front terminators currently exist. Limited cable replacements will be included in this work as directly related to making up new cable terminations. This project differs from secondary budget 6247, which is currently utilized by Electric Regional Operations (ERO) to account for live front infrastructure removed in conjunction with other work such as cable replacements.

Project Justification:

Safety: Live front terminators are currently operated per Electric Standard Practice (ESP) 200. This operation requires the use of vacuum circuit tester (VCT) switches and close proximity to energized conductors without insulating plugs, as opposed to modern insulated plugs that can be handled with a hot stick. The new dead front terminator devices deployed through this program will eliminate most safety risks associated with these legacy devices by strictly utilizing insulated equipment. The 600A version of this device also features faster and safer isolation, test, and grounding points.

Reliability: This project aims to improve distribution system reliability by adding fast, manual sectionalizing points on pad mounted applications, both 200A and 600A.

Operational Efficiency: The new dead front terminators will reduce capital costs by enabling live to dead front conversion jobs to be constructed faster by eliminating easement expansions for legacy dead front cabinets (UG 3524)- re-trenching and re-cabling to accommodate displaced connections- working space violations (new device is one-sided as opposed to two-sided)- other CPUC compliance risks associated with prolonged infraction mitigation deferrals.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 19241.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY

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	Zero-Based	142	142	142	0	0	0	142	142	142
Non-Labor	Zero-Based	564	564	564	0	0	0	564	564	564
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		706	706	706	0	0	0	706	706	706
FTE	Zero-Based	1.2	1.2	1.2	0.0	0.0	0.0	1.2	1.2	1.2

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	76	68
Non-Labor	0	0	0	354	570
NSE	0	0	0	0	0
Total	0	0	0	431	638
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$)**					
Labor	0	0	0	-2	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	-2	0
FTE	0.0	0.0	0.0	0.2	0.3
Recorded-Adjusted (Nominal \$)					
Labor	0	0	0	75	68
Non-Labor	0	0	0	354	570
NSE	0	0	0	0	0
Total	0	0	0	429	638
FTE	0.0	0.0	0.0	0.2	0.3
Vacation & Sick (Nominal \$)					
Labor	0	0	0	11	10
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	11	10
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2021\$					
Labor	0	0	0	4	0
Non-Labor	0	0	0	16	0
NSE	0	0	0	0	0
Total	0	0	0	20	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	89	78
Non-Labor	0	0	0	370	570
NSE	0	0	0	0	0
Total	0	0	0	459	648
FTE	0.0	0.0	0.0	0.2	0.4

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
Years	2017	2018	2019	2020	2021	
Labor	0	0	0	-2	0	
Non-Labor	0	0	0	0	0	
NSE	0	0	0	0	0	
Total	0	0	0	-2	0	
FTE	0.0	0.0	0.0	0.2	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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	-2	-0.084	0	-2	-0.1
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	-2	-0.084	0	-2	0.2
2021	0.001	0	0	0.001	0.3
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.3

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 192410**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY
 Workpaper Detail: 192410.001 - RAMP - PROACTIVE DEAD FRONT TERMINATOR DEPLOYMENT
 In-Service Date: Not Applicable
 Description:

The new dead front terminators (UG 3517, 3518) will be deployed where live front terminators currently exist. Limited cable replacements will be included in this work as directly related to making up new cable terminations.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		142	142	142
Non-Labor		564	564	564
NSE		0	0	0
	Total	706	706	706
FTE		1.2	1.2	1.2

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 19241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 192410 - RAMP- PROACTIVE DEAD FRONT TERMINATOR DEPLOY
 Workpaper Detail: 192410.001 - RAMP - PROACTIVE DEAD FRONT TERMINATOR DEPLOYMENT

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C13
 RAMP Line Item Name: Replacement of Live Front Equipment - Proactive
 Tranche(s): Tranche1: UG Distribution

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	648	706	706	706	2,118	1,490	1,839

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 terminators replaced	15.00	15.00	15.00	15.00	45.00	39.00	48.00

Work Unit Changes from RAMP:

Within Range

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	19.000	6.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 192410

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 19241
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	hours	2022			2023			2024			Total Cost	Comments
						# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost		
1	Labor	Labor	RAMP			2,168	\$	\$138,752	2,168	\$	\$138,752	64	\$	\$138,752	Cost per unit and hours are based on historical spend. Services include UG Connection Crew 3, Administrative Forem 2.5, Gas Crew 3 Man, 3 Man Asphalt, Electric Troubman 1, Traffic Control 3 Man Cost per unit based on historical spend. Number of units based on RAMP as it requires proactive program would 1) cause otherwise unnecessary outages and 2) exposes employees to hazardous conditions without need other than to replace the equipment that presents the hazard in the first place.	
2	Service	Non-Labor	RAMP	ea		15	\$	\$191,220	15	\$	\$191,220	15	\$	\$191,220		
3	Terminators	Non-Labor	RAMP	ea		15	\$	\$24,855	15	\$	\$24,855	15	\$	\$24,855		
4	Labor	Labor	RAMP	1/65		370	\$	\$3,555	370	\$	\$3,555	10	\$	\$3,555		

Summary															
Labor		RAMP				\$142,307						\$142,307		\$ 426,922	
Non-Labor		RAMP				\$564,045						\$564,045		\$ 1,699,155	
Subtotal RAMP						\$706,352						\$706,352		\$ 2,119,057	
Labor		Non-RAMP				\$ -						\$ -		\$ -	
Non-Labor		Non-RAMP				\$ -						\$ -		\$ -	
Subtotal Non-RAMP						\$ -						\$ -		\$ -	
Total Project Forecast						\$706,352						\$706,352		\$ 2,119,057	

Beginning of Workpaper Group
202410 - RAMP- OH PUBLIC SAFETY (OPS)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202410 - RAMP- OH PUBLIC SAFETY (OPS)

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	144	756	864	864
Non-Labor	Zero-Based	0	0	6	55	12,986	4,503	5,296	5,888
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	6	55	13,130	5,259	6,160	6,752
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.7	6.5	7.4	7.4

Business Purpose:

Program proactively replaces high risk overhead conductors prone to wire down events that are in proximity to the public (e.g. schools, freeways, high profile areas) that could put the public at risk of energized contact. This program will also evaluate overhead distribution lines that cross major or high traffic freeways .

Physical Description:

This program will replace the remaining small wire conductor in SDG&E's service territory with a conductor that is less prone to failure, including replacements with covered conductor in certain vegetation areas. Circuits with the small wire conductor that are not feasible to be replace, at-risk connectors, sleeves and single-phase spans will be replaces as needed.

This program was implemented in 2021 to support the company's safety and reliability policies. The main scope of program is to replace remaining small wire with conductor that is known to be statistically less prone to failure, such as #2 5/2 AWAC conductor and depending on vegetation in the area covered conductor . In other areas, where small wire may not feasibly be replaced, at-risk connectors, sleeves, and single-phase spans of small wire (i.e., commonly known failure points) will be replaced as needed.

The scope of this project includes replacement of 7 miles of high risk overhead conductor in 2022, 8 in 2023, and 8 in 2024.

Project Justification:

Safety and reliability. Preceding and subsequent engineering analyses of historic wire down events show aged small wire conductors present the largest wire down risk and can remain energized after touching an unapproved surface due to high ground impedances. Removing long spans, antiquated wire, poor connectors and increasing detection methods can reduce likelihood of future wire down events that could remain energize.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20241.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 202410 - RAMP- OH PUBLIC SAFETY (OPS)

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202410 - RAMP- OH PUBLIC SAFETY (OPS)

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	Zero-Based	756	864	864	0	0	0	756	864	864
Non-Labor	Zero-Based	4,503	5,296	5,888	0	0	0	4,503	5,296	5,888
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		5,259	6,160	6,752	0	0	0	5,259	6,160	6,752
FTE	Zero-Based	6.5	7.4	7.4	0.0	0.0	0.0	6.5	7.4	7.4

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202410 - RAMP- OH PUBLIC SAFETY (OPS)

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	125
Non-Labor	0	0	5	53	12,986
NSE	0	0	0	0	0
Total	0	0	5	53	13,111
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	0.6
Recorded-Adjusted (Nominal \$)					
Labor	0	0	0	0	125
Non-Labor	0	0	5	53	12,986
NSE	0	0	0	0	0
Total	0	0	5	53	13,111
FTE	0.0	0.0	0.0	0.0	0.6
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	19
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	19
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2021\$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	2	0
NSE	0	0	0	0	0
Total	0	0	0	2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	144
Non-Labor	0	0	6	55	12,986
NSE	0	0	0	0	0
Total	0	0	6	55	13,130
FTE	0.0	0.0	0.0	0.0	0.7

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202410 - RAMP- OH PUBLIC SAFETY (OPS)

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	0.6	

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 Total	0	0	0	0	0.0
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	0.001	0	0	0.001	0.6
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2021 Total	0.001	0	0	0.001	0.6

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 202410**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202410 - RAMP- OH PUBLIC SAFETY (OPS)
 Workpaper Detail: 202410.001 - RAMP - OVERHEAD PUBLIC SAFETY (OPS)
 In-Service Date: Not Applicable

Description:

Replace small wire with conductor that is known to be statistically less prone to failure, such as #2 5/2 AWAC conductor and, depending on vegetation in the area, covered conductor. In other areas, where small wire may not feasibly be replaced, at-risk connectors, sleeves, and single-phase spans of small wire (i.e., commonly known failure points) will be replaced as needed.

		Forecast In 2021 \$(000)		
Years		<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		756	864	864
Non-Labor		4,503	5,296	5,888
NSE		0	0	0
	Total	5,259	6,160	6,752
FTE		6.5	7.4	7.4

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202410 - RAMP- OH PUBLIC SAFETY (OPS)
 Workpaper Detail: 202410.001 - RAMP - OVERHEAD PUBLIC SAFETY (OPS)

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: C01
 RAMP Line Item Name: Overhead Public Safety (OPS) Program
 Tranche(s): Tranche1: OH Distribution

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	13,130	5,259	6,160	6,752	18,171	18,470	22,817

Cost Estimate Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

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 miles of conductor replaced	8.00	7.00	8.00	8.00	23.00	27.00	34.00

Work Unit Changes from RAMP:

The GRC forecast is outside the RAMP range due to forecast updates.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	30.000	78.000

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 (Ex. SCG-03/SDG&E-03, Chapter 2)

Supplemental Workpapers for Workpaper Group 202410

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

TY2024 GRC FORECAST - DETAILS
Budget Code: 20241
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
Overhead Public Safety												
1	Overhead Conductor	Non-Labor	RAMP	mile	7	\$ 195,291	8	\$ 218,507	8	\$ 218,507	\$ 4,892,443	Estimate includes overhead conductors, cables and poles (as needed). Estimate based on historical spend.
2	Labor	Labor	RAMP	hours	11,516	\$ 64	13,161	\$ 64	13,161	\$ 64	\$ 2,421,632	Labor cost based on historical number of hours and spend per mile. Crews include: 1-HD25 HAND DRESSING CREW, 2-MAN OH ELECTRIC, 11-WORKING FOREMAN, 14-MAN CREW OH REGULAR, 30-SPSS GAS CREW, 3-MAN STEEL PIPES POLE DELIVERY/PICKUP, REPAIR, 3-MAN CONCRETE, ELECTRIC TROUBLEMAN, TRAFFIC CONTROL, 2-MAN.
3	Service	Non-Labor	RAMP	ea	7	\$ 434,468	8	\$ 443,515	8	\$ 517,482	\$ 4,139,856	Replace high risk overhead conductors prone to wire down events that are in proximity to the public that could put the public at risk of energized contact, per RAMP. Cost based on historical contract services spend per mile.
4	Labor	Labor	RAMP	V&S	1,965	\$ 10	2,245	\$ 10	2,245	\$ 10	\$ 21,583	\$ 62,652
Summary												
	Labor	Labor	RAMP			\$ 755,910		\$ 863,897		\$ 863,897	\$ 2,483,684	
	Non-Labor	Non-Labor	RAMP			\$ 4,502,777		\$ 5,296,176		\$ 5,296,176	\$ 15,686,865	
	Subtotal RAMP					\$ 5,258,686		\$ 6,160,063		\$ 6,160,063	\$ 18,170,549	
	Labor	Labor	Non-RAMP			\$ -		\$ -		\$ -	\$ -	
	Non-Labor	Non-Labor	Non-RAMP			\$ -		\$ -		\$ -	\$ -	
	Subtotal Non-RAMP					\$ -		\$ -		\$ -	\$ -	
	Total Project Forecast					\$ 5,258,686		\$ 6,160,063		\$ 6,160,063	\$ 18,170,549	

Beginning of Workpaper Group
202870 - REBUILDING OF SKILLS TRAINING YARD

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20287.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202870 - REBUILDING OF SKILLS TRAINING YARD

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	0	0	
Non-Labor	Zero-Based	0	0	0	0	468	4,860	2,950	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	468	4,860	2,950	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

Rebuild and modernize SDG&E's Skills Training Center outdoor yards with upgraded equipment in order to bring Skills Training in alignment with the latest equipment and standards that is being utilized in the field in support of our programs such as WMP and other reliability initiatives. Additionally, our continued efforts around Target Zero to reduce injuries within our workforce will require a outdoor physical fitness area to support strength and resistance training.

Physical Description:

Expand and rebuild areas of SDG&E's overhead and underground training yards with equipment that is currently being used in the field and in line with current standards. This includes expanding the Fault Finding Specialist training yard to better support fault location, isolation and restoration for unplanned outages.

The scope of this project includes purchasing 1,000 ft of cable in 2022 and 1,000 ft of cable in 2023.

Project Justification:

Both the OH and the fault finding yards have not been updated since the 1990's and try to reduce the injuries the apprentice have going through the program.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20287.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 202870 - REBUILDING OF SKILLS TRAINING YARD

Forecast Methodology:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20287.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202870 - REBUILDING OF SKILLS TRAINING YARD

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	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	4,860	2,950	0	0	0	0	4,860	2,950	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		4,860	2,950	0	0	0	0	4,860	2,950	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20287.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202870 - REBUILDING OF SKILLS TRAINING YARD

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	468
NSE	0	0	0	0	0
Total	0	0	0	0	468
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	0	0	0
Non-Labor	0	0	0	0	468
NSE	0	0	0	0	0
Total	0	0	0	0	468
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 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
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	468
NSE	0	0	0	0	0
Total	0	0	0	0	468
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20287.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202870 - REBUILDING OF SKILLS TRAINING YARD

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 202870**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20287.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 202870 - REBUILDING OF SKILLS TRAINING YARD
 Workpaper Detail: 202870.001 - REBUILDING OF SKILLS TRAINING YARD
 In-Service Date: 12/31/2023

Description:

Expand and rebuild areas of our overhead and underground training yards with equipment that is currently being used in the field and in line with current standards. This includes expanding the Fault Finding Specialist training yard to better support fault location, isolation and restoration for unplanned outages.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	0	0
Non-Labor		4,860	2,950	0
NSE		0	0	0
	Total	4,860	2,950	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 202870

**Beginning of Workpaper Group
212670 - Mission DCC Remodel Project**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21267.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 212670 - Mission DCC Remodel Project

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	12	66	65
Non-Labor	Zero-Based	0	0	0	0	0	732	9,212	8,695
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	744	9,278	8,760
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5

Business Purpose:

The objective of the project is to improve situational awareness, efficiency, and response at SDG&E's Electric Distribution Operations Center. Currently, the Distribution Control Center (DCC) has a suboptimal layout, lacks important operational adjacencies, has outdated consoles, workspaces, and video monitors, and limited space for collaboration and operations. The last remodel was over 10 years ago.

Physical Description:

The project involves the planning, design, permitting, and construction of a 12,000 s.f. 2-story addition to Mission Control Building A, as well as renovation of the existing DCC and related areas. The new addition will include a new DCC with new operator consoles, workstations, conference rooms, and offices, raised flooring, high ceilings, good fenestration allowing natural lighting, new building systems such as HVAC, energy management, furniture, audio-visual, video wall, and new finishes brought up to the current Company standards. City of San Diego Planning Department and Building Department approval is required. Certification through USGBC's LEED program (silver level) and Zero Net Energy are also objectives.

Project Justification:

The existing Distribution Control Center requires remodeling due to aging building infrastructure, end-of-life IT equipment and support technologies, inadequate spacing and the need for various amenities necessary to support our evolving workforce serving critical operations on the electric distribution system.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21267.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 212670 - Mission DCC Remodel Project

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21267.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 212670 - Mission DCC Remodel Project

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	Zero-Based	0	0	0	12	66	65	12	66	65
Non-Labor	Zero-Based	0	0	0	732	9,212	8,695	732	9,212	8,695
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	744	9,278	8,760	744	9,278	8,760
FTE	Zero-Based	0.0	0.0	0.0	0.1	0.5	0.5	0.1	0.5	0.5

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21267.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 212670 - Mission DCC Remodel Project

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
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	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
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 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
Recorded-Adjusted (Constant 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

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21267.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 212670 - Mission DCC Remodel Project

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 212670**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21267.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 212670 - Mission DCC Remodel Project
 Workpaper Detail: 212670.001 - Mission DCC Remodel Project
 In-Service Date: 04/30/2024

Description:

Planning, design, permitting, and construction of a 22,000 s.f. 2-story addition to Mission Control Building A, renovation of the existing distribution control center (DCC) and related areas including new operator consoles, workstations, conference rooms, offices, raised flooring, high ceilings, good fenestration allowing natural lighting, new building systems such as HVAC, lighting, energy management, furniture, audio-visual, video wall, and new finishes, brought up to current Company standards. Certification through USGBC's LEED program (silver level) and Zero Net Energy are also objectives.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		12	66	65
Non-Labor		732	9,212	8,695
NSE		0	0	0
	Total	744	9,278	8,760
FTE		0.1	0.5	0.5

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 212670

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

TY2024 GRC FORECAST - DETAILS
Budget Code: 21267
Estimated In Service Date: 4/30/2024

Line Item	Mission DCC Remedial Project	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea/ ft/ mile)	2022		2023		2024		Total Cost	Comments	
						# of units	Cost per unit*	Total cost	# of units	Cost per unit*	Total cost			# of units
1	Construction	feet	Non-Labor	Non-RAM		1	\$ 735,005	\$ 735,005	1.00	\$ 9,211,871	\$ 9,211,871	\$ 8,694,560	\$ 18,641,436	See supplemental work paper for detail breakout of estimated costs to remodel DCC \$246k of the estimated cost for this project was previously spent in 2021, with the remaining costs reflected from 2022 to 2024.
2	Construction	fte	Labor	Non-RAM		1.0	\$ 11,635	\$ 11,635	1.00	\$ 64,589	\$ 64,589	\$ 63,370	\$ 139,594	See supplemental work paper for detail breakout of estimated costs to remodel DCC \$246k of the estimated cost for this project was previously spent in 2021, with the remaining costs reflected from 2022 to 2024.
3	Construction	FTE	Non-RAM	RAM		0.1	\$ -	\$ -	0.08	\$ 9,701	\$ 9,701	\$ -	\$ -	See supplemental work paper for detail breakout of estimated costs to remodel DCC \$246k of the estimated cost for this project was previously spent in 2021, with the remaining costs reflected from 2022 to 2024.
4	Labor	V&S	Labor	RAM		0.1	\$ 1,748	\$ 298	0.01	\$ 9,518	\$ 1,624	\$ -	\$ 3,577	See supplemental work paper for detail breakout of estimated costs to remodel DCC \$246k of the estimated cost for this project was previously spent in 2021, with the remaining costs reflected from 2022 to 2024.

Summary															
Labor		RAM				\$ 298						\$ 1,624		\$ 3,577	
Non-Labor		RAM				\$ 298						\$ 1,624		\$ 3,577	
Subtotal RAM															
Labor		Non-RAM				\$ 11,635						\$ 63,370		\$ 139,594	
Non-Labor		Non-RAM				\$ 735,005						\$ 8,694,560		\$ 18,641,436	
Subtotal Non-RAM						\$ 746,640						\$ 8,757,930		\$ 18,781,030	
Total Project Forecast						\$ 746,938						\$ 8,759,554		\$ 18,784,607	

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

**2017-000079 Mission Distribution Control Center Remodel -
Preliminary Action Plan**

Project Definition and Budget Assumptions

Item Description/ or Phase of Work	Unit Cost (or Lump Sum)	CAPITAL Quantity (or One)	Subtotal
Architectural and Engineering			
Architectural and Engineering	881,717	1.00	881,717
Architectural Services (actuals 2018 thru 2021 escalated)	246,223	1.00	246,223
CAD Services	15,000	1.00	15,000
Specialty Consulting Services	320,000	1.00	320,000
Geotechnical Engineering	60,000	1.00	60,000
Reprographics	1,500	1.00	1,500
Pre-Construction Services	40,000	1.00	40,000
Permitting/Planning/Inspections			
Plan Checks & Permits	50,000	1.00	50,000
Testing & Inspections	22,000	1.00	22,000
Construction			
Construction Services	7,923,666	1.00	7,923,666
Removal - Furniture	30,000	1.00	30,000
Low Voltage Cabling	300,000	1.00	300,000
Site Remediation (Planned)	35,000	1.00	35,000
Tenant Improvements			
EQUIPMENT (Direct View LED Video Wall)	1,500,000	1.00	1,500,000
Partitions	45,000	1.00	45,000
Environmental & Safety Services			
Asbestos and Lead Sampling/Analysis	4,000	1.00	4,000
Soil Sampling/Analysis	2,500	1.00	2,500
SWPPP Preparation	7,000	1.00	7,000
SWPPP Monitoring	7,000	1.00	7,000
Biological Survey	2,500	1.00	2,500
Paleontologist	2,500	1.00	2,500
Removal			
Demolition & Removals	30,000	1.00	30,000
Asbestos and Lead Abatement	80,250	1.00	80,250
Real Estate & Planning			
Artwork & Graphics	3,000	1.00	3,000
Furniture	1,670,298	1.00	1,670,298
Interior Plants	4,000	1.00	4,000
Moving Costs	18,000	1.00	18,000
Signage (Interior)	11,500	1.00	11,500
SPECIALTIES	90,000	1.00	90,000
IT, Audio Visual & Security			
IT Consulting Services	81,000	1.00	81,000
IT Equipment	214,000	1.00	214,000
Paging Systems	25,000	1.00	25,000
Audio Visual Equipment - Conf Rms & Offices	172,000	1.00	172,000
Security & Surveillance (access control / Surveillance)	15,000	1.00	15,000
Security Equipment	150,000	1.00	150,000
Subtotal			14,059,654
Contingency @ 30%			4,217,896
Design & Construction Cost Totals			18,277,551
Company CPM Labor			90,607
Company Support Labor			37,083
Contracted Labor			621,964
PM, Labor Cost Totals (per below)			749,653
Project Total			19,027,203

**2017-000079 Mission Distribution Control Center Remodel -
Preliminary Action Plan**

Item Description/ or Phase of Work	Unit Cost (or Lump Sum)	CAPITAL	
		Hours (or One)	Subtotal
Company CPM Labor			
Program Management <i>(Company)</i>	85	312.44	26,557
Project Analyst <i>(Company)</i>	75	312.44	23,433
Business Analyst <i>(Company)</i>	75	312.44	23,433
Facilities Specialist <i>(Company)</i>	55	312.44	17,184
Company Support Labor			
Facility Mgr. <i>(Company)</i>	65	272.50	17,713
Move Coordinator <i>(Company)</i>	65	80.00	5,200
Environmental Site Rep. <i>(Company)</i>	65	109.00	7,085
Safety Site Rep. <i>(Company)</i>	65	109.00	7,085
Contracted Labor			
Project Management <i>(Outside Labor)</i>	3.0%	14,059,654.32	421,790
Project Site Safety <i>(Outside Labor)</i>	75	624.87	46,866
Document Control <i>(Outside Labor)</i>	65	312.44	20,308
Planning & Design Management <i>(Outside Labor)</i>	95	1,400.00	133,000
Subtotal PM, Labor Costs			749,653

Beginning of Workpaper Group
222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 22241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	0	305	1,680
Non-Labor	Zero-Based	0	0	0	0	0	0	774	4,313
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	1,079	5,993
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	2.7	14.9

Business Purpose:

Target high risk poles located throughout SDG&E service territory. This program will continue SDG&E's efforts in improving the system by mitigating assets that may be a risk. Examples of wood poles this program will focus on will include but is not limited to, gas-treated poles (may be known as Cellon treatment), steel reinforced and poles that are set in concert. These identified poles are also nearing the end of their useful life and are known to have a higher failure potential than average. These poles will be located in the non-HFTD areas.

Physical Description:

This program will have multiple categories of risk. We are prioritizing gas-treated wood poles in combination with steel reinforced and encased in concrete. Based on research, it has been determined that the gas-treated poles are considered high priority based on the poles interaction with the moisture in the soil. In combination with identified rot and inspection limitations of the pole being in concrete, SDG&E believes these are the highest risk group of poles to target. As SDG&E investigates further, there may be other contributing factors that presents risks that need to be mitigated and/or prioritized.

The scope of this project will replace 40 poles in 2023 and 225 poles in 2024.

Project Justification:

Gas-treated poles have been determined to be high risk poles, especially those that have steel reinforcement and/or are set in concrete. Determining the integrity of cellon treated poles encased in concrete is very difficult, which causes the greatest concern. The average age of these assets are nearing 50 years. Gas-treated poles have a higher propensity for dry rot due to the moisture in the soil.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 22241.0
Category: I. SAFETY & RISK MANAGEMENT
Category-Sub: 1. SAFETY & RISK MANAGEMENT
Workpaper Group: 222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.?

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 22241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)

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	Zero-Based	0	0	0	0	305	1,680	0	305	1,680
Non-Labor	Zero-Based	0	0	0	0	774	4,313	0	774	4,313
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	1,079	5,993	0	1,079	5,993
FTE	Zero-Based	0.0	0.0	0.0	0.0	2.7	14.9	0.0	2.7	14.9

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 22241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
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	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
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 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
Recorded-Adjusted (Constant 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

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 22241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)

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 222410**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 22241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)
 Workpaper Detail: 222410.001 - RAMP - Strategic Pole Replacement Program (Non-HFTD)
 In-Service Date: Not Applicable

Description:

Replace wood poles in the non-HFTD areas that are gas-treated (may be known as Cellon treatment), steel reinforced, or concrete-encased.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	305	1,680
Non-Labor		0	774	4,313
NSE		0	0	0
	Total	0	1,079	5,993
FTE		0.0	2.7	14.9

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 22241.0
 Category: I. SAFETY & RISK MANAGEMENT
 Category-Sub: 1. SAFETY & RISK MANAGEMENT
 Workpaper Group: 222410 - RAMP-Strategic Pole Replacement Program (Non-HFTD)
 Workpaper Detail: 222410.001 - RAMP - Strategic Pole Replacement Program (Non-HFTD)

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-2 Electric Infrastructure Integrity
 RAMP Line Item ID: NEW09
 RAMP Line Item Name: Strategic Pole Replacement Program (Non-HFTD)
 Tranche(s): Tranche1: OH Distribution

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	0	1,079	5,993	7,072	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP item.

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 poles replaced	0.00	0.00	40.00	225.00	265.00	0.00	0.00

Work Unit Changes from RAMP:

Newly identified RAMP item.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	710.000	0.000

RSE Changes from RAMP:

Newly identified RAMP item.

Supplemental Workpapers for Workpaper Group 222410

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 22241
Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAM/Non-RAM	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	Union Labor	Labor	Ramp	hours	5,619.00	\$ -	53	\$ 297,807	30,905.00	\$ -	\$ 1,637,865	Cost per unit based on labor rates and allocation of installation performed by internal resources.
2	Services	non-Labor	Ramp	ea	21.68	\$ -	15,489	\$ 335,802	119.25	\$ 15,489	\$ 1,847,063	Cost per unit based on allocation of pole replacements expected to be performed by contracted services.
3	Poles	non-Labor	Ramp	ea	40.00	\$ -	10,959	\$ 438,360	225.00	\$ 10,959	\$ 2,465,775	Material cost for pole replacement based on historical spend for pole replacements.
4	Labor	Labor	RAMP	W&S	959	\$ -	8	\$ 7,651	5,272	\$ -	\$ 41,971	
Summary												
		Labor	RAMP			\$ -		\$ 305,438			\$ 1,679,936	
		Non-Labor	RAMP			\$ -		\$ 774,162			\$ 4,312,838	
						\$ -		\$ 1,079,600			\$ 5,992,775	
		Labor	Non-RAMP			\$ -		\$ -			\$ -	
		Non-Labor	Non-RAMP			\$ -		\$ -			\$ -	
						\$ -		\$ -			\$ -	
						\$ -		\$ 1,079,600			\$ 5,992,775	
						\$ -		\$ -			\$ 7,072,374	

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Workpaper: VARIOUS

Summary for Category: K. TRANSMISSION/FERC DRIVEN PROJECTS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	350	229	194	151
Non-Labor	17,679	12,460	12,137	11,034
NSE	0	0	0	0
Total	18,029	12,689	12,331	11,185
FTE	4.2	2.1	1.8	1.4

171250 GRANITE SUBSTATION 69KV LOOP-IN

Labor	0	0	21	21
Non-Labor	0	0	40	120
NSE	0	0	0	0
Total	0	0	61	141
FTE	1.9	0.0	0.1	0.1

061290 South Orange County Reliability Enhancement (SOCRE)

Labor	160	30	11	0
Non-Labor	4,834	1,471	330	90
NSE	0	0	0	0
Total	4,994	1,501	341	90
FTE	1.0	0.2	0.2	0.0

071440 FIBER OPTIC FOR RELAY PROTECT & TELECOM

Labor	98	63	63	63
Non-Labor	8,422	5,027	7,059	7,059
NSE	0	0	0	0
Total	8,520	5,090	7,122	7,122
FTE	0.7	0.8	0.8	0.8

121560 TL600 - Reliability Pole Replacements

Labor	2	0	0	0
Non-Labor	739	450	0	0
NSE	0	0	0	0
Total	741	450	0	0
FTE	0.0	0.0	0.0	0.0

131300 TL674A DEL MAR RECONFIGURE/TL666D RFS

Labor	37	59	25	0
Non-Labor	399	1,172	1,343	0
NSE	0	0	0	0
Total	436	1,231	1,368	0
FTE	0.3	0.6	0.2	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
141370 TL6975 ESCONDIDO - SAN MARCOS				
Labor	9	15	0	0
Non-Labor	311	735	0	0
NSE	0	0	0	0
Total	320	750	0	0
FTE	0.1	0.1	0.0	0.0
201260 TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM				
Labor	42	42	42	42
Non-Labor	2,965	2,965	2,965	2,965
NSE	0	0	0	0
Total	3,007	3,007	3,007	3,007
FTE	0.2	0.2	0.2	0.2
211350 ELCT TRANS SMALL REALIBLTY JOBS- NON WMP				
Labor	2	20	32	25
Non-Labor	9	640	400	800
NSE	0	0	0	0
Total	11	660	432	825
FTE	0.0	0.2	0.3	0.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
171250 - GRANITE SUBSTATION 69KV LOOP-IN

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17125.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 1. Electric Transmission Line Reliability Projects
 Workpaper Group: 171250 - GRANITE SUBSTATION 69KV LOOP-IN

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	0	0	0	0	0	0	21	21
Non-Labor	Zero-Based	0	0	0	0	0	0	40	120
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	61	141
FTE	Zero-Based	0.0	0.0	0.0	0.0	1.9	0.0	0.1	0.1

Business Purpose:

TL632A Loop-In Granite project will replace an existing TL632 tap and provide a third source to Granite substation. This is an effort to mitigate NERC P1 thermal violations at Granite substation, along with provide operational flexibility as it currently is a heavily loaded substation.

Physical Description:

Replace existing TL632 tap and loop-in a third tieline source to Granite substation. Work will include installing communication and relay equipment in 2024.

Project Justification:

FERC-driven project to mitigate NERC P1 thermal violations at Granite substation.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 17125.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 1. Electric Transmission Line Reliability Projects
Workpaper Group: 171250 - GRANITE SUBSTATION 69KV LOOP-IN

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17125.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 1. Electric Transmission Line Reliability Projects
 Workpaper Group: 171250 - GRANITE SUBSTATION 69KV LOOP-IN

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	Zero-Based	0	21	21	0	0	0	0	21	21
Non-Labor	Zero-Based	0	40	120	0	0	0	0	40	120
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	61	141	0	0	0	0	61	141
FTE	Zero-Based	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17125.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 1. Electric Transmission Line Reliability Projects
 Workpaper Group: 171250 - GRANITE SUBSTATION 69KV LOOP-IN

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (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
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	1.6
Recorded-Adjusted (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	1.6
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	0.3
Escalation to 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
Recorded-Adjusted (Constant 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	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17125.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 1. Electric Transmission Line Reliability Projects
 Workpaper Group: 171250 - GRANITE SUBSTATION 69KV LOOP-IN

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	1.6	

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 Total	0	0	0	0	0.0
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	0.001	0	0	0.001	1.6
Explanation:	Adjust FTE to match labor.				
2021 Total	0.001	0	0	0.001	1.6

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 171250**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 17125.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 1. Electric Transmission Line Reliability Projects
 Workpaper Group: 171250 - GRANITE SUBSTATION 69KV LOOP-IN
 Workpaper Detail: 171250.001 - GRANITE SUBSTATION 69KV LOOP-IN
 In-Service Date: 12/31/2024

Description:

Replace existing TL632 tap and loop-in a third tieline source to Granite substation. Work will include installing communication and relay equipment.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		0	21	21
Non-Labor		0	40	120
NSE		0	0	0
	Total	0	61	141
FTE		0.0	0.1	0.1

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 171250

Beginning of Workpaper Group
061290 - South Orange County Reliability Enhancement (SOCRE)

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06129.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 061290 - South Orange County Reliability Enhancement (SOCRE)

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	44	82	100	81	160	30	11	0
Non-Labor	Zero-Based	573	4,957	3,089	2,193	4,834	1,471	330	90
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		617	5,038	3,190	2,274	4,994	1,501	341	90
FTE	Zero-Based	0.4	0.7	0.7	0.6	1.0	0.2	0.2	0.0

Business Purpose:

Replace existing 138/12kV Capistrano Substation with a new 230/138/12kV Gas Insulated Substation; Replace an existing 138kV transmission line with two 230kV transmission lines to be primarily built in existing SDG& E rights of Way.

Physical Description:

The scope of this project includes rebuilding the existing Capistrano Substation, from a 138/12kV distribution substation to a 230/138kV, removing transmission line TL13835 between Talega Substation and Capistrano Substation, opening transmission line TL23007 at Talega Substation, and looping in two new 230kV transmission lines into Capistrano Substation. For 2022 - 2024, the work that remains is distribution substation work at San Juan Capistrano substation which will complete this project.

Project Justification:

This project rebuilds aging infrastructure, adds new 230 kV source, and adds capacity to Orange County area.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 06129.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. Other
Workpaper Group: 061290 - South Orange County Reliability Enhancement (SOCRE)

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06129.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 061290 - South Orange County Reliability Enhancement (SOCRE)

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	Zero-Based	30	11	0	0	0	0	30	11	0
Non-Labor	Zero-Based	1,471	330	90	0	0	0	1,471	330	90
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,501	341	90	0	0	0	1,501	341	90
FTE	Zero-Based	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06129.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 061290 - South Orange County Reliability Enhancement (SOCRE)

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	32	62	80	68	139
Non-Labor	479	4,347	2,816	2,098	4,834
NSE	0	0	0	0	0
Total	511	4,409	2,896	2,165	4,973
FTE	0.3	0.6	0.6	0.5	0.9
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	62	80	68	139
Non-Labor	479	4,347	2,816	2,098	4,834
NSE	0	0	0	0	0
Total	511	4,409	2,896	2,165	4,973
FTE	0.3	0.6	0.6	0.5	0.9
Vacation & Sick (Nominal \$)					
Labor	5	9	11	10	21
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	5	9	11	10	21
FTE	0.1	0.1	0.1	0.1	0.1
Escalation to 2021\$					
Labor	7	10	9	4	0
Non-Labor	94	610	273	96	0
NSE	0	0	0	0	0
Total	101	620	282	99	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	44	82	100	81	160
Non-Labor	573	4,957	3,089	2,193	4,834
NSE	0	0	0	0	0
Total	617	5,038	3,190	2,274	4,994
FTE	0.4	0.7	0.7	0.6	1.0

* 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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06129.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 061290 - South Orange County Reliability Enhancement (SOCRE)

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 061290**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06129.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 061290 - South Orange County Reliability Enhancement (SOCRE)
 Workpaper Detail: 061290.001 - South Orange County Reliability Enhancement (SOCRE)
 In-Service Date: 05/31/2024

Description:

Rebuild the existing 138kV/12kV Capistrano Substation to a 230kV/138kV substation. Remove TL13835 between Talega Substation and Capistrano Substation. Open TL23007 at Talega Substation and loop into Capistrano Substation two new 230kV TL's. Re-arrange 138kV TL's 13833, 138736, and 13812 bay positions at Talega to allow for the termination of TL13835 at Talega Substation.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		21	5	0
Non-Labor		996	130	74
NSE		0	0	0
	Total	1,017	135	74
FTE		0.1	0.1	0.0

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 06129.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 061290 - South Orange County Reliability Enhancement (SOCRE)
 Workpaper Detail: 061290.002 - South Orange County Reliability Enhancement (SOCRE)- GENERAL PLANT
 In-Service Date: 05/31/2024
 Description:

ORANGE COUNTY LONG RANGE PLAN- GENERAL PLANT

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		9	6	0
Non-Labor		475	200	16
NSE		0	0	0
	Total	484	206	16
FTE		0.1	0.1	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 061290

Beginning of Workpaper Group
071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 07144.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	131	199	58	172	98	63	63	63
Non-Labor	Zero-Based	8,662	8,978	2,338	5,345	8,422	5,027	7,059	7,059
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		8,793	9,177	2,396	5,517	8,520	5,090	7,122	7,122
FTE	Zero-Based	0.9	1.3	0.5	1.3	0.7	0.8	0.8	0.8

Business Purpose:

The Fiber Optic Infrastructure Buildout program provides high speed communications that will ensure safe and reliable electric service to customers. This budget code is focused on the non-HFTD (High Fire Threat District) areas.

Physical Description:

The fiber optic infrastructure attaches to existing structures within existing electric right of ways. Two types of fiber optic cable will be utilized which are a standard with most electric utilities :

- All Dielectric Self Supporting (ADSS), mainly used for overhead and underground installations (CPUC/FERC split)
- Optical Ground Wire (OPGW), replaces static ground wire on steel poles and towers (FERC)

The project scope covers 17 ADSS miles in 2022, 24 ADSS miles in 2023, and 24 ADSS miles in 2024.

Project Justification:

Projects completed will provide a diverse company-owned and maintained communications network to support electric operations.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 07144.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. Other
Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 07144.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

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	Zero-Based	63	63	63	0	0	0	63	63	63
Non-Labor	Zero-Based	5,027	7,059	7,059	0	0	0	5,027	7,059	7,059
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		5,090	7,122	7,122	0	0	0	5,090	7,122	7,122
FTE	Zero-Based	0.8	0.8	0.8	0.0	0.0	0.0	0.8	0.8	0.8

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 07144.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	95	152	46	144	85
Non-Labor	6,577	6,695	1,787	4,137	6,977
NSE	0	0	0	0	0
Total	6,672	6,847	1,833	4,281	7,062
FTE	0.8	1.1	0.4	1.1	0.6
Adjustments (Nominal \$)**					
Labor	0	0	0	0	0
Non-Labor	664	1,178	344	973	1,445
NSE	0	0	0	0	0
Total	664	1,178	344	973	1,445
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	95	152	46	144	85
Non-Labor	7,240	7,873	2,132	5,110	8,422
NSE	0	0	0	0	0
Total	7,335	8,025	2,178	5,254	8,508
FTE	0.8	1.1	0.4	1.1	0.6
Vacation & Sick (Nominal \$)					
Labor	14	23	7	20	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	14	23	7	20	13
FTE	0.1	0.2	0.1	0.2	0.1
Escalation to 2021\$					
Labor	21	25	5	8	0
Non-Labor	1,422	1,105	207	236	0
NSE	0	0	0	0	0
Total	1,444	1,130	212	243	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	131	199	58	172	98
Non-Labor	8,662	8,978	2,338	5,345	8,422
NSE	0	0	0	0	0
Total	8,793	9,177	2,396	5,517	8,520
FTE	0.9	1.3	0.5	1.3	0.7

* 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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 07144.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		0	0	0	0	0
Non-Labor		664	1,178	344	973	1,445
NSE		0	0	0	0	0
	Total	664	1,178	344	973	1,445
FTE		0.0	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	664	0	664	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2017 Total	0	664	0	664	0.0
2018	0	1,178	0	1,178	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2018 Total	0	1,178	0	1,178	0.0
2019	0	344	0	344	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2019 Total	0	344	0	344	0.0
2020	0	953	0	953	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2020	0	20	0	20	0.0
Explanation:	Transfer environmental services expenses that were incorrectly charged to Gas Engineering WP EN 9030 to Electric Distribution WP 071440, where these expenses should have been charged.				
2020 Total	0	973	0	973	0.0
2021	0	1,445	0	1,445	0.0
Explanation:	Adjustment to add back common FERC account, FERC-jurisdiction costs for RO model carve-out				
2021 Total	0	1,445	0	1,445	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 071440**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 07144.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM
 Workpaper Detail: 071440.001 - FIBER OPTIC FOR RELAY PROTECT & TELECOM
 In-Service Date: Not Applicable

Description:

This project will complete fiber cable routes between 60 substations attaching nearly 550 miles of new fiber to existing transmission structures. Two types of fiber optic cable will be utilized:

- All Dielectric Self Supporting (ADSS), mainly used for wood pole attachments, and underground installations
- Optical Ground Wire (OPGW), replaces static ground wire on steel poles and towers.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		63	63	63
Non-Labor		5,027	7,059	7,059
NSE		0	0	0
	Total	5,090	7,122	7,122
FTE		0.8	0.8	0.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 071440

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

TY2024 GRC FORECAST - DETAILS
 Budget Code: 7144
 Estimated In Service Date: Ongoing

7144 - Fiber Build Initiative														
Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022 # of units	2022 Cost per unit*	Total cost	# of units	2023 Cost per unit*	Total cost	# of units	2024 Cost per unit*	Total cost	Comments
1	FTEs	Labor	Non-RAMP	ea	0.60	\$ 100,000	\$ 60,000	0.60	\$ 100,000	\$ 60,000	0.60	\$ 100,000	\$ 60,000	
2	ADSS miles	Non-Labor	Non-RAMP	miles	17	\$ 250,000	\$ 4,275,000	24	\$ 250,000	\$ 6,000,000	24	\$ 250,000	\$ 6,000,000	
4	FERC Portion of Labor (397- Comm Equipment)	Labor	Non-RAMP	ea	0.11	\$ 17,847	\$ 1,963,157	0.11	\$ 17,847	\$ 1,963,157	0.11	\$ 17,847	\$ 1,963,157	
5	FERC Portion of Labor (397- Comm Equipment)	Non-Labor	Non-RAMP	ea	17	\$ 750,000	\$ 12,750,000	17	\$ 750,000	\$ 12,750,000	17	\$ 750,000	\$ 12,750,000	
6	18S5 Calculation - ERUC	Labor	Non-RAMP	FTE	0.1	\$ 15,000	\$ 1,500,000	0.1	\$ 15,000	\$ 1,500,000	0.1	\$ 15,000	\$ 1,500,000	
7	18S5 Calculation - ERUC (portion 397- Comm Equipment)	Labor	Non-RAMP	FTE	0.02	\$ 2,651	\$ 53,020	0.02	\$ 2,651	\$ 53,020	0.02	\$ 2,651	\$ 53,020	
8														
9														
10														
11														
12														
13														
14														
15														
*Costs should be reported in direct costs only (no overheads)														
Summary														
		Labor	RAMP											
		Non-Labor	RAMP											
	Subtotal RAMP													
		Labor	Non-RAMP				\$ 65,454			\$ 63,454			\$ 150,362	
		Non-Labor	Non-RAMP				\$ 5,089,700			\$ 7,038,824			\$ 19,444,347	
	Subtotal Non-RAMP						\$ 5,099,154			\$ 7,102,277			\$ 19,594,709	
	Total Project Forecast									\$ 7,165,551			\$ 19,749,411	

Beginning of Workpaper Group
121560 - TL600 - Reliability Pole Replacements

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 12156.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 121560 - TL600 - Reliability Pole Replacements

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	0	0	0	1	2	0	0	0
Non-Labor	Zero-Based	21	55	20	142	739	450	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	21	55	20	142	741	450	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

Upgrade distribution wood structure to steel structure as last component of work on this project to increase safety and reliability .

Physical Description:

Remaining work on this project includes: replacing one distribution wood pole with new direct embed steel pole. Restrung conductors across hwy 52.

Project Justification:

Distribution structure identified for upgrade during communications upgrade project and is the last component of work to complete the TL600 Reliability Pole Replacements project.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 12156.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. Other
Workpaper Group: 121560 - TL600 - Reliability Pole Replacements

Forecast Methodology:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 12156.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 121560 - TL600 - Reliability Pole 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	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	450	0	0	0	0	0	450	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		450	0	0	0	0	0	450	0	0
FTE	Zero-Based	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>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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 12156.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 121560 - TL600 - Reliability Pole Replacements

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	1	2
Non-Labor	18	48	18	136	739
NSE	0	0	0	0	0
Total	18	48	18	136	741
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	0	1	2
Non-Labor	18	48	18	135	739
NSE	0	0	0	0	0
Total	18	48	18	136	741
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 2021\$					
Labor	0	0	0	0	0
Non-Labor	3	7	2	6	0
NSE	0	0	0	0	0
Total	4	7	2	6	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	0	0	0	1	2
Non-Labor	21	55	20	142	739
NSE	0	0	0	0	0
Total	21	55	20	142	741
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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 12156.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 121560 - TL600 - Reliability Pole 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

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	0	-0.117	0	-0.117	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020 Total	0	-0.117	0	-0.117	0.0
2021 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 121560**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 12156.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 121560 - TL600 - Reliability Pole Replacements
 Workpaper Detail: 121560.001 - TL600 - Reliability Pole Replacements
 In-Service Date: 03/31/2022

Description:

Upgrade Distribution wood structure to steel structure to increase safety and reliability.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		450	0	0
NSE		0	0	0
	Total	450	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 121560

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 12156
 Estimated In Service Date: 7/1/2022

Line Item	Unit Description	Labor/Non-Labor	Unit Metric (ev./hr./mile)	2022		2023		2024		Total Cost	Comments
				# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	Distribution Pole Replacement and Restringing over Hwy	Non-Labor	ea	1	\$ 450,000					\$ 450,000	Combined Per Pole Cost of Contracted Engineering, Material, Contracted Construction and Contracted PMO
2		Non-RAMP								\$ -	
3										\$ -	
4										\$ -	
5										\$ -	
6										\$ -	
7										\$ -	
8										\$ -	
9										\$ -	
10										\$ -	
11										\$ -	
12										\$ -	
13										\$ -	
14										\$ -	
15										\$ -	
*Costs should be reported in direct costs only (no overheads)											
Summary											
		Labor								\$ -	
		Non-Labor								\$ -	
		RAMP								\$ -	
		Non-RAMP								\$ -	
Subtotal RAMP										\$ -	
		Labor								\$ -	
		Non-Labor								\$ -	
Subtotal Non-RAMP										\$ 450,000	
Total Project Forecast										\$ 450,000	

Beginning of Workpaper Group
131300 - TL674A DEL MAR RECONFIGURE/TL666D RFS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13130.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 131300 - TL674A DEL MAR RECONFIGURE/TL666D RFS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	20	12	16	31	37	59	25	0
Non-Labor	Zero-Based	177	110	96	247	399	1,172	1,343	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		197	121	112	278	436	1,231	1,368	0
FTE	Zero-Based	0.1	0.1	0.1	0.2	0.3	0.6	0.2	0.0

Business Purpose:

The Del Mar TL674/666D/6973 Reconfiguration Project has the following two primary objectives:

1. Address the safety, environmental, and reliability concerns in the Del Mar Substation Area
2. Meet mandatory North American Electric Reliability Corporation reliability criteria in the Del Mar Substation Area

Physical Description:

Del Mar Reconfiguration project will remove approximately six miles of existing overhead 69kV transmission line (TL666D) between the existing Del Mar Substation, located northwest of the intersection of Interstate I-5 and Via De La Valle in the City of San Diego, and an existing steel pole located near the intersection of Vista Sorrento Parkway and Pacific Plaza Drive in the City of San Diego. In order to remove TL666D from service, an existing 69kV transmission line (TL674A) will be reconfigured, extended to the Del Mar Substation, and renamed as TL6973. In addition, two portions of separate existing 12 kV distribution lines will be converted from an overhead to underground configuration.

In 2022, construction includes: 1-mile of a new underground 69kV transmission line (TL6973), installation of one cable pole and one tangent pole, removal of one span of overhead 69kV transmission line, and reconfiguration of existing line will be undergrounded on Via De La Valle to Del Mar Substation. Additionally, conversion of two portions of distribution circuits from overhead to underground - 3,150 feet of C510 and 700 feet of C1448. This will also include installation of cable poles at either end of the circuits as well as new handholes for fiber. In 2023, construction will include removal of approximately 6 miles of transmission lines and permanent removals of 35 transmission poles. For portions of the line that have distribution underbuilt, the poles will be topped or replaced and will require reconfiguration for approximately 50 poles.

Project Justification:

TL 666D is an aging infrastructure that needs to be either undergrounded or removed from service. Undergrounding TL666D can be costly. Removing TL666D is an environmentally sounded alternative with additional benefit of reducing the outage exposure of the remaining portion of TL666. To maintain the same reliability at Del Mar, the three terminal line on TL674 will be RFS'ed creating two circuits Del Mar – North City West and Encinitas – Rancho Santa FE.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 13130.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. Other
Workpaper Group: 131300 - TL674A DEL MAR RECONFIGURE/TL666D RFS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13130.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 131300 - TL674A DEL MAR RECONFIGURE/TL666D RFS

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	Zero-Based	59	25	0	0	0	0	59	25	0
Non-Labor	Zero-Based	1,172	1,343	0	0	0	0	1,172	1,343	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,231	1,368	0	0	0	0	1,231	1,368	0
FTE	Zero-Based	0.6	0.2	0.0	0.0	0.0	0.0	0.6	0.2	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13130.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 131300 - TL674A DEL MAR RECONFIGURE/TL666D RFS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	15	9	12	26	32
Non-Labor	148	96	88	236	399
NSE	0	0	0	0	0
Total	162	105	100	262	431
FTE	0.1	0.1	0.1	0.2	0.3
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	15	9	12	26	32
Non-Labor	148	96	88	236	399
NSE	0	0	0	0	0
Total	162	105	100	262	431
FTE	0.1	0.1	0.1	0.2	0.3
Vacation & Sick (Nominal \$)					
Labor	2	1	2	4	5
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	2	1	2	4	5
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	3	1	1	1	0
Non-Labor	29	14	9	11	0
NSE	0	0	0	0	0
Total	32	15	10	12	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	20	12	16	31	37
Non-Labor	177	110	96	247	399
NSE	0	0	0	0	0
Total	197	121	112	278	436
FTE	0.1	0.1	0.1	0.2	0.3

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13130.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 131300 - TL674A DEL MAR RECONFIGURE/TL666D RFS

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 131300**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 13130.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 131300 - TL674A DEL MAR RECONFIGURE/TL666D RFS
 Workpaper Detail: 131300.001 - TL674A DEL MAR RECONFIGURE/TL666D RFS
 In-Service Date: 05/31/2023

Description:

At Del Mar Sub Remove From Service (RFS) TL666D [Del Mar Sub – Del Mar Tap]. At Via De La Valle, RFS the existing Tap on TL674 [EN-NCW-SF] and build two circuits: Del Mar – North City West and Encinitas – Rancho Santa FE. Terminate the new Del Mar – North City West circuit and the old TL666D CB.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		59	25	0
Non-Labor		1,172	1,343	0
NSE		0	0	0
	Total	<u>1,231</u>	<u>1,368</u>	<u>0</u>
FTE		0.6	0.2	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 131300

Beginning of Workpaper Group
141370 - TL6975 ESCONDIDO - SAN MARCOS

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14137.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 141370 - TL6975 ESCONDIDO - SAN MARCOS

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
Years									
Labor	Zero-Based	8	5	5	5	9	15	0	0
Non-Labor	Zero-Based	19	12	58	25	311	735	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		27	17	63	30	319	750	0	0
FTE	Zero-Based	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0

Business Purpose:

This project will help SDG&E meet State policy goals, accommodate load growth, and improve system efficiency by building / reconductoring approximately 12 miles of new 69kV circuit between San Marcos Substation and Escondido Substation.

Physical Description:

Construct and reconductor approximately 12 miles of new 69kV transmission lines from the San Marcos Substation to the existing Escondido Substation. The three main segments to be completed in 2022 include: Segment 1 Rebuild: upgrade and fire harden approximately 1.8 miles of existing wood-pole single 69kV line to a double circuit steel-pole 69kV lines. Segment 2 New Build: Construct approximately 2.8 miles of new steel-pole single-circuit 69kV transmission lines within an existing 150-foot wide 138kV transmission corridor. Segment 3 Reconductoring/Re-energizing: Reconductoring approximately 7.4 miles of existing 138kV lattice structures with new larger and stronger conductor.

Distribution work in 2022 includes 0.4 miles of distribution underbuild.

Project Justification:

This project was initially approved by the CAISO as a reliability project during the 2013/2014 Transmission Planning Process, and it continues to be included in the CAISO's Transmission Plan. Benefits provided by project include: Mitigates potential violations of NERC reliability criteria; mitigates the potential for localized rolling blackouts in San Marcos during peak load events; accommodates load growth in the area; reduces fire risk by replacing aging infrastructure with state-of-the-art, fire-resistant steel poles and wire; supports California's clean policy goals by facilitating the integration of renewables.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 14137.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. Other
Workpaper Group: 141370 - TL6975 ESCONDIDO - SAN MARCOS

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.??

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14137.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 141370 - TL6975 ESCONDIDO - SAN MARCOS

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	Zero-Based	15	0	0	0	0	0	15	0	0
Non-Labor	Zero-Based	735	0	0	0	0	0	735	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		750	0	0	0	0	0	750	0	0
FTE	Zero-Based	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14137.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 141370 - TL6975 ESCONDIDO - SAN MARCOS

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	6	4	4	4	8
Non-Labor	16	10	53	24	311
NSE	0	0	0	0	0
Total	22	14	57	28	318
FTE	0.1	0.0	0.0	0.0	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	0.1	0.1	0.1	0.0
Recorded-Adjusted (Nominal \$)					
Labor	6	4	4	4	8
Non-Labor	16	10	53	24	311
NSE	0	0	0	0	0
Total	22	14	57	28	318
FTE	0.1	0.1	0.1	0.1	0.1
Vacation & Sick (Nominal \$)					
Labor	1	1	1	1	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	1	1	1	1	1
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	1	1	0	0	0
Non-Labor	3	1	5	1	0
NSE	0	0	0	0	0
Total	4	2	6	1	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	8	5	5	5	9
Non-Labor	19	12	58	25	311
NSE	0	0	0	0	0
Total	27	17	63	30	319
FTE	0.1	0.1	0.1	0.1	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14137.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 141370 - TL6975 ESCONDIDO - SAN MARCOS

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	0.1	0.1	0.1	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 Total	0	0	0	0	0.0
2018	0.001	0	0	0.001	0.1
Explanation:	Adjusting FTE to reflect labor charges				
2018 Total	0.001	0	0	0.001	0.1
2019	0.001	0	0	0.001	0.1
Explanation:	Adjusting FTE to reflect labor charges				
2019 Total	0.001	0	0	0.001	0.1
2020	0.001	0	0	0.001	0.1
Explanation:	Adjusting FTE to reflect labor charges				
2020 Total	0.001	0	0	0.001	0.1
2021 Total	0	0	0	0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 141370**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 14137.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 141370 - TL6975 ESCONDIDO - SAN MARCOS
 Workpaper Detail: 141370.001 - TL6975 ESCONDIDO - SAN MARCOS
 In-Service Date: 11/30/2022

Description:

Construct and reconductor approximately 12 miles of new 69kV transmission lines from the San Marcos Substation to the existing Escondido Substation.

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		15	0	0
Non-Labor		735	0	0
NSE		0	0	0
	Total	<u>750</u>	<u>0</u>	<u>0</u>
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 141370

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

TY2024 GRC FORECAST - DETAILS
Budget Code: 14137
Estimated In Service Date: 11/30/2022

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTEs	Labor	Non-RAMP	hr	24,000	\$ 60	\$ 14,400				\$ 14,400	a) Zero-Based forecasting method used
2	Distribution Underbuild Miles	Non-Labor	Non-RAMP	Miles	0.4	\$ 1,836,898	\$ 734,759				\$ 734,759	b) Used \$60/hr. as the average salary to calculate Unit for Labor
3	FTEs	Labor	Non-RAMP	hrs	441	\$ -	\$ 269				\$ 269	c) Units
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
*Costs should be reported in direct costs only (no overheads)												
Summary												
		Labor	RAMP				\$ -				\$ -	
		Non-Labor	RAMP				\$ -				\$ -	
	Subtotal RAMP						\$ -				\$ -	
		Labor	Non-RAMP				\$ 14,769				\$ 14,769	
		Non-Labor	Non-RAMP				\$ 734,759				\$ 734,759	
	Subtotal Non-RAMP						\$ 749,528				\$ 749,528	
	Total Project Forecast						\$ 749,528				\$ 749,528	

Beginning of Workpaper Group
201260 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20126.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 201260 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM

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	80	44	41	69	42	42	42	42
Non-Labor	Base YR Rec	1,963	1,904	2,894	2,942	2,965	2,965	2,965	2,965
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		2,043	1,947	2,935	3,012	3,007	3,007	3,007	3,007
FTE	Base YR Rec	0.4	0.2	0.2	0.4	0.2	0.2	0.2	0.2

Business Purpose:

To meet SDG&E's obligation to serve by providing funding for the Corrective Maintenance Program (CMP) in areas not designated as high fire threat district (HFTD).

Physical Description:

This program annually replaces approximately 80 wooden poles in non-High Fire Threat Districts with steel poles. Distribution costs represent about 10% of costs associated with installing transmission poles with distribution underbuild.

Project Justification:

This program supports SDG&E's obligation to serve and meet safety requirements promulgated by various legislative and Commission requirements, e.g., CPUC General Order 95, Assembly Bill 1890, and Assembly Bill 1017.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 20126.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. Other
Workpaper Group: 201260 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM

Forecast Methodology:

Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.

Non-Labor - Base YR Rec

The forecast method developed for this cost category is base-year. The expenditures for 2021 reflect recent changes in this program and is the best representation of the starting point for 2022-2024 forecasted costs.

NSE - Base YR Rec

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20126.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 201260 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM

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	42	42	42	0	0	0	42	42	42
Non-Labor	Base YR Rec	2,965	2,965	2,965	0	0	0	2,965	2,965	2,965
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		3,007	3,007	3,007	0	0	0	3,007	3,007	3,007
FTE	Base YR Rec	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20126.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 201260 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	58	33	33	58	30
Non-Labor	1,641	1,669	2,638	2,814	2,785
NSE	0	0	0	0	0
Total	1,699	1,703	2,671	2,872	2,815
FTE	0.3	0.2	0.2	0.3	0.1
Adjustments (Nominal \$)**					
Labor	0	0	0	0	7
Non-Labor	0	0	0	-1	180
NSE	0	0	0	0	0
Total	0	0	0	-1	187
FTE	0.0	0.0	0.0	0.1	0.1
Recorded-Adjusted (Nominal \$)					
Labor	58	33	33	58	37
Non-Labor	1,641	1,669	2,638	2,814	2,965
NSE	0	0	0	0	0
Total	1,699	1,703	2,671	2,872	3,002
FTE	0.3	0.2	0.2	0.4	0.2
Vacation & Sick (Nominal \$)					
Labor	9	5	5	8	5
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	9	5	5	8	5
FTE	0.1	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	13	5	4	3	0
Non-Labor	322	234	256	129	0
NSE	0	0	0	0	0
Total	335	240	259	132	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	80	44	41	69	42
Non-Labor	1,963	1,904	2,894	2,942	2,965
NSE	0	0	0	0	0
Total	2,043	1,947	2,935	3,012	3,007
FTE	0.4	0.2	0.2	0.4	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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20126.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 201260 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM

Summary of Adjustments to Recorded:

		In Nominal \$(000)				
	Years	2017	2018	2019	2020	2021
Labor		0	0	0	0	7
Non-Labor		0	0	0	-1	180
NSE		0	0	0	0	0
	Total	0	0	0	-1	187
FTE		0.0	0.0	0.0	0.1	0.1

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 Total	0	0	0	0	0.0
2018 Total	0	0	0	0	0.0
2019 Total	0	0	0	0	0.0
2020	0	-0.589	0	-0.589	0.0
Explanation:	Reduction for S960 order types costs already accounted for on 00235 - Transformer & Meter workpaper				
2020	0.001	0	0	0.001	0.1
Explanation:	One-sided adjustment to add the FTE related to CPD orders that were inadvertently missing from the initial data load of historical costs				
2020 Total	0.001	-0.589	0	-0.588	0.1
2021	7	180	0	187	0.1
Explanation:	Budget code 100 was split into several projects. This adjustment is to allocate costs that trickled in 2021 and were not journal entried prior to the data upload into GRID.				
2021 Total	7	180	0	187	0.1

Note: Totals may include rounding differences.

**Beginning of Workpaper Sub Details for
Workpaper Group 201260**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 20126.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 201260 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM
 Workpaper Detail: 201260.001 - TRANSMISSION CORRECTIVE MAINTENANCE PROGRAM (NON-HFTD)
 In-Service Date: Not Applicable
 Description:

Distribution portion of transmission pole replacements in non-HFTD areas as part of the transmission corrective maintenance program (CMP).

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		42	42	42
Non-Labor		2,965	2,965	2,965
NSE		0	0	0
	Total	<u>3,007</u>	<u>3,007</u>	<u>3,007</u>
FTE		0.2	0.2	0.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
211350 - ELCT TRANS SMALL REALIBLTY JOBS- NON WMP

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21135.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 211350 - ELCT TRANS SMALL REALIBLTY JOBS- NON WMP

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
		2017	2018	2019	2020	2021	2022	2023	2024
	Years								
Labor	Zero-Based	3	29	0	0	2	20	32	25
Non-Labor	Zero-Based	51	119	6	0	9	640	400	800
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	54	148	6	0	11	660	432	825
FTE	Zero-Based	0.0	0.1	0.0	0.0	0.0	0.2	0.3	0.3

Business Purpose:

This budget code funds electric transmission projects under \$2 million, including associated distribution underbuilt equipment on transmission structures. The funds are applied to the infrastructure to meet SDGE's obligation to increase safety and reliability of the electric system.

Physical Description:

Projects include repairing/replacing/upgrading various electric infrastructure, e.g., poles, insulators, conductors to address identified reliability issues in non-high fire threat districts (non-HFTD).

The scope of this project includes 32 transmission poles replaced with distribution underbuild in 2022, 20 in 2023, and 40 in 2024.

Project Justification:

These projects comply with SDG&E's obligation to serve and meet safety and reliability requirements.

Note: Totals may include rounding differences.

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

Area: ELECTRIC DISTRIBUTION
Witness: Oliva L. Reyes
Budget Code: 21135.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. Other
Workpaper Group: 211350 - ELCT TRANS SMALL REALIBLTY JOBS- NON WMP

Forecast Methodology:

Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

Non-Labor - Zero-Based

The forecast method developed for this cost category is zero-based. While historic-based data (e.g., an applicable unit cost) may be utilized to develop the forecast, use of historic total dollars spent is not applicable for this item. The forecast is based on cost estimates developed from the scope of work for the project. SDG&E develops cost estimates based on construction labor rates, material costs, contract pricing/quotes, and other project specific details, as applicable.

NSE - Zero-Based

N/A

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21135.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 211350 - ELCT TRANS SMALL REALIBLTY JOBS- NON WMP

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	Zero-Based	20	32	25	0	0	0	20	32	25
Non-Labor	Zero-Based	640	400	800	0	0	0	640	400	800
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		660	432	825	0	0	0	660	432	825
FTE	Zero-Based	0.2	0.3	0.3	0.0	0.0	0.0	0.2	0.3	0.3

Forecast Adjustment Details

Year	Labor	NLbr	NSE	Total	FTE
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 - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21135.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 211350 - ELCT TRANS SMALL REALIBLTY JOBS- NON WMP

Determination of Adjusted-Recorded:

	2017 (\$000)	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)
Recorded (Nominal \$)*					
Labor	2	22	0	0	2
Non-Labor	43	105	6	0	9
NSE	0	0	0	0	0
Total	45	127	6	0	10
FTE	0.0	0.1	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	2	22	0	0	2
Non-Labor	43	105	6	0	9
NSE	0	0	0	0	0
Total	45	127	6	0	10
FTE	0.0	0.1	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	3	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	3	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021\$					
Labor	1	4	0	0	0
Non-Labor	8	15	1	0	0
NSE	0	0	0	0	0
Total	9	18	1	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021\$)					
Labor	3	29	0	0	2
Non-Labor	51	119	6	0	9
NSE	0	0	0	0	0
Total	54	148	6	0	11
FTE	0.0	0.1	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
2024 GRC - REVISED
Capital Workpapers

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21135.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 211350 - ELCT TRANS SMALL REALIBLTY JOBS- NON WMP

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 211350**

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

Area: ELECTRIC DISTRIBUTION
 Witness: Oliva L. Reyes
 Budget Code: 21135.0
 Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
 Category-Sub: 2. Other
 Workpaper Group: 211350 - ELCT TRANS SMALL REALIBLTY JOBS- NON WMP
 Workpaper Detail: 211350.001 - ELECTRIC TRANSMISSION SMALL REALIBLTY JOBS NON-HFTD
 In-Service Date: Not Applicable

Description:

Restore, replace, or upgrade various electric infrastructure (e.g., poles, insulators, conductors) to address identified reliability issues in non-high fire threat districts (non-HFTD).

Forecast In 2021 \$(000)				
	Years	<u>2022</u>	<u>2023</u>	<u>2024</u>
Labor		20	32	25
Non-Labor		640	400	800
NSE		0	0	0
	Total	660	432	825
FTE		0.2	0.3	0.3

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 211350

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

TY2024 GRC FORECAST - DETAILS

Budget Code: 21135
 Estimated In Service Date: Ongoing

Line Item	Unit Description	Labor/Non-Labor	RAMP/Non-RAMP	Unit Metric (ea./ft./mile)	2022		2023		2024		Total Cost	Comments
					# of units	Cost per unit*	# of units	Cost per unit*	# of units	Cost per unit*		
1	FTEs	Labor	Non-RAMP	ea	0.195	\$ 100,000	0.312	\$ 100,000	0.244	\$ 100,000	\$ 24,375	
2	Transmission poles replaced with distribution underbuild	Non-Labor	Non-RAMP	poles	32	\$ 20,000	20	\$ 20,000	40	\$ 20,000	\$ 800,000	Costs account primarily for PM oversight.
3	FTEs	Labor	Non-RAMP	V&S	0.03	\$ 15,020	0.05	\$ 15,020	0.04	\$ 15,020	\$ 695	Assumes 10% of CPUC spend of total budget value.
4						\$ -					\$ 4,924	Mostly pole replacements on this budget.
5						\$ -					\$ -	
6						\$ -					\$ -	
7						\$ -					\$ -	
8						\$ -					\$ -	
9						\$ -					\$ -	
10						\$ -					\$ -	
11						\$ -					\$ -	
12						\$ -					\$ -	
13						\$ -					\$ -	
14						\$ -					\$ -	
15						\$ -					\$ -	
*Costs should be reported in direct costs only (no overheads)												
Summary												
		Labor	RAMP			\$ -					\$ -	
		Non-Labor	RAMP			\$ -					\$ -	
		Labor	Non-RAMP			\$ 20,000					\$ 25,000	\$ 77,000
		Non-Labor	Non-RAMP			\$ 640,000					\$ 800,000	\$ 1,840,000
						\$ 660,000					\$ 825,000	\$ 1,917,000
						\$ 660,000					\$ 825,000	\$ 1,917,000