

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-25-CWP-R)

REVISED CAPITAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF WILLIAM J. EXON
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-25-CWP-R

Area:	INFORMATION TECHNOLOGY
Witness:	William J. Exon

	In 2021 \$ (000)		
	Adjusted-Forecast		
	2022	2023	2024
A. Administrative and General	1,800	1,265	1,265
B. Clean Transportation	1,125	1,459	1,612
C. Customer Services - Field Operations	22,833	52,849	81,418
D. Customer Services - Office Operations	19,233	31,353	33,557
E. Customer Services - Information	4,969	4,367	0
F. Clean Energy Innovations	1,068	2,040	897
G. Energy Procurement	1,915	3,060	1,811
H. Electric Distribution - Capital	6,782	718	0
I. Electric Distribution - O&M	11,963	8,728	7,578
J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt	1,884	6,546	1,678
K. Fleet Services	466	618	330
L. Gas Distribution	371	632	0
M. Safety, Risk and Asset Management	20,198	24,049	21,781
O. Information Technology	125,405	71,109	62,259
Total	220,012	208,793	214,186

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: A. Administrative and General
Workpaper: VARIOUS

Summary for Category: A. Administrative and General

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	166	0	0
Non-Labor	0	1,634	1,265	1,265
NSE	0	0	0	0
Total	0	1,800	1,265	1,265
FTE	0.0	1.3	0.0	0.0

00921J Claims Management

Labor	0	53	0	0
Non-Labor	0	185	0	0
NSE	0	0	0	0
Total	0	238	0	0
FTE	0.0	0.4	0.0	0.0

00921K Electric Damages Optimization

Labor	0	113	0	0
Non-Labor	0	139	0	0
NSE	0	0	0	0
Total	0	252	0	0
FTE	0.0	0.9	0.0	0.0

00921A GRC & Regulatory Management System - Phase 3

Labor	0	0	0	0
Non-Labor	0	1,310	1,265	1,265
NSE	0	0	0	0
Total	0	1,310	1,265	1,265
FTE	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00921J - Claims Management**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921J - Claims Management

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	53	0	0
Non-Labor	Zero-Based	0	0	0	0	0	185	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	238	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0

Business Purpose:

This project started in 2020. The Company's claims department currently uses Risk Master to manage liability and recovery claims. A new solution is required to address the current systems limitations and expand the claims departments technological capabilities.

Physical Description:

- 1) Replace the current Risk Master claims application with an enhanced solution that meets new client-driven requirements and has modern technological capabilities, including, flexible web and mobile interfaces, integration with SAP, enhanced workflow capabilities, and data analytics.
- 2) Ability to support voluminous claims request that may arise from a major incident.

This project enhances one application over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, business project managers, developers, architects, business analysts and information security engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by SaaS subscription and vendor services for integration, implementation, IT quality assurance, and a technical lead.

This is a shared asset.

Project Justification:

This project will provide a sustainable solution to address the limitations of the user web and mobile interfaces, integration with SAP, Google/SAP Cloud, data analytics, as well as the new client-driven requirements. A new solution will be able to support voluminous claims requests that may arise from a major incident, helping to maintain responsiveness to customers.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: A. Administrative and General
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00921J - Claims Management

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921J**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921J - Claims Management
 Workpaper Detail: 00921J.001 - SDGE Claims Management SW NL SERVICES
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		185	0	0
NSE		0	0	0
	Total	185	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921J - Claims Management
 Workpaper Detail: 00921J.002 - SDGE Claims Management SW LABOR
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		53	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	53	0	0
FTE		0.4	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921K - Electric Damages Optimization

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921K - Electric Damages Optimization

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	113	0	0
Non-Labor	Zero-Based	0	0	0	0	0	139	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	252	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0

Business Purpose:

This project started in 2021. The current paper Company property damage report for third-party damages relies on manual entry of information and allows for delays in the reconciliation process and notification to legal claims. This results in avoidable human errors and the potential for lost recoveries. Timely handoff to legal claims and accounting operations would allow for quicker invoicing and collections for damage claims.

The objective of this project is to digitize the current paper Company property damage report and expedite hand off to a supervisor or manager for review as well as trigger a notification to legal claims.

Physical Description:

- 1) Reduce the amount of time between the incident and reconciliation/approval and between event notification and legal claims.
- 2) Improve claims readiness by ensuring the event details are well-documented and the claims package is in good order prior to notifying legal claims.
- 3) Reduce write-offs and maximize the recovery rate.
- 4) Integrate with current field hardware
- 5) Enable electronic and/or automated notifications to supervisors for review and legal claims for investigation.

This project impacts two applications over the project duration.

The internal labor costs for this project are driven by various resources such as IT project managers, business project managers, SAP analysts, SORT analysts, SORT developers, architects, analytics developers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for software developers, analytics developers, and testing services.

This is a non-shared asset.

Project Justification:

- 1) Eliminate manual entry on paper
- 2) Reduce avoidable follow-ups and claims packages not-in-good-order by 50% or more
- 3) Reduce processing time
- 4) Increase collections, reduce write-offs, and maximize the recovery rate

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: A. Administrative and General
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00921K - Electric Damages Optimization

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921K**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921K - Electric Damages Optimization
 Workpaper Detail: 00921K.001 - Electric Damages Optimization SW NL SERVICES
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		139	0	0
NSE		0	0	0
	Total	139	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921K - Electric Damages Optimization
 Workpaper Detail: 00921K.002 - Electric Damages Optimization SW LABOR
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		113	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	113	0	0
FTE		0.9	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921A - GRC & Regulatory Management System - Phase 3

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921A - GRC & Regulatory Management System - Phase 3

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	0	0	0	0	0	1,310	1,265	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,310	1,265	1,265
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project consists of continuous solutions for inbound and outbound discovery, other regulatory documents, auto-classification, and integrated compliance tracking.

Physical Description:

This project includes the planning and implementation of discovery portal functionality and integration, data auto classification, integrated compliance tracking, and additional enhancements.

This project impacts one application over the project duration.

The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for development and implementation, along with software licenses.

This is a non-shared asset.

Project Justification:

This project supports our ability to provide timely response to GRC and Regulatory data requests and creates efficiencies for business units and external parties by implementing a centralized and comprehensive solution.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: A. Administrative and General
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00921A - GRC & Regulatory Management System - Phase 3

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921A**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921A - GRC & Regulatory Management System - Phase 3
 Workpaper Detail: 00921A.001 - GRC & Regulatory Management System - Phase 3 Software Purchase
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		300	0	0
NSE		0	0	0
	Total	300	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921A - GRC & Regulatory Management System - Phase 3
 Workpaper Detail: 00921A.002 - GRC & Regulatory Management System - Phase 3 SW Maintenance
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		45	0	0
NSE		0	0	0
	Total	45	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921A - GRC & Regulatory Management System - Phase 3
 Workpaper Detail: 00921A.003 - GRC & Regulatory Management System - Phase 3 SW NL Services
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		965	0	0
NSE		0	0	0
	Total	965	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921A - GRC & Regulatory Management System - Phase 3
 Workpaper Detail: 00921A.004 - GRC & Regulatory Management System - Phase 3 SW NL Services
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	0	1,265	0
NSE	0	0	0
Total	0	1,265	0
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: A. Administrative and General
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921A - GRC & Regulatory Management System - Phase 3
 Workpaper Detail: 00921A.005 - GRC & Regulatory Management System - Phase 3 SW NL Services
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	1,265
NSE		0	0	0
	Total	0	0	1,265
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: B. Clean Transportation
Workpaper: VARIOUS

Summary for Category: B. Clean Transportation

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	344	314	315
Non-Labor	0	781	1,145	1,297
NSE	0	0	0	0
Total	0	1,125	1,459	1,612
FTE	0.0	2.9	2.6	2.6

00903H Clean Transportation Product Team 2023-2024

Labor	0	0	236	315
Non-Labor	0	0	950	1,297
NSE	0	0	0	0
Total	0	0	1,186	1,612
FTE	0.0	0.0	2.0	2.6

00903I Clean Transportation Product Team 2022-2023

Labor	0	344	78	0
Non-Labor	0	781	195	0
NSE	0	0	0	0
Total	0	1,125	273	0
FTE	0.0	2.9	0.6	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00903H - Clean Transportation Product Team 2023-2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: B. Clean Transportation
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903H - Clean Transportation Product Team 2023-2024

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	236	315
Non-Labor	Zero-Based	0	0	0	0	0	0	950	1,297
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	1,186	1,612
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.6

Business Purpose:

This project develops new applications and enhances Clean Transportation IT systems in support of Clean Transportation initiatives and programs.

Physical Description:

The project will build and implement software application enhancements for the Clean Transportation business team and to implement Commission-approved Electric Vehicle (EV) Infrastructure programs. These enhancements include the following software tool that replaces the existing electric vehicle charging systems in place on SDG&E campuses. The current system contains 331 electric vehicle chargers. Enhancements and software support will be needed for the on campus charging application to enable the uses of both web and mobile phone access. The solution will also be integrated into SDG&E core billings systems.

Other software applications include the Clean Transportation Customer Solutions tool, which is a Customer Relationship Management software application that allows the Clean Transportation Customer Solutions Advisors and the Project Management Organization to log, manage, and collect required data from customers and completed sites participating in SDG&E EV infrastructure programs. The tool serves as the system of record for data elements and documents that are required in regulatory compliance reports.

This project enhances eight applications over the project duration.

The internal labor costs for this project are driven by various resources such as product owners, software developers, business subject matter experts, scrum masters, information security engineers, database administrators, architects, and delivery leads. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by contracted labor and vendor services.

This is a non-shared asset.

Project Justification:

- 1) Reduces burden on Clean Transportation program used for IT system enhancements.
- 2) Enables Clean Transportation program for expansion to additional sites and /or installation of more chargers.
- 3) Increases expected scores for Company performance on Clean Transportation programs.
- 4) System enhancements for Clean Transportation reporting will reduce manual work.
- 5) Dedicated internal team allows IT work to be developed and supported in house rather than bidding out work to outside external Companies.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00903.0
Category: B. Clean Transportation
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00903H - Clean Transportation Product Team 2023-2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00903H**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: B. Clean Transportation
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903H - Clean Transportation Product Team 2023-2024
 Workpaper Detail: 00903H.001 - Clean Transportation Product Team 2023 - 2024 Software NL Services
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	950	1,297
NSE		0	0	0
	Total	0	950	1,297
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: B. Clean Transportation
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903H - Clean Transportation Product Team 2023-2024
 Workpaper Detail: 00903H.002 - Clean Transportation Product Team 2023 - 2024 SW Labor
 In-Service Date: 09/30/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	236	315
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	236	315
FTE		0.0	2.0	2.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00903I - Clean Transportation Product Team 2022-2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: B. Clean Transportation
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903I - Clean Transportation Product Team 2022-2023

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	344	78	0
Non-Labor	Zero-Based	0	0	0	0	0	781	195	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,125	273	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.9	0.6	0.0

Business Purpose:

This project develops new applications and enhances Clean Transportation IT systems in support of Clean Transportation initiatives and programs.

Physical Description:

These software applications include the Clean Transportation Customer Solutions tool, which is a Customer Relationship Management software application that allows the Clean Transportation Customer Solutions Advisors and the Project Management Organization to log, manage, and collect required data from customers and completed sites participating in SDG&E Electric Vehicle (EV) infrastructure programs. The tool serves as the system of record for data elements and documents that are required in regulatory compliance reports.

In addition, the IT project Team develops and enhances systems that allow production support team members to monitor EV charging stations at Clean Transportation project sites where SDG&E provides ongoing charge station maintenance and service. The EV Charging Station Network Operations tool (NerOps) is used to diagnose issues and dispatch service orders for charging stations. Other tools are planned for development to assist with charging station site commissioning and management, specifically related to ongoing lifecycle management of charging station hardware.

This project enhances eight applications over the project duration.

The internal labor costs for this project are driven by various resources such as product owners, software developers, business Subject Matter Experts (SMEs), scrum masters, information security engineers, database administrators, architects and delivery leads. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by contracted labor and vendor services.

This is a non-shared asset.

Project Justification:

- 1) Reduces burden on Clean Transportation program used for IT system enhancements .
- 2) Enables Clean Transportation program for expansion to additional sites and /or installation of more chargers.
- 3) Increases expected scores for Company performance on Clean Transportation programs .
- 4) System enhancements for Clean Transportation reporting will reduce manual work .
- 5) Dedicated internal team allows IT work to be developed and supported in house rather than bidding out work to outside external Companies.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00903.0
Category: B. Clean Transportation
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00903I - Clean Transportation Product Team 2022-2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00903I**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: B. Clean Transportation
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903I - Clean Transportation Product Team 2022-2023
 Workpaper Detail: 00903I.001 - Clean Transportation Product Team 2022 - 2023 SW NL Services
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		781	195	0
NSE		0	0	0
	Total	781	195	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: B. Clean Transportation
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903I - Clean Transportation Product Team 2022-2023
 Workpaper Detail: 00903I.002 - Clean Transportation Product Team 2022 - 2023 SW Labor Services
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		344	78	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	344	78	0
FTE		2.9	0.6	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: C. Customer Services - Field Operations
Workpaper: VARIOUS

Summary for Category: C. Customer Services - Field Operations

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	4,316	9,174	8,029
Non-Labor	0	18,517	43,675	73,389
NSE	0	0	0	0
Total	0	22,833	52,849	81,418
FTE	0.0	35.9	76.5	66.9

00900E Smart Meter Upgrade 2022-2023

Labor	0	1,047	177	0
Non-Labor	0	4,094	571	0
NSE	0	0	0	0
Total	0	5,141	748	0
FTE	0.0	8.7	1.5	0.0

00920AI RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase

Labor	0	1,507	1,848	1,995
Non-Labor	0	11,893	8,589	11,211
NSE	0	0	0	0
Total	0	13,400	10,437	13,206
FTE	0.0	12.5	15.4	16.6

00920T RAMP - Field Service Delivery (FSD) - Data & Analytics Platform

Labor	0	0	0	0
Non-Labor	0	0	3,402	6,090
NSE	0	0	0	0
Total	0	0	3,402	6,090
FTE	0.0	0.0	0.0	0.0

00900D Smart Meter (Product) 2022-2024

Labor	0	0	650	667
Non-Labor	0	0	4,810	2,996
NSE	0	0	0	0
Total	0	0	5,460	3,663
FTE	0.0	0.0	5.4	5.5

218810 Smart Meter 2.0

Labor	0	1,762	6,499	5,367
Non-Labor	0	2,530	26,303	53,092
NSE	0	0	0	0
Total	0	4,292	32,802	58,459
FTE	0.0	14.7	54.2	44.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00900E - Smart Meter Upgrade 2022-2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00900E - Smart Meter Upgrade 2022-2023

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	1,047	177	0
Non-Labor	Zero-Based	0	0	0	0	0	4,094	571	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	5,141	748	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	8.7	1.5	0.0

Business Purpose:

The Smart Meter Product teams will upgrade production and non-production Meter Data Management System (MDMS), OpenWay Collection Engine (OWCE) application software, and Certicom Decryption and Encryption Key Servers to their latest vendor provided version. What's Up Gold (WUG) vendor product will also be upgraded. This product is used to monitor field area routers which are used to send data from meters via cell network to SDG&E back-end system.

Physical Description:

Smart Meter Ops Project Scope:
 1) OpenWay Collection Engine (OWCE) upgrade
 2) Certicom Decryption & Encryption Key server upgrade
 3) Meter Data Management System (MDMS) upgrade
 4) Operational reporting enhancements
 5) Application test automation
 6) What's Up Gold (WUG) upgrade - Product to monitor field area routers

Smart Meter A&I Project Scope:

1) Smart Meter operational reporting, analytics & process automation enhancements as a result of evolving business process changes from CIS replacement, CIS replacement enhancements and upcoming Smart Meter 2.0 projects
 2) Application Test Automation

This project impacts three applications in 2022, and three in 2023.

The internal labor costs for this project are driven by various resources such as product owners, software developers, business Subject Matter Experts (SMEs), scrum masters, information security engineers, database administrators, architects, and delivery leads. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by contracted labor and vendor services.

This is a non-shared asset.

Project Justification:

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00900.0
Category: C. Customer Services - Field Operations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00900E - Smart Meter Upgrade 2022-2023

- 1) Upgrading the Smart Meter systems software will enhance stable state operations for the next 2 years, enhancing the cyber security posture to remain in compliance with IT enterprise software policies .
- 2) OWCE 7.x allows the Smart Meter Network meters to have their firmware upgraded to address numerous meter failure conditions.
- 3) Accelerates Smart Meter Network Operations & Engineering (NOE) and data operations troubleshooting and collection of outstanding data, reducing risk for potential delayed bills.
- 4) Application test automation will harden and accelerate development and enhancements allowing clients to realize benefits more quickly.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00900.0
Category: C. Customer Services - Field Operations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00900E - Smart Meter Upgrade 2022-2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00900E**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00900E - Smart Meter Upgrade 2022-2023
 Workpaper Detail: 00900E.001 - Smart Meter Upgrade 2022-2023 SW Labor Services
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		1,047	177	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	1,047	177	0
FTE		8.7	1.5	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00900E - Smart Meter Upgrade 2022-2023
 Workpaper Detail: 00900E.002 - Smart Meter Upgrade 2022-2023 SW NL Services
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		3,686	571	0
NSE		0	0	0
	Total	3,686	571	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00900E - Smart Meter Upgrade 2022-2023
 Workpaper Detail: 00900E.003 - Smart Meter Upgrade 2022-2023 SW Maintenance
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		135	0	0
NSE		0	0	0
	Total	135	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00900E - Smart Meter Upgrade 2022-2023
 Workpaper Detail: 00900E.004 - Smart Meter Upgrade 2022-2023 SaaS Subscription
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		273	0	0
NSE		0	0	0
	Total	273	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AI - RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AI - RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase

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	1,507	1,848	1,995
Non-Labor	Zero-Based	0	0	0	0	0	11,893	8,589	11,211
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	13,400	10,437	13,206
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	12.5	15.4	16.6

Business Purpose:

This project started in 2020. The Company's current scheduling and dispatch functions have three critical issues: the current scheduling system is highly customized, the users have adopted manual process workarounds, and the work management systems are not fully integrated. The current version of ClickSoftware is out of support. The current Click mobile solutions (Classic and Touch) are integrated with the current software version and must be upgraded or replaced.

This project will leverage this opportunity to transform the scheduling and dispatching functions by implementing leading technology and processes.

Physical Description:

The scope of this project is to upgrade the Company's enterprise scheduling and dispatch system with the following capabilities:

- 1) Provide automated scheduling and dispatch functions
- 2) SAP design changes to enable automatic scheduling
- 3) Data sanitization such as pole segments and maintenance plans
- 4) Replace all Gas and Electric mobile forms including inspection, construction, and emergency
- 5) Upgrade existing system integrations and reports
- 6) Enable timesheets for field personnel

This project impacts two applications over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, architects, analysts, developers, and testers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by SaaS subscription and vendor services for application design, development, testing, and implementation.

This is a non-shared asset.

Project Justification:

- 1) Improve workforce utilization, productivity, and efficiency
- 2) Improve data integrity and accuracy
- 3) Improve process compliance
- 4) Simplify architecture
- 5) Reduce total cost of ownership
- 6) Reduce customizations
- 7) Increase agility in form development

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: C. Customer Services - Field Operations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AI - RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AI**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AI - RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase
 Workpaper Detail: 00920AI.001 - FSD - Scheduling & Dispatch Phase RAMP
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	1,507	1,848	1,995
Non-Labor	8,500	8,589	11,211
NSE	0	0	0
Total	10,007	10,437	13,206
FTE	12.5	15.4	16.6

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AI - RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase
 Workpaper Detail: 00920AI.001 - FSD - Scheduling & Dispatch Phase RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4;5
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency; Gas Operations Systems Resiliency
 Tranche(s): Tranche1: NA

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	4,528	13,400	10,437	13,206	37,043	22,430	28,661

Cost Estimate Changes from RAMP:
Higher Forecast

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 applications over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:
Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AI - RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase
 Workpaper Detail: 00920AI.002 - FSD - Scheduling & Dispatch Phase SW Purchase (Same RAMP item as 00920AI.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		3,053	0	0
NSE		0	0	0
	Total	3,053	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AI - RAMP - Field Service Delivery (FSD) - Scheduling & Dispatch Phase
 Workpaper Detail: 00920AI.003 - FSD - Scheduling & Dispatch Phase SW Prepaid Maintenance (Same RAMP item as 00920AI.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		340	0	0
NSE		0	0	0
	Total	340	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920T - RAMP - Field Service Delivery (FSD) - Data & Analytics Platform

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920T - RAMP - Field Service Delivery (FSD) - Data & Analytics Platform

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	0	0	0	0	0	3,402	6,090	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	3,402	6,090	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

In support of the Field Service Delivery (FSD) program, the purpose of this project is to develop a FSD Data and Analytics Platform to support scheduling, dispatch, and field operations and to improve overall forecasting and planning capabilities.

The platform will support a dedicated analytics services team [enabled by Artificial Intelligence (AI), Machine Learning (ML) and Cloud capabilities] to drive analytics and provide data driven insights across work types and organizations.

Physical Description:

- 1) Integrate various data sources to Cloud, including work management and asset management solutions
- 2) Consolidate data points across multiple data sources based on unique key identifiers.
- 3) Employ artificial intelligence and machine learning to support work throughput by internal resources, schedule adherence.
- 4) Provide work forecast for planned and unplanned work based on seasonality and geography.
- 5) Implement associated dashboarding and reporting

This project impacts one application over the project duration. There are no internal labor costs for this project. The non-labor costs for this project are driven by vendor services for application design, development, testing, and implementation.
 This is a non-shared asset.

Project Justification:

- 1) Enables single view of work across disparate systems empowering higher level decision making
- 2) Minimize customer impacts by siloed operations
- 3) Provides capability to forecast, plan, and assign work based on resource and skillset constraints
- 4) Provide situational awareness of crew locations
- 5) Improves ability to estimate work durations based on work types

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: C. Customer Services - Field Operations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920T - RAMP - Field Service Delivery (FSD) - Data & Analytics Platform

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920T**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920T - RAMP - Field Service Delivery (FSD) - Data & Analytics Platform
 Workpaper Detail: 00920T.002 - RAMP Field Service Delivery-Data & Analytics Platform SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	0	3,402	6,090
NSE	0	0	0
Total	0	3,402	6,090
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920T - RAMP - Field Service Delivery (FSD) - Data & Analytics Platform
 Workpaper Detail: 00920T.002 - RAMP Field Service Delivery-Data & Analytics Platform SW Development

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4;5
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency; Gas Operations Systems Resiliency
 Tranche(s): Tranche1: NA

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	3,402	6,090	9,492	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP project

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 application over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00900D - Smart Meter (Product) 2022-2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900D - Smart Meter (Product) 2022-2024

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	650	667
Non-Labor	Zero-Based	0	0	0	0	0	0	4,810	2,996
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	5,460	3,663
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	5.4	5.5

Business Purpose:

The Smart Meter Product teams will improve and enhance operational and analytical integrated applications, tools, databases, and interface solutions serving meter-to-cash, safety and meter operations for SDG&E's Customer Services Field Operations organization.

The teams will implement an upgrade for each of the OWCE, MDMS and MV90 systems in 2024.

Operational and analytical application processes will be enhanced through automation and business intelligence to further streamline reporting, analytics, workflow, and process automation tools to align to significant changes in the enterprise as a result of CIS replacement and Smart Meter 2.0 Capital projects.

Application Test Automation will expand appropriately for new or changed processes, functionality, analytics, reporting and workflow tools.

The Smart Meter Teams will begin development and, administration of edge Computing Applications, meter data integrations, and processes necessary to satisfy business use cases for clients supporting electric and gas distribution systems.

Physical Description:

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00900.0
Category: C. Customer Services - Field Operations
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00900D - Smart Meter (Product) 2022-2024

Smart Meter Ops Scope:

- 1) Implement critical enhancements each year (2023, 2024) - OWCE and MDMS, MV90 upgrade in 2024.
- 2) OWCE product enhancements.
- 3) Operational reporting enhancements.
- 4) Operational system process automation - reregistration, RCDC automation, registration/deregistration automation.
- 5) MDMS - Cogen implementation.
- 6) MDMS product enhancements.

Smart Meter A&I Scope:

- 1) Smart Meter 2.0 Edge Application and integration development.
- 2) Analytics, reporting, workflow process Automation enhancements supporting Smart Meter 2.0 system(s) and operational workflows.
- 3) New/enhanced exception management automation processes from Smart Meter 2.0 meters and modules to support timely and accurate billing and device exception remediation.
- 4) Application Test Automation.

This project impacts six applications in 2022, six in 2023, and eight in 2024.

The internal labor costs for this project are driven by various resources such as product owners, software developers, scrum masters, architects, and delivery leads. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by contracted labor and vendor services.

This is a non-shared asset.

Project Justification:

Development, and Administration of edge computing. Applications in the Smart Meter 2.0 assets offers improved device and system monitoring, exception detection and actionable insights for internal clients and external customers.

Implementing application software enhancements to each OWCE and MDMS systems and upgrades of the MV90 system improves operational reliability.

Application Test Automation will harden and accelerate development and enhancements of existing applications allowing clients to realize benefits more quickly.

Enhancements, re-architecting and/or new data integrations for improved exception detection, exception process automation and analytics for wire down detection (wildfire prevention) and gas leak detection and various other new business use cases for our electric and gas distribution systems.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00900.0
Category: C. Customer Services - Field Operations
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00900D - Smart Meter (Product) 2022-2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00900D**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900D - Smart Meter (Product) 2022-2024
 Workpaper Detail: 00900D.001 - Smart Meter (Product) 2023-2024 Software NL Services
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	0	4,810	0
NSE	0	0	0
Total	0	4,810	0
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900D - Smart Meter (Product) 2022-2024
 Workpaper Detail: 00900D.002 - Smart Meter (Product) 2023-2024 Software Labor
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	650	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	650	0
FTE		0.0	5.4	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900D - Smart Meter (Product) 2022-2024
 Workpaper Detail: 00900D.003 - Smart Meter (Product) 2023-2024 Software Labor
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	667
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	0	667
FTE		0.0	0.0	5.5

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900D - Smart Meter (Product) 2022-2024
 Workpaper Detail: 00900D.004 - Smart Meter (Product) 2023-2024 Software NL Services
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	2,996
NSE		0	0	0
	Total	0	0	2,996
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
218810 - Smart Meter 2.0

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 21881.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 218810 - Smart Meter 2.0

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	1,762	6,499	5,367
Non-Labor	Zero-Based	0	0	0	0	0	2,530	26,303	53,092
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	4,292	32,802	58,459
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	14.7	54.2	44.8

Business Purpose:

The Smart Meter 2.0 project replaces the smart meter network, gas modules and implements a new head-end solution to prevent mass failure of devices and to maintain metering operations at the current high level.

Physical Description:

The scope of this project is to begin the replacement of gas modules that are nearing end of support with next generation hardware to the Company's smart meter network infrastructure.

The project implements a new SaaS head-end solution that impacts approximately 30 Company legacy applications. Most of the application remediation will occur in 2022 through 2024. This project also replaces approximately 480,000 gas modules.

The internal labor costs are driven by the need for business and applications teams to contract and integrate the new head-end and remediations to legacy applications. Internal labor roles and allocations may vary.

The internal resources will be partnered with PMO, system integration, and technology and deployment vendors that will be implementing the new head-end and updates to legacy applications, and deployments of the new gas modules. The bulk of the costs in 2024 are associated with gas modules hardware and associated installation.

This is a 100% SDG&E asset.

Project Justification:

- 1) Maintaining the integrity of the metering system to ensure timely and accurate customer billing data for gas and electric usage.
- 2) New infrastructure that will strengthen communication, leading to resolving hard-to-reach, poor and/or underperforming gas modules.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 21881.0
Category: C. Customer Services - Field Operations
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 218810 - Smart Meter 2.0

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 21881.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 218810 - Smart Meter 2.0

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	1,762	6,499	5,367	1,762	6,499	5,367
Non-Labor	Zero-Based	0	0	0	2,530	26,303	53,092	2,530	26,303	53,092
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	4,292	32,802	58,459	4,292	32,802	58,459
FTE	Zero-Based	0.0	0.0	0.0	14.7	54.2	44.8	14.7	54.2	44.8

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: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 21881.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 218810 - Smart Meter 2.0

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: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 21881.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 218810 - Smart Meter 2.0

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 218810**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 21881.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 218810 - Smart Meter 2.0
 Workpaper Detail: 218810.001 - Smart Meter 2.0 Gas Modules
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		151	827	2,706
Non-Labor		0	3,742	41,787
NSE		0	0	0
	Total	151	4,569	44,493
FTE		1.3	6.9	22.6

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 21881.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 218810 - Smart Meter 2.0
 Workpaper Detail: 218810.002 - Smart Meter 2.0 Software SaaS Subscription
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	0	9,186	0
NSE	0	0	0
Total	0	9,186	0
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 21881.0
 Category: C. Customer Services - Field Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 218810 - Smart Meter 2.0
 Workpaper Detail: 218810.004 - Smart Meter 2.0 Software Implementation
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		1,611	5,672	2,661
Non-Labor		2,530	13,375	11,305
NSE		0	0	0
	Total	4,141	19,047	13,966
FTE		13.4	47.3	22.2

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: D. Customer Services - Office Operations
Workpaper: VARIOUS

Summary for Category: D. Customer Services - Office Operations

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	3,176	3,337	3,337
Non-Labor	0	16,057	28,016	30,220
NSE	0	0	0	0
Total	0	19,233	31,353	33,557
FTE	0.0	26.5	27.8	27.8

00903E CIS Regulatory & Enhancements 2022

Labor	0	3,176	0	0
Non-Labor	0	16,057	0	0
NSE	0	0	0	0
Total	0	19,233	0	0
FTE	0.0	26.5	0.0	0.0

00903F CIS Regulatory & Enhancements 2023

Labor	0	0	3,255	0
Non-Labor	0	0	16,497	0
NSE	0	0	0	0
Total	0	0	19,752	0
FTE	0.0	0.0	27.1	0.0

00903G CIS Regulatory & Enhancements 2024

Labor	0	0	0	3,337
Non-Labor	0	0	0	20,431
NSE	0	0	0	0
Total	0	0	0	23,768
FTE	0.0	0.0	0.0	27.8

00903B Contact Center of the Future (CCotF)

Labor	0	0	0	0
Non-Labor	0	0	11,285	9,789
NSE	0	0	0	0
Total	0	0	11,285	9,789
FTE	0.0	0.0	0.0	0.0

00903D Customer Energy Network (Product) 2023-2024

Labor	0	0	82	0
Non-Labor	0	0	234	0
NSE	0	0	0	0
Total	0	0	316	0
FTE	0.0	0.0	0.7	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00903E - CIS Regulatory & Enhancements 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903E - CIS Regulatory & Enhancements 2022

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	3,176	0	0
Non-Labor	Zero-Based	0	0	0	0	0	16,057	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	19,233	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	26.5	0.0	0.0

Business Purpose:

This project started in 2021 and includes the annual Customer Information System (CIS) to support digital front and back-office functions and features. This includes enhancements to support billing, credit and collections, service orders, digital self-service, and device management.

Physical Description:

- 1) Implement community choice aggregation - customer experience and transition
- 2) Resumption of credit and collections activity
- 3) Increase customer self-service and reduce transaction time across channels
- 4) Automate and streamline business operations through solution enhancements and improvements, system monitoring and security
- 5) Successful delivery of regulatory implementations

This project impacts the SAP CIS system over the project duration and plans to implement approximately 1,500 to 1,700 user stories per year.

The internal labor costs for this project are driven by various resources such as SAP process designers, solution architects, project leads, multiple business analysts and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by multiple vendor services contracts.

This is a non-shared asset.

Project Justification:

This project improves compliance and self-service capabilities. This project also increases billing and payment accuracy, improves call center handle times and performance Service Level Agreements (SLAs).

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00903.0
Category: D. Customer Services - Office Operations
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00903E - CIS Regulatory & Enhancements 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00903E**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903E - CIS Regulatory & Enhancements 2022
 Workpaper Detail: 00903E.001 - CIS Regulatory & Enhancements 2022 Software Labor
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		3,176	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	3,176	0	0
FTE		26.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903E - CIS Regulatory & Enhancements 2022
 Workpaper Detail: 00903E.002 - CIS Regulatory & Enhancements 2022 Software NL Services
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		16,057	0	0
NSE		0	0	0
	Total	16,057	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00903F - CIS Regulatory & Enhancements 2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903F - CIS Regulatory & Enhancements 2023

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	3,255	0
Non-Labor	Zero-Based	0	0	0	0	0	0	16,497	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	19,752	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	27.1	0.0

Business Purpose:

This project started in 2021 and includes the annual Customer Information System (CIS) to support digital front and back-office functions and features. This includes enhancements to support billing, credit and collections, service orders, digital self-service, and device management.

Physical Description:

- 1) Implement community choice aggregation - customer experience and transition
- 2) Increase customer self-service and reduce transaction time across channels
- 3) Automate and streamline business operations through solution enhancements and improvements, system monitoring and security
- 4) Successful delivery of regulatory implementations

This project impacts the SAP CIS system over the project duration and plans to implement approximately 1,500 to 1,700 user stories per year.

The internal labor costs for this project are driven by various resources such as SAP process designers, solution architects, project leads, multiple business analysts and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by multiple vendor services contracts.

This is a non-shared asset.

Project Justification:

This project improves compliance and self-service capabilities. This project also increases billing and payment accuracy, improves call center handle times and performance Service Level Agreements (SLAs).

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00903.0
Category: D. Customer Services - Office Operations
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00903F - CIS Regulatory & Enhancements 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00903F**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903F - CIS Regulatory & Enhancements 2023
 Workpaper Detail: 00903F.001 - CIS Regulatory & Enhancements 2023 Software Labor
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	3,255	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	3,255	0
FTE		0.0	27.1	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903F - CIS Regulatory & Enhancements 2023
 Workpaper Detail: 00903F.002 - CIS Regulatory & Enhancements 2023 Software NL Services
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	16,497	0
NSE		0	0	0
	Total	0	16,497	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00903G - CIS Regulatory & Enhancements 2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903G - CIS Regulatory & Enhancements 2024

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	3,337
Non-Labor	Zero-Based	0	0	0	0	0	0	0	20,431
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	23,768
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.8

Business Purpose:

This project started in 2021 and includes the annual Customer Information System (CIS) to support digital front and back-office functions and features. This includes enhancements to support billing, credit and collections, service orders, digital self-service, and device management.

Physical Description:

- 1) Implement community choice aggregation - customer experience and transition
- 2) Increase customer self-service and reduce transaction time across channels
- 3) Automate and streamline business operations through solution enhancements and improvements, system monitoring and security
- 4) Successful delivery of regulatory implementations

This project impacts the SAP CIS system over the project duration and plans to implement approximately 1,500 to 1,700 user stories per year.

The internal labor costs for this project are driven by various resources such as SAP process designers, solution architects, project leads, multiple business analysts and project managers. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by multiple vendor services contracts. This is a non-shared asset.

Project Justification:

This project improves compliance and self-service capabilities. This project also increases billing and payment accuracy, improves call center handle times and performance Service Level Agreements (SLAs).

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00903.0
Category: D. Customer Services - Office Operations
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00903G - CIS Regulatory & Enhancements 2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00903G**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903G - CIS Regulatory & Enhancements 2024
 Workpaper Detail: 00903G.001 - CIS Regulatory & Enhancements 2024 Software Labor
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	3,337
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	0	3,337
FTE		0.0	0.0	27.8

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903G - CIS Regulatory & Enhancements 2024
 Workpaper Detail: 00903G.002 - CIS Regulatory & Enhancements 2024 Software NL Services
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	16,481
NSE		0	0	0
	Total	0	0	16,481
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00903G - CIS Regulatory & Enhancements 2024
 Workpaper Detail: 00903G.003 - CIS Regulatory & Enhancements 2024 HW purchase
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	3,950
NSE		0	0	0
	Total	0	0	3,950
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00903B - Contact Center of the Future (CCotF)

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00903B - Contact Center of the Future (CCotF)

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	0	0	0	0	0	11,285	9,789	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	11,285	9,789	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

The Contact Center of the Future (CCotF) project is a Cloud-based, digital transformation of Customer Care Centers (CCC), empowering employees with tools to enable a customer-centric environment.

Physical Description:

This project includes the following components:

- 1) Cloud Based Contact Center
 - Elimination of on-premise data center infrastructure used for CCC
 - Move CCC software from on-premise to a Cloud provider
- 2) Artificial Intelligence (AI) Service Enhancements
 - Chat bot improvements
 - Natural Language Processing (NLP) in the Interactive Voice Response (IVR)
 - Speech-to-text to support omnichannel experiences
 - Multi-language support
- 3) eLearning
 - Authoring tool for digitalization of content
 - Digital learning platform
- 4) Organizational Enablement
 - Create a support structure that uses a customer-centric approach to empower Energy Services Specialists (ESS)
 - Reimagine roles of ESS employees using tools such as Agent Assist to help handle more specialized calls

This project enhances three applications over the project duration.

The internal labor costs for this project are driven by various resources such as product owners, software developers, business Subject Matter Experts (SMEs), scrum masters, information security engineers, database administrators, architects and delivery leads. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by contracted labor and vendor services, as well as a yet to be defined Cloud solution.

This is a non-shared asset.

Project Justification:

This project improves customer experience and customer satisfaction with enhanced self-service options such as conversational interactive voice response as well as increased reliability of Customer Care Center services.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00903.0
Category: D. Customer Services - Office Operations
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00903B - Contact Center of the Future (CCotF)

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00903B**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00903B - Contact Center of the Future (CCotF)
 Workpaper Detail: 00903B.001 - Contact Center of the Future SaaS Subscription
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	0	485	485
NSE	0	0	0
Total	0	485	485
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00903B - Contact Center of the Future (CCotF)
 Workpaper Detail: 00903B.002 - Contact Center of the Future SW NL Services
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	10,800	9,304
NSE		0	0	0
	Total	0	10,800	9,304
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00903D - Customer Energy Network (Product) 2023-2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00903D - Customer Energy Network (Product) 2023-2024

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	82	0	
Non-Labor	Zero-Based	0	0	0	0	0	234	0	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	316	0	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.7	0.0	

Business Purpose:

The Customer Energy Network system is approaching 11 years old and is due for software modernization. The increase in customer authorizations and aging software presents significant and real performance and reliability challenges, placing SDG&E at risk of not meeting CPUC green button mandated compliance and therefore must be upgraded to meet the growing needs of our customers.

Third-party customer authorizations are expected to grow to 200,000 by year 2023, a 500%+ increase from current authorization levels.

This project modernizes various software components within the existing system to maintain reliability and performance standards.

Physical Description:

- 1) Update delivery of the consumption data and related customer and usage data to third-party partners.
- 2) Update the system which manages third-party authorizations and subscriptions.
- 3) Update the system which creates ESPI interval data files for delivery to third-party partners.
- 4) Implement system monitoring to ensure timely delivery of data to third-party partners.
- 5) Implement functionality and automation to recover and address retroactive/ historical data delivery efforts resulting from customer, system, or data issues.
- 6) Implement test automation.

This project impacts one application over the project duration.

The internal labor costs for this project are driven by various resources such as product owners, software developers, scrum masters, architects, and delivery leads. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by contracted labor and vendor services.

This is a non-shared asset.

Project Justification:

- 1) Meet CPUC green button compliance mandate
- 2) Improve third-party/customer engagement experience and avoid likelihood of legal challenges due to reduced reliability.
- 3) Improve response times and proactive identification of third-party customer usage data delivery exceptions.
- 4) Improve capabilities for the business group to identify, reconcile, and resolve/ correct issues with third-party engagements.
- 5) Accelerate development through application test automation, reducing testing time and increasing quality of software.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00903.0
Category: D. Customer Services - Office Operations
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00903D - Customer Energy Network (Product) 2023-2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00903D**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00903D - Customer Energy Network (Product) 2023-2024
 Workpaper Detail: 00903D.001 - Customer Energy Network (Product) 2023-2024 Software NL Services
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	234	0
NSE		0	0	0
	Total	0	234	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00903.0
 Category: D. Customer Services - Office Operations
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00903D - Customer Energy Network (Product) 2023-2024
 Workpaper Detail: 00903D.002 - Customer Energy Network (Product) 2023-2024 SW Labor
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	82	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	82	0
FTE		0.0	0.7	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: E. Customer Services - Information
Workpaper: 00900C

Summary for Category: E. Customer Services - Information

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	571	635	0
Non-Labor	0	4,398	3,732	0
NSE	0	0	0	0
Total	0	4,969	4,367	0
FTE	0.0	4.7	5.3	0.0

00900C Demand Response Management Systems (DRMS) Replacement

Labor	0	571	635	0
Non-Labor	0	4,398	3,732	0
NSE	0	0	0	0
Total	0	4,969	4,367	0
FTE	0.0	4.7	5.3	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00900C - Demand Response Management Systems (DRMS) Replacement

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: E. Customer Services - Information
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900C - Demand Response Management Systems (DRMS) 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	571	635	0
Non-Labor	Zero-Based	0	0	0	0	0	4,398	3,732	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	4,969	4,367	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.7	5.3	0.0

Business Purpose:

This project implements a new Demand Response Management System (DRMS) that manages the entire portfolio of Demand Response (DR) programs. The DR programs are currently managed with several point solutions, complex middleware, and a significant number of manual processes. The existing DRMS system has reached end of support, has limited business capabilities, and has security control challenges. Extensive and complex System Integration (SI) and custom application code has been developed to meet business needs.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

- 1) Replace the existing end of support DRMS solution
- 2) Simplify and consolidate multiple systems and complex SI into one software solution
- 3) Eliminate manual processes no longer needed once the DRMS directly supports the necessary business capabilities.

The following capabilities are in scope:

- 1) Program Management
- 2) Event Management
- 3) Settlements
- 4) Reporting and Monitoring
- 5) Device Management
- 6) Demand Response Load Forecasting
- 7) CAISO Market Integration,
- 8) Electric Vehicle Supply Equipment
- 9) Interface Tools for SDG&E Customers and Third Parties

This project impacts 1 application over the project duration.

The internal labor costs for this project are driven by various resources such as technologists, application developers, information security engineers, integration consultants, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services, Cloud costs, and hardware.

This is not a shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00900.0
Category: E. Customer Services - Information
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00900C - Demand Response Management Systems (DRMS) Replacement

Project Justification:

- 1) Have continued vendor support
- 2) Support additional business capabilities
- 3) Compliance with business requirements, including elimination of manual processes
- 4) Reduce technical obsolescence
- 5) Eliminate end of support system
- 6) Improve security controls

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00900.0
Category: E. Customer Services - Information
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00900C - Demand Response Management Systems (DRMS) Replacement

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00900C**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: E. Customer Services - Information
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900C - Demand Response Management Systems (DRMS) Replacement
 Workpaper Detail: 00900C.001 - DRMS Replacement Software Dev Labor and Vendor Services
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		571	635	0
Non-Labor		2,733	3,732	0
NSE		0	0	0
	Total	3,304	4,367	0
FTE		4.7	5.3	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00900.0
 Category: E. Customer Services - Information
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00900C - Demand Response Management Systems (DRMS) Replacement
 Workpaper Detail: 00900C.002 - DRMS Replacement SaaS Subscription
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,665	0	0
NSE		0	0	0
	Total	1,665	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: F. Clean Energy Innovations
Workpaper: VARIOUS

Summary for Category: F. Clean Energy Innovations

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	384	543	271
Non-Labor	0	684	1,497	626
NSE	0	0	0	0
Total	0	1,068	2,040	897
FTE	0.0	3.2	4.5	2.3

00920AU LADC (Local Area Distribution Controller)

Labor	0	113	0	0
Non-Labor	0	279	0	0
NSE	0	0	0	0
Total	0	392	0	0
FTE	0.0	0.9	0.0	0.0

00920L Local Area Distribution Controller (LADC) 2023-2024

Labor	0	0	0	271
Non-Labor	0	0	0	626
NSE	0	0	0	0
Total	0	0	0	897
FTE	0.0	0.0	0.0	2.3

00920Y Local Area Distribution Controller (LADC) 2022-2023

Labor	0	271	543	0
Non-Labor	0	405	1,497	0
NSE	0	0	0	0
Total	0	676	2,040	0
FTE	0.0	2.3	4.5	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AU - LADC (Local Area Distribution Controller)

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AU - LADC (Local Area Distribution Controller)

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	113	0	0
Non-Labor	Zero-Based	0	0	0	0	0	279	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	392	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0

Business Purpose:

LADC is a software and hardware solution that enables the distribution grid operator to monitor, manage and control the component resources of a microgrid. The LADC is a key component of the successful deployments of microgrids operated by SDG&E. This distributed microgrid controller is necessary to augment and interoperate with SDG&E's existing Advanced Distribution Management System (ADMS) and Supervisory Control and Data Acquisition (SCADA) system. The LADC will coordinate the control of Distributed Energy Resources (DERs) and conventional grid management devices (e.g., capacitors, switches) to ensure reliable operation during both island and grid-connected scenarios.

The LADC is deployed locally at a microgrid location with communication networks enabled to support remote control, visibility and supervisory operation to all microgrids from SDG&E's distribution control center. This centralized ability to manage and control all microgrids is critical for the timely, safe and reliable operations of a microgrid connected on the distribution system.

The LADC will have the capability to control multiple DERs to provide resiliency through black-start (via grid-forming DER), minimal-impact island transition, and load-shedding. When implemented, the LADC has the ability to automatically detect grid outages and automatically switch to island mode without the need to black start the feeder loads. The controller can be set up to shed noncritical loads as necessary to maintain the critical loads. The system has the capability to automatically reconnect to the main grid when the main grid power returns and stabilizes. The LADC is critical to the success of microgrids due to the need for fast-acting decisions and controls, which are required to maintain voltage and frequency within appropriate limits while in island-mode.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

The LADC system will be deployed and configured at three microgrid sites. Each deployment consists of a local controller, software integration and Performance Intelligence (PI) displays to help visualize and support the management of the microgrid.

The internal labor costs for this project are driven by various resources such as domain architects, project managers, developers, subject matter experts, product owners, and engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, software, prepaid maintenance of the hardware and software, and vendor services.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: F. Clean Energy Innovations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AU - LADC (Local Area Distribution Controller)

Project Justification:

The funding request for the LADC project will cover the remaining costs to deploy the LADC at microgrid sites, Cameron Corners, Ramona and Borrego Springs, for a total of approximately 7 MW of controllable load across three distinct microgrid sites. As stated above, the LADC provides necessary visibility and controls to support the safe and reliable operation of microgrids.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: F. Clean Energy Innovations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AU - LADC (Local Area Distribution Controller)

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AU**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AU - LADC (Local Area Distribution Controller)
 Workpaper Detail: 00920AU.001 - LADC (LOCAL AREA DISTRIBUTION CONTROLLER)
 In-Service Date: 03/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	113	0	0
Non-Labor	279	0	0
NSE	0	0	0
Total	392	0	0
FTE	0.9	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920L - Local Area Distribution Controller (LADC) 2023-2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920L - Local Area Distribution Controller (LADC) 2023-2024

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	271	
Non-Labor	Zero-Based	0	0	0	0	0	0	626	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	897	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	2.3	

Business Purpose:

LADC is a software and hardware solution that enables the distribution grid operator to monitor, manage and control the component resources of a microgrid. The LADC is a key component of the successful deployments of microgrids operated by SDG&E. This distributed microgrid controller is necessary to augment and interoperate with SDG&E's existing Advanced Distribution Management System (ADMS) and Supervisory Control and Data Acquisition (SCADA) system. The LADC will coordinate the control of Distributed Energy Resources (DERs) and conventional grid management devices (e.g., capacitors, switches) to ensure reliable operation during both island and grid-connected scenarios.

The LADC is deployed locally at a microgrid location with communication networks enabled to support remote control, visibility and supervisory operation to all microgrids from SDG&E's distribution control center. This centralized ability to manage and control all microgrids is critical for the timely, safe, and reliable operations of a microgrid connected on the distribution system.

The LADC will have the capability to control multiple DERs to provide resiliency through black-start (via grid-forming DER), minimal-impact island transition, and load-shedding. When implemented, the LADC has the ability to automatically detect grid outages and automatically switch to island mode without the need to black start the feeder loads. The controller can be set up to shed noncritical loads as necessary to maintain the critical loads. The system has the capability to automatically reconnect to the main grid when the main grid power returns and stabilizes. The LADC is critical to the success of microgrids due to the need for fast-acting decisions and controls, which are required to maintain voltage and frequency within appropriate limits while in island-mode.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

The LADC system will be deployed and configured at two microgrid sites. Each deployment consists of a local controller, software integration and Performance Intelligence (PI) displays to help visualize and support the management of the microgrid.

The internal labor costs for this project are driven by various resources such as domain architects, project managers, developers, subject matter experts, product owners, and engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, software, prepaid maintenance for the hardware and software, and vendor services.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: F. Clean Energy Innovations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920L - Local Area Distribution Controller (LADC) 2023-2024

Project Justification:

The funding request for the LADC 2023 - 2024 project will cover costs to deploy the LADC at two microgrid sites, Shelter Valley and Butterfield Ranch, for a total of approximately 5.8 MW of controllable load across two distinct microgrid sites. As stated above, the LADC provides necessary visibility and controls to support the safe and reliable operation of microgrids.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: F. Clean Energy Innovations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920L - Local Area Distribution Controller (LADC) 2023-2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920L**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920L - Local Area Distribution Controller (LADC) 2023-2024
 Workpaper Detail: 00920L.001 - ETDO OSI PI & LADC 2023-2024 HW Maintenance
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	4
NSE		0	0	0
	Total	0	0	4
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920L - Local Area Distribution Controller (LADC) 2023-2024
 Workpaper Detail: 00920L.003 - ETDO OSI PI & LADC 2023-2024 HW
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	20
NSE		0	0	0
	Total	0	0	20
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920L - Local Area Distribution Controller (LADC) 2023-2024
 Workpaper Detail: 00920L.004 - ETDO OSI PI & LADC 2023-2024 SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	271
Non-Labor		0	0	602
NSE		0	0	0
	Total	0	0	873
FTE		0.0	0.0	2.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920Y - Local Area Distribution Controller (LADC) 2022-2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920Y - Local Area Distribution Controller (LADC) 2022-2023

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	271	543	0
Non-Labor	Zero-Based	0	0	0	0	0	405	1,497	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	676	2,040	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.3	4.5	0.0

Business Purpose:

LADC is a software and hardware solution that enables the distribution grid operator to monitor, manage and control the component resources of a microgrid. The LADC is a key component of the successful deployments of microgrids operated by SDG&E. This distributed microgrid controller is necessary to augment and interoperate with SDG&E's existing Advanced Distribution Management System (ADMS) and Supervisory Control and Data Acquisition (SCADA) system. The LADC will coordinate the control of Distributed Energy Resources (DERs) and conventional grid management devices (e.g., capacitors, switches) to ensure reliable operation during both island and grid-connected scenarios.

The LADC is deployed locally at a microgrid location with communication networks enabled to support remote control, visibility and supervisory operation to all microgrids from SDG&E's distribution control center. This centralized ability to manage and control all microgrids is critical for the timely, safe and reliable operations of a microgrid connected on the distribution system.

The LADC will have the capability to control multiple DERs to provide resiliency through black-start (via grid-forming DER), minimal-impact island transition, and load-shedding. When implemented, the LADC has the ability to automatically detect grid outages and automatically switch to island mode without the need to black start the feeder loads. The controller can be set up to shed noncritical loads as necessary to maintain the critical loads. The system has the capability to automatically reconnect to the main grid when the main grid power returns and stabilizes. The LADC is critical to the success of microgrids due to the need for fast-acting decisions and controls, which are required to maintain voltage and frequency within appropriate limits while in island-mode.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

The LADC system will be deployed and configured at four new microgrid sites. Each deployment consists of a local controller, software integration and Performance Intelligence (PI) displays to help visualize and support the management of the microgrid. In addition, the LADC system at Borrego Springs Microgrid will be upgraded to integrate a new energy storage systems that will be implemented at Borrego Springs Microgrid in 2023.

The internal labor costs for this project are driven by various resources such as domain architects, project managers, developers, subject matter experts, product owners, and engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, software, prepaid maintenance for the hardware and software, and vendor services.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: F. Clean Energy Innovations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920Y - Local Area Distribution Controller (LADC) 2022-2023

Project Justification:

The funding request for the LADC 2022 - 2023 project will cover costs to deploy or upgrade the LADC at four microgrid sites, Paradise, Elliot, Boulevard and Clairemont, for a total of approximately 40 MW of controllable load across four distinct microgrid sites. The funding request also supports the upgrade of the LADC at Borrego Springs Microgrid to integrate an additional 6.9MW of controllable load. As stated above, the LADC provides necessary visibility and controls to support the safe and reliable operation of microgrids.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: F. Clean Energy Innovations
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920Y - Local Area Distribution Controller (LADC) 2022-2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920Y**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920Y - Local Area Distribution Controller (LADC) 2022-2023
 Workpaper Detail: 00920Y.001 - ETDO OSI PI & LADC 2022-2023 SW Purchase
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		45	255	0
NSE		0	0	0
	Total	45	255	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920Y - Local Area Distribution Controller (LADC) 2022-2023
 Workpaper Detail: 00920Y.002 - ETDO OSI PI & LADC 2022-2023 SW Prepaid Maintenance
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)					
	Years	2022	2023	2024	
Labor		0	0	0	
Non-Labor		7	38	0	
NSE		0	0	0	
	Total	7	38	0	
FTE		0.0	0.0	0.0	

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: F. Clean Energy Innovations
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920Y - Local Area Distribution Controller (LADC) 2022-2023
 Workpaper Detail: 00920Y.003 - ETDO OSI PI & LADC 2022-2023 SW Development
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	271	543	0
Non-Labor	353	1,204	0
NSE	0	0	0
Total	624	1,747	0
FTE	2.3	4.5	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: G. Energy Procurement
Workpaper: VARIOUS

Summary for Category: G. Energy Procurement

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	618	956	617
Non-Labor	0	1,297	2,104	1,194
NSE	0	0	0	0
Total	0	1,915	3,060	1,811
FTE	0.0	5.1	7.9	5.1

00920AF CAISO Mandates 2024

Labor	0	0	0	432
Non-Labor	0	0	0	1,024
NSE	0	0	0	0
Total	0	0	0	1,456
FTE	0.0	0.0	0.0	3.6

00920AQ CAISO Mandates 2021

Labor	0	74	0	0
Non-Labor	0	162	0	0
NSE	0	0	0	0
Total	0	236	0	0
FTE	0.0	0.6	0.0	0.0

00920V CAISO Mandates 2022

Labor	0	544	525	0
Non-Labor	0	1,135	604	0
NSE	0	0	0	0
Total	0	1,679	1,129	0
FTE	0.0	4.5	4.3	0.0

00920W CAISO Mandates 2023

Labor	0	0	431	185
Non-Labor	0	0	1,500	170
NSE	0	0	0	0
Total	0	0	1,931	355
FTE	0.0	0.0	3.6	1.5

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00920AF - CAISO Mandates 2024**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920AF - CAISO Mandates 2024

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	432	
Non-Labor	Zero-Based	0	0	0	0	0	0	1,024	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	1,456	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	3.6	

Business Purpose:

This is a yearly (2024) project. To remain a scheduling coordinator, SDG&E is required to remain compliant with the California Independent Systems Operator (CAISO) program initiatives typically implemented and released twice a year. There are also many CPUC and FERC regulations that coincide with CAISO Mandates which require changes or enhancements to the software systems. Four major software applications are in place to assist us with the various functionalities needed to support the CAISO interactions. These include:

- 1) Power Costs Inc. (PCI) Suite of Applications is our system for communication with the CAISO for bidding and scheduling
- 2) Allegro is our SOX system of record for commodity trading, risk management, and accounting
- 3) Versify is our Resource Adequacy (RA) planning, operations, and analytics system
- 4) Meter Data Management System (MDPS) is our meter data management and reporting system

Physical Description:

- 1) PCI update to latest version: Upgrade to software components to ensure full vendor support and compliance with regulatory.
- 2) Additional enhancements to other Electric and Fuel Procurement (E&FP) systems (Allegro Energy Trading Risk Management (ETRM) system, Versify Resource Adequacy, MDPS) to stay in compliance with CAISO mandated changes.

This project impacts four applications.

The internal labor costs for this project are driven by various resources such as project managers, developers, and business systems analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and software prepaid maintenance, SaaS (Software as a Service) subscription, and vendor services for external resources.

This is a non-shared.

Project Justification:

This project will lead to regulatory compliance with CAISO mandated changes and CPUC requirements, operational and market efficiencies, and up-to-date software capital assets under fully supported maintenance levels.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: G. Energy Procurement
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00920AF - CAISO Mandates 2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AF**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920AF - CAISO Mandates 2024
 Workpaper Detail: 00920AF.001 - CAISO Mandates 2024 SaaS Subscription
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	570
NSE		0	0	0
	Total	0	0	570
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920AF - CAISO Mandates 2024
 Workpaper Detail: 00920AF.002 - CAISO Mandates 2024 SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	432
Non-Labor	0	0	454
NSE	0	0	0
Total	0	0	886
FTE	0.0	0.0	3.6

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00920AQ - CAISO Mandates 2021**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920AQ - CAISO Mandates 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	0	74	0	0
Non-Labor	Zero-Based	0	0	0	0	0	162	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	236	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0

Business Purpose:

This yearly project started in 2021. To remain a scheduling coordinator, SDG&E is required to remain compliant with the California Independent Systems Operator (CAISO) program initiatives typically implemented and released twice a year.

Physical Description:

The CAISO initiatives that will have an impact on E&FP, IT and vendor efforts have been identified based on the Release User Group (RUG) process of the ISO, and include

- 1) Power Costs Inc (PCI) system upgrade to version 21
- 2) Mandates of the California ISO:
 - Energy Storage and Distributed Energy Resources (ESDER) Phase 4 (PCI enhancement)
 - Hybrid Resources Phase 2 (PCI enhancement)
 - Variable Operations and Maintenance Cost Review (PCI enhancement)
- 3) Various enhancements, including:
 - New Load Forecast Wizard (PCI enhancement)
 - Gentrader (GT) Battery Model for the Day-Ahead Reliability Tool (DART) Process (PCI enhancement)
- 4) Analytics for Energy Resources Recovery Account (ERRA), Operational and Trading report

This project impacts three applications.

The internal labor costs for this project are driven by various resources such as project managers, developers, and business systems analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for external resources such as developers, and project managers.

This is a non-shared asset.

Project Justification:

This project will lead to regulatory compliance with CAISO mandated changes and CPUC requirements, operational and market efficiencies, and up-to-date software capital assets under fully supported maintenance levels.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: G. Energy Procurement
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00920AQ - CAISO Mandates 2021

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AQ**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920AQ - CAISO Mandates 2021
 Workpaper Detail: 00920AQ.001 - 2021 CAISO Mandates
 In-Service Date: 03/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	74	0	0
Non-Labor	162	0	0
NSE	0	0	0
Total	236	0	0
FTE	0.6	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00920V - CAISO Mandates 2022**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920V - CAISO Mandates 2022

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	544	525	0
Non-Labor	Zero-Based	0	0	0	0	0	1,135	604	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,679	1,129	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.5	4.3	0.0

Business Purpose:

This is a yearly (2022) project. SDG&E is required to remain compliant with the California Independent Systems Operator (CAISO) program initiatives typically implemented and released twice a year.

Our assessment of the CAISO planned initiatives and other regulatory agencies for 2021 will require new and updated software components and configuration changes in these IT software assets. In order for projects to comply with the mandates, they must meet the published schedule timelines and use the SDG&E Project Management Office (PMO), IT, and Electric and Fuel Procurement (E&FP) resources along with outside vendor services.

Physical Description:

This project will implement changes to the following systems to be in compliance with CAISO:

- 1) Power Costs Inc. (PCI) suite of applications is our system for communication with the CAISO for bidding and scheduling
- 2) Allegro is our Sarbanes-Oxley (SOX) system of record for commodity trading, risk management, and accounting
- 3) Versify is our Resource Adequacy (RA) planning, operations, and analytics system
- 4) Meter Data Management System (MDPS) is our meter data management and reporting system

This project will include an Allegro replacement effort to move to a Software as a Service (SaaS) application. This project impacts four applications for the project duration.

The internal labor costs for this project are driven by various resources such as project managers, developers, and business systems analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and software prepaid maintenance, SaaS subscription, and vendor services.

This is a non-shared.

Project Justification:

This project will lead to regulatory compliance with CAISO mandated changes and CPUC requirements, operational and market efficiencies, and up-to-date software capital assets under fully supported maintenance levels.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: G. Energy Procurement
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00920V - CAISO Mandates 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920V**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920V - CAISO Mandates 2022
 Workpaper Detail: 00920V.001 - CAISO Mandates 2022 SW Development
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		544	525	0
Non-Labor		591	604	0
NSE		0	0	0
	Total	1,135	1,129	0
FTE		4.5	4.3	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920V - CAISO Mandates 2022
 Workpaper Detail: 00920V.002 - CAISO Mandates 2022 SaaS Subscription
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		544	0	0
NSE		0	0	0
	Total	544	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00920W - CAISO Mandates 2023**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920W - CAISO Mandates 2023

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	431	185	
Non-Labor	Zero-Based	0	0	0	0	0	1,500	170	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,931	355	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.6	1.5	

Business Purpose:

This is a yearly (2023) project. To remain a scheduling coordinator, SDG&E is required to remain compliant with the California Independent Systems Operator (CAISO) program initiatives typically implemented and released twice a year. There are also many CPUC and FERC regulations that coincide with CAISO Mandates which require changes or enhancements to the software systems. Four major software applications are in place to assist us with the various functionalities needed to support the CAISO interactions. These include:

1. Power Costs Inc. (PCI) Suite of Applications is our system for communication with the CAISO for bidding and scheduling
2. Allegro is our Sarbanes Oxley (SOX) system of record for commodity trading, risk management, and accounting
3. Versify is our resource adequacy (RA) planning, operations, and analytics system
4. MDPS is our meter data management and reporting system

Physical Description:

- 1) PCI update to latest version: Upgrade to software components to ensure full vendor support and compliance with regulatory.
- 2) Additional enhancements to other E&FP systems (Allegro Energy Trading Risk Management (ETRM) system, Versify Resource Adequacy, MDPS) to stay in compliance with CAISO mandated changes.

This project impacts four applications.

The internal labor costs for this project are driven by various resources such as project managers, developers, and business systems analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and software prepaid maintenance, SaaS subscription, and vendor services for external resources.

This is a non-shared.

Project Justification:

This project will lead to regulatory compliance with CAISO mandated changes and CPUC requirements, operational and market efficiencies, and up-to-date software capital assets under fully supported maintenance levels.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: G. Energy Procurement
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00920W - CAISO Mandates 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920W**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920W - CAISO Mandates 2023
 Workpaper Detail: 00920W.001 - CAISO Mandates 2023 SaaS Subscription
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	557	0
NSE		0	0	0
	Total	0	557	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: G. Energy Procurement
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920W - CAISO Mandates 2023
 Workpaper Detail: 00920W.002 - CAISO Mandates 2023 SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	431	185
Non-Labor		0	943	170
NSE		0	0	0
	Total	0	1,374	355
FTE		0.0	3.6	1.5

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: H. Electric Distribution - Capital
Workpaper: VARIOUS

Summary for Category: H. Electric Distribution - Capital

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	2,003	472	0
Non-Labor	0	4,779	246	0
NSE	0	0	0	0
Total	0	6,782	718	0
FTE	0.0	16.5	4.0	0.0

00908A Electric Material Traceability

Labor	0	694	86	0
Non-Labor	0	404	0	0
NSE	0	0	0	0
Total	0	1,098	86	0
FTE	0.0	5.8	0.7	0.0

00920A Microgrid Portal

Labor	0	508	381	0
Non-Labor	0	85	8	0
NSE	0	0	0	0
Total	0	593	389	0
FTE	0.0	4.2	3.2	0.0

00920AO Builder Services Customer Portal - Phase 3

Labor	0	201	5	0
Non-Labor	0	1,321	238	0
NSE	0	0	0	0
Total	0	1,522	243	0
FTE	0.0	1.6	0.1	0.0

00921Y Construction Management Software Integration with SAP

Labor	0	297	0	0
Non-Labor	0	675	0	0
NSE	0	0	0	0
Total	0	972	0	0
FTE	0.0	2.4	0.0	0.0

00921Z Automated Utility Design (AUD)

Labor	0	303	0	0
Non-Labor	0	2,294	0	0
NSE	0	0	0	0
Total	0	2,597	0	0
FTE	0.0	2.5	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908A - Electric Material Traceability

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908A - Electric Material Traceability

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	694	86	0
Non-Labor	Zero-Based	0	0	0	0	0	404	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	1,098	86	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	5.8	0.7	0.0

Business Purpose:

The material traceability project provides data capture and storage of information related to Electric Distribution’s high -risk assets.

Physical Description:

This project includes mobile hardware with scanning capabilities and a database to store, track and report on inventory Electric Distribution assets.

This project includes creating asset traceability for approximately five electric equipment types over the duration of the project.

The internal labor costs for this project are driven by various resources such as project managers, developers, architects, business analysts and information security engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services for IT quality assurance .

This is a non-shared asset.

Project Justification:

- 1) Improve data capture and accuracy.
- 2) Improve asset health performance analysis capabilities, which supports the highest reliability levels for SDG&E customers.
- 3) Captures information for high-risk Electric Distribution assets that would feed Asset Management (AM) data risk models

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: H. Electric Distribution - Capital
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908A - Electric Material Traceability

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908A**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908A - Electric Material Traceability
 Workpaper Detail: 00908A.001 - Electric Material Traceability SW E Labor
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		694	86	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	694	86	0
FTE		5.8	0.7	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908A - Electric Material Traceability
 Workpaper Detail: 00908A.002 - Electric Material Traceability SW E NL Services
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		220	0	0
NSE		0	0	0
	Total	220	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908A - Electric Material Traceability
 Workpaper Detail: 00908A.003 - Electric Material Traceability HW Purchase
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		160	0	0
NSE		0	0	0
	Total	160	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908A - Electric Material Traceability
 Workpaper Detail: 00908A.004 - Electric Material Traceability HW Maintenance
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		24	0	0
NSE		0	0	0
	Total	24	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00920A - Microgrid Portal**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920A - Microgrid Portal

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	508	381	0
Non-Labor	Zero-Based	0	0	0	0	0	85	8	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	593	389	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.2	3.2	0.0

Business Purpose:

This project started in 2021. This project develops a separate access-restricted data portal for sharing information with local and tribal governments to enable the development of higher quality interconnection applications.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan . (Exhibit SDG&E-12, Appendix C)

Physical Description:

This portal supports GIS web services by managing and sharing data related to electrical infrastructure.

This project impacts one application over the project duration.

The internal labor costs for this project are driven by various resources such as business project managers, IT project managers, business systems analysts, network engineers, database administrators, and software developers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for software developers, engineering support and systems analyst. This is a non-shared asset.

Project Justification:

This project is in compliance with CPUC Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339 and Resiliency Strategies.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: H. Electric Distribution - Capital
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920A - Microgrid Portal

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920A**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920A - Microgrid Portal
 Workpaper Detail: 00920A.001 - Microgrid Portal

In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	508	381	0
Non-Labor	85	8	0
NSE	0	0	0
Total	593	389	0
FTE	4.2	3.2	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AO - Builder Services Customer Portal - Phase 3

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AO - Builder Services Customer Portal - Phase 3

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	201	5	0
Non-Labor	Zero-Based	0	0	0	0	0	1,321	238	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,522	243	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.6	0.1	0.0

Business Purpose:

SDG&E Builder Services plays a critical role in bringing new rate payers online through nearly all major residential, commercial, retail, and industrial construction projects. Builder services is responsible for new construction, while also providing service to current rate base customers for requested infrastructure improvements that keep our systems safe and reliable. Demand on the utility continues to increase however, the workload is unpredictable, and in many cases complex, leading to unforeseen peaks and valleys and significant challenges in cycles times and staffing levels .

Physical Description:

To keep pace with customer demand for speed and transparency , the utility must continue to invest in self-service options that help the customer and create business efficiencies . Phase 3 of Builder Services will provide a one-stop customer service portal, including:

- 1) User authentication
- 2) User profile
- 3) Project and application dashboard
- 4) Upload project documents
- 5) Online ACH payments
- 6) Online billing & scheduling

This project enhances one application for the project duration.
 The internal labor costs for this project are driven by various resources such as project managers, software developers, enterprise architects and business systems analysts. Internal labor roles and allocations may vary.
 The non-labor costs for this project are driven by vendor services for project management, application developers and testing services.
 This is a non-shared asset.

Project Justification:

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: H. Electric Distribution - Capital
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AO - Builder Services Customer Portal - Phase 3

The primary benefits of this project are enhanced customer experience and improved department efficiencies , by empowering customers and employees with accessible information and control of their project and service requests, high-level benefits include:

- 1) Real time information
- 2) Project tracking and improved cycle times
- 3) Self-service options, upload documents, payments, scheduling
- 4) Automate updates to customers
- 5) Reduce manual tasks for scanning, printing, emails, duplicate data entry

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: H. Electric Distribution - Capital
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AO - Builder Services Customer Portal - Phase 3

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AO**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AO - Builder Services Customer Portal - Phase 3
 Workpaper Detail: 00920AO.001 - Builder Services Customer Portal - Phase 3
 In-Service Date: 03/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		201	5	0
Non-Labor		1,321	238	0
NSE		0	0	0
	Total	1,522	243	0
FTE		1.6	0.1	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921Y - Construction Management Software Integration with SAP

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921Y - Construction Management Software Integration with SAP

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	297	0	0
Non-Labor	Zero-Based	0	0	0	0	0	675	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	972	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0

Business Purpose:

This project started in 2021. Procore is the preferred platform for management and tracking of work tasks performed by external construction contractors and is currently in use by multiple SDG&E departments within the Electric Engineering and Construction organization. Currently, Procore is a stand-alone solution with no integrations to source solutions, including SAP Construction, Planning and Design (CPD) and SAP Construction Contract Management System (CCMS).

This project is to request key system information be passed between Procore and these source systems to reduce manual entry, improve data accuracy and improve overall efficiency.

Physical Description:

Initiation, planning and design stage scope:

- 1) Automate open and closing of pre-requisites
- 2) Automate job notifications attachments
- 3) Automate design resource assignments & requests
- 4) Automate directory additions or access rights
- 5) Automate file naming conventions

Pre-construction, construction, and close-out stage scope:

- 1) Automate jobs created in SAP to create a project in Procore
- 2) Automate the open and close of pre-requisites in SAP from updates in Procore
- 3) Automate Procore document capture into SAP for pre-requisites
- 4) Automate SAP construction documents into Procore
- 5) Automate SAP construction bundle creation
- 6) Invoice information from Procore will update in SAP (CCMS)
- 7) Close out jobs in SAP automatically upon closure of Procore project

This project impacts one application over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, architects, and analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for application design, development, testing and implementation.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: H. Electric Distribution - Capital
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00921Y - Construction Management Software Integration with SAP

Project Justification:

Through automation and integration, this project will reduce manual data entry, reduce data errors, and improve data accuracy in both work management and invoicing.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: H. Electric Distribution - Capital
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00921Y - Construction Management Software Integration with SAP

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921Y**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921Y - Construction Management Software Integration with SAP
 Workpaper Detail: 00921Y.001 - Procore Improvements
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		297	0	0
Non-Labor		675	0	0
NSE		0	0	0
	Total	972	0	0
FTE		2.4	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00921Z - Automated Utility Design (AUD)**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921Z - Automated Utility Design (AUD)

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	303	0	0
Non-Labor	Zero-Based	0	0	0	0	0	2,294	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	2,597	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0

Business Purpose:

This project started in 2020. This project implements a new automated design tool called Automated Utility Design (AUD) into the existing AutoCAD application to expand the core capability of SDG&E construction designs while providing engineering tools, automated standards validation and bill and material generation. The new software is designed to streamline applications and enable design standardization to increase consistency and reduce design errors.

Physical Description:

- 1) Implement AUD and Utility Data Hub (UDH) plug-in application tools
- 2) Perform integration between SAP Construction, Planning, and Design (CPD) & AUD
- 3) Perform integration between Geographic Information System (GIS) & AUD
- 4) Perform integration between Sharper Shape & AUD
- 5) Implement AUD calculation tools
- 6) Implement AUD rules engine

This project upgrades one existing application, AutoCAD with new software modules and integrations with GIS and SAP. The internal labor costs for this project are driven by various resources such as project managers, architects, business systems analysts, software developers, information security analysts and engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for software developers, software licenses and testing services.

This a non-shared asset.

Project Justification:

- 1) 25% reduction in design lead times
- 2) 20% increase throughput for GRC/WMP pole replacements
- 3) Consistency in design (internal and contract design)
- 4) Reduce design errors
- 5) Reduce time required for design Quality Assurance (QA)/Quality Control (QC)
- 6) Improve customer satisfaction
- 7) Consolidate and integrate the use of multiple programs

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: H. Electric Distribution - Capital
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00921Z - Automated Utility Design (AUD)

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921Z**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: H. Electric Distribution - Capital
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921Z - Automated Utility Design (AUD)
 Workpaper Detail: 00921Z.001 - AUD - San Diego Electric
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		303	0	0
Non-Labor		2,294	0	0
NSE		0	0	0
	Total	2,597	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: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: I. Electric Distribution - O&M
Workpaper: VARIOUS

Summary for Category: I. Electric Distribution - O&M

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	4,560	3,085	2,625
Non-Labor	0	7,403	5,643	4,953
NSE	0	0	0	0
Total	0	11,963	8,728	7,578
FTE	0.0	37.9	25.7	21.9

00908Q Electric Grid Ops Small Capital 2022

Labor	0	0	0	0
Non-Labor	0	500	0	0
NSE	0	0	0	0
Total	0	500	0	0
FTE	0.0	0.0	0.0	0.0

00908S Electric Grid Ops Small Capital 2023

Labor	0	0	0	0
Non-Labor	0	0	400	0
NSE	0	0	0	0
Total	0	0	400	0
FTE	0.0	0.0	0.0	0.0

00908T Electric Grid Ops Small Capital 2024

Labor	0	0	0	0
Non-Labor	0	0	0	440
NSE	0	0	0	0
Total	0	0	0	440
FTE	0.0	0.0	0.0	0.0

00920AX RAMP - Reliability and Operational Safety (ROSE) - Phase 2

Labor	0	457	0	0
Non-Labor	0	1,101	0	0
NSE	0	0	0	0
Total	0	1,558	0	0
FTE	0.0	3.8	0.0	0.0

00920B Smart Grid Operations 2022-2023

Labor	0	1,069	1,069	0
Non-Labor	0	1,550	1,550	0
NSE	0	0	0	0
Total	0	2,619	2,619	0
FTE	0.0	8.9	8.9	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: I. Electric Distribution - O&M
Workpaper: VARIOUS

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

00920BA Enterprise Distributed Energy Resource Management System (DERMS)

Labor	0	1,199	457	685
Non-Labor	0	1,865	2,353	2,453
NSE	0	0	0	0
Total	0	3,064	2,810	3,138
FTE	0.0	10.0	3.8	5.7

00920BJ Load Curtailment Modernization

Labor	0	256	0	0
Non-Labor	0	446	0	0
NSE	0	0	0	0
Total	0	702	0	0
FTE	0.0	2.1	0.0	0.0

00920C Smart Grid Operations 2024

Labor	0	0	0	1,069
Non-Labor	0	0	0	1,300
NSE	0	0	0	0
Total	0	0	0	2,369
FTE	0.0	0.0	0.0	8.9

00921Q Cross-Functional Work Management Enhancements

Labor	0	708	849	142
Non-Labor	0	400	480	80
NSE	0	0	0	0
Total	0	1,108	1,329	222
FTE	0.0	5.9	7.1	1.2

00920AJ Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancem

Labor	0	509	0	0
Non-Labor	0	592	0	0
NSE	0	0	0	0
Total	0	1,101	0	0
FTE	0.0	4.2	0.0	0.0

00920X Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhanceme

Labor	0	94	710	729
Non-Labor	0	130	860	680
NSE	0	0	0	0
Total	0	224	1,570	1,409
FTE	0.0	0.8	5.9	6.1

00920AG Telecommunications Attachment Management System (TAMS) Modernization

Labor	0	268	0	0
Non-Labor	0	819	0	0
NSE	0	0	0	0
Total	0	1,087	0	0
FTE	0.0	2.2	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908Q - Electric Grid Ops Small Capital 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Q - Electric Grid Ops Small Capital 2022

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	0
Non-Labor	Zero-Based	0	0	0	0	0	500	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	500	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This is a yearly (2022) project for Grid Ops to replace legacy hardware and operating system software. Hardware for Grid Ops may be defective, broken, expired, or have reached capacity affecting operations and monitoring of Grid Ops services. Small Caps purchases includes physical hardware over \$5,000 and virtual hardware if applicable.

Physical Description:

- 1) Purchase replacements for defective, broken, or out of support infrastructure.
- 2) Address critical capacity issues as needed.

This project impacts two units of hardware.

The internal labor costs for this project are driven by various resources such as project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services.

This is a non-shared asset.

Project Justification:

- 1) Replaces hardware that has reached end of life and end of support.
- 2) New hardware and/or software to increase visibility for monitoring the grid.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908Q - Electric Grid Ops Small Capital 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908Q**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Q - Electric Grid Ops Small Capital 2022
 Workpaper Detail: 00908Q.001 - Grid Small Cap 2022 HW NL Services
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		250	0	0
NSE		0	0	0
	Total	250	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Q - Electric Grid Ops Small Capital 2022
 Workpaper Detail: 00908Q.002 - Grid Small Cap 2022 HW Purchase
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		250	0	0
NSE		0	0	0
	Total	250	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908S - Electric Grid Ops Small Capital 2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908S - Electric Grid Ops Small Capital 2023

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	0
Non-Labor	Zero-Based	0	0	0	0	0	0	400	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	400	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This is a yearly (2023) project for Grid Ops to replace legacy hardware and operating system software. Hardware for Grid Ops may be defective, broken, expired, or have reached capacity affecting operations and monitoring of Grid Ops services. Small Caps purchases includes physical hardware over \$5,000 and virtual hardware.

Physical Description:

- 1) Purchase replacements for defective, broken, or out of support infrastructure.
- 2) Address critical capacity issues as needed.

This project impacts two units of hardware.

The internal labor costs for this project are driven by various resources such as project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services.

This is a non-shared asset.

Project Justification:

- 1) Replaces hardware that has reached end of life and end of support.
- 2) New hardware and/or software to increase visibility for monitoring the grid.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908S - Electric Grid Ops Small Capital 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908S**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908S - Electric Grid Ops Small Capital 2023
 Workpaper Detail: 00908S.001 - Grid Small Cap 2023 HW NL Services
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	150	0
NSE		0	0	0
	Total	0	150	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908S - Electric Grid Ops Small Capital 2023
 Workpaper Detail: 00908S.002 - Grid Small Cap 2023 HW Purchase
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	250	0
NSE		0	0	0
	Total	0	250	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908T - Electric Grid Ops Small Capital 2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908T - Electric Grid Ops Small Capital 2024

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	0
Non-Labor	Zero-Based	0	0	0	0	0	0	0	440
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	440
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This is a yearly (2024) project for Grid Ops to replace legacy hardware and operating system software. Hardware for Grid Ops may be defective, broken, expired or have reached capacity affecting operations and monitoring of Grid Ops services. Small Caps purchases includes physical hardware over \$5,000 and virtual hardware.

Physical Description:

- 1) Purchase replacements for defective, broken, or out of support infrastructure.
- 2) Address critical capacity issues as needed.

This project impacts two units of hardware.

The internal labor costs for this project are driven by various resources such as project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services.

This is a non-shared asset.

Project Justification:

- 1) Replaces hardware that has reached end of life and end of support.
- 2) New hardware and/or software to increase visibility for monitoring the grid.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908T - Electric Grid Ops Small Capital 2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908T**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908T - Electric Grid Ops Small Capital 2024
 Workpaper Detail: 00908T.001 - Grid Small Cap 2024
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	190
NSE		0	0	0
	Total	0	0	190
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908T - Electric Grid Ops Small Capital 2024
 Workpaper Detail: 00908T.002 - Grid Small Cap 2024 HW Purchase
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	250
NSE		0	0	0
	Total	0	0	250
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AX - RAMP - Reliability and Operational Safety (ROSE) - Phase 2

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AX - RAMP - Reliability and Operational Safety (ROSE) - Phase 2

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	457	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,101	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,558	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0

Business Purpose:

This project started in 2020. Electric Distribution Operations (EDO) and Electric Reliability focus continues to be on safety and reliability. Both departments depend on the outage data maintained in NMS, a tier-1 mission-critical operational system, and OUA, the Outage and Reliability reporting analytics system. Business demands are continually changing and increasing in areas such as the growing Distributed Energy Resources (DER) affecting our grid, the focus on fire preparedness, the growing need for outage analytics and reporting across the Company and enhanced situational awareness.

This project will enhance safety and reliability through improvements in both processes and technology.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan . (Exhibit SDG&E-12, Appendix C)

Physical Description:

- 1) Upgrade key systems such as NMS, OUA, and the Operations Mobile Application (OMA), to the latest available product releases.
- 2) Leverage these updated systems to enable improved business processes.
- 3) NMS and OUA will be moved to the latest enterprise standard virtual technology to reduce system outage time , improve the failover process, and align with the IT roadmap.
- 4) Expand critical NMS functionality, including FLISR and Suggested Switching.
- 5) Enhance Storm Resource Management system to include additional features for heat/fire events.
- 6) Implement mobile apps such as Oracle BI Mobile for OUA reporting and OMA on Windows 10 for damage assessment.
- 7) Fully automate the Reliability audit process and expand OUA reporting across both EDO and Electric Reliability .

This project impacts 4 applications over the project duration.

The internal labor costs for this project are driven by various resources such as business system analysts, project managers, DMS engineers, operators, software developers, domain engineers, senior software developers, senior domain engineers, principal domain engineers, scrum master team leads, and program delivery managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor managed services.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AX - RAMP - Reliability and Operational Safety (ROSE) - Phase 2

Project Justification:

- 1) Improve fire mitigations by using weather (e.g., Fire Potential Index) and enhanced reporting to enhance situational awareness and implement fire prevention controls in NMS to increase safety.
- 2) Increase electric reliability through expansion of FLISR, Suggested Switching, and Power Flow functionality.
- 3) Increase safety and situational awareness through Red Flag warnings and other heat events that will be supported by Storm Resource Management (SRM), and expanded wire-down and fire ignition reporting.
- 4) Automate processes by reducing Electric Reliability's manual effort to produce CPUC and other reports ; automate outage audit validation process
- 5) Improve EDO switching with expanded metric-based reporting.
- 6) Increase mobility by implementing the OMA Win10 app to enable mobile Primary Damage Assessing during storm events; implement OUA Mobile to enable outage and reliability analytics to be accessed from any mobile device .
- 7) Upgrade hardware and software technology stack to ensure continued vendor support

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AX - RAMP - Reliability and Operational Safety (ROSE) - Phase 2

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AX**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AX - RAMP - Reliability and Operational Safety (ROSE) - Phase 2
 Workpaper Detail: 00920AX.001 - Reliability and Operational Safety (ROSE) Phase 2 RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		457	0	0
Non-Labor		1,101	0	0
NSE		0	0	0
	Total	1,558	0	0
FTE		3.8	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AX - RAMP - Reliability and Operational Safety (ROSE) - Phase 2
 Workpaper Detail: 00920AX.001 - Reliability and Operational Safety (ROSE) Phase 2 RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	3,310	1,558	0	0	1,558	1,418	1,812

Cost Estimate Changes from RAMP:
 Within the 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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
 Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 4 applications over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:
 Not Applicable

Beginning of Workpaper Group
00920B - Smart Grid Operations 2022-2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920B - Smart Grid Operations 2022-2023

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	1,069	1,069	0
Non-Labor	Zero-Based	0	0	0	0	0	1,550	1,550	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	2,619	2,619	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	8.9	8.9	0.0

Business Purpose:

The Smart Grid Operations 2022 project will consist of multiple changes to the Outage Management System / Distribution Management System (OMS/DMS) which is Oracle Network Management System (NMS) and the Oracle Utilities Analytics (OUA) solution. NMS enhancements will consist of an upgrade to the latest service pack to ensure full vendor support. It will also include changes related to enhancing the SDG&E process around public safety power shutoffs to make electric Distribution System Operators (DSOs) more accurate and have better real-time information.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

- 1) NMS Upgrade to version 2.5 Service Pack 2
- 2) Changes related to Public Safety Power Shutoffs (PSPS)
- 3) OUA dashboards for reliability reporting
- 4) DER (Distributed Energy Resource)/ foundational work to prepare for the future Distributed Energy Resource Management System (DERMS) module implementation

This project impacts four applications over the project duration.

The internal labor costs for this project are driven by various resources such as business system analysts, project managers, DMS engineers, operators, software developers, domain engineers, Sr. software developers, Sr. domain engineers, principal domain engineers, scrum master team leads, and program delivery managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor managed services and software purchase.

This is a non-shared asset.

Project Justification:

- 1) Improved processes around PSPS
- 2) Integrated DERMS solution
- 3) Business-driven enhancements, automation, and process improvements around OMS, DMS, PSPS, Wildfire Mitigation and Management
- 4) Improved analytics insights for reliability reporting, electric distribution operations, outage management, and major events.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920B - Smart Grid Operations 2022-2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920B**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920B - Smart Grid Operations 2022-2023
 Workpaper Detail: 00920B.001 - Smart Grid 2022-2023 Software license
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		125	0	0
NSE		0	0	0
	Total	125	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920B - Smart Grid Operations 2022-2023
 Workpaper Detail: 00920B.002 - Smart Grid 2022-2023 SW Implementation
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	1,069	1,069	0
Non-Labor	1,425	1,550	0
NSE	0	0	0
Total	2,494	2,619	0
FTE	8.9	8.9	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BA - Enterprise Distributed Energy Resource Management System (DERMS)

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)

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	1,199	457	685
Non-Labor	Zero-Based	0	0	0	0	0	1,865	2,353	2,453
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	3,064	2,810	3,138
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	10.0	3.8	5.7

Business Purpose:

This project implements an Enterprise Distributed Energy Resource Management System (DERMS). This project will include software and hardware needed to monitor and control SDG&E Distributed Energy Resources (DER). This will set the foundation for SDG&E's future efforts to accomplish various strategic goals including:

- 1) Management of increased advanced energy storage
- 2) Support of Company goal of Net Zero GHG emissions by 2045
- 3) Monitoring and control of microgrids
- 4) Support of Virtual Power Plants (VPPs)
- 5) Improvement of wildfire management
- 6) Mitigation of Public-Safety Power Shutoffs (PSPS)
- 7) Establishment of a platform to support future DER-related CPUC or other regulatory body mandates
- 8) Enhancement of grid services to reduce the frequency and duration of outages

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

- 1) Implementation of hardware and software supporting enterprise-wide management and control of Distributed Energy Resources (DER)
- 2) Mapping field DERs to DERMS
- 3) Integration to SDG&E's Oracle Network Management System (NMS) - Outage Management System/Distribution Management System (OMS/DMS)
- 4) Integration to Microgrids and Local Area Domain Controllers (LADCs)
- 5) Development of standards related to DER management
- 6) Establishment of processes to leverage DER for wildfire mitigation, PSPS mitigation, and meeting CPUC regulatory mandates

This project impacts three applications over the project duration.

The internal labor costs for this project are driven by various resources such as business system analysts, project managers, DMS engineers, operators, software developers, domain engineers, Sr. software developers, Sr. domain engineers, principal domain engineers, scrum master team leads, and program delivery managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor managed services and software purchase.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)

Project Justification:

- 1) Visibility and control of utility-owned DER and utility-sponsored Distributed Energy Resource Aggregations (DERA) such as virtual power plants. Aspects include:
- a. Advanced Situational Awareness
 - b. DER Communication
 - c. Microgrid Interface Integration
- 2) Operational management capabilities:
- a. Grid Connected Feeder Management
 - i. Voltage/Reliability/Microgrid Management
 - b. Operational Planning
 - c. Capacity Management
 - d. DER/Load Short Term Forecasting
 - e. Intelligent Electronic Device (IED) field asset Management (coordination with NMS)
 - f. State Estimation/Power Flow (coordination with NMS)
- 3) Improved data flow and modeling:
- a. Integrate to Distribution Interconnection Information System (DIIS)
 - b. Geographic Information System (GIS) Integration
 - c. Data storage of static/dynamic/performance data of DER

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BA**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)
 Workpaper Detail: 00920BA.001 - Enterprise DERMS SW license
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

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

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)
 Workpaper Detail: 00920BA.002 - Enterprise DERMS SW Maintenance
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		150	0	0
NSE		0	0	0
	Total	150	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)
 Workpaper Detail: 00920BA.003 - Enterprise DERMS SW Development
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	1,199	0	0
Non-Labor	715	0	0
NSE	0	0	0
Total	1,914	0	0
FTE	10.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)
 Workpaper Detail: 00920BA.004 - Enterprise DERMS SW Development
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	457	0
Non-Labor		0	2,353	0
NSE		0	0	0
	Total	0	2,810	0
FTE		0.0	3.8	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BA - Enterprise Distributed Energy Resource Management System (DERMS)
 Workpaper Detail: 00920BA.005 - Enterprise DERMS SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	685
Non-Labor	0	0	2,453
NSE	0	0	0
Total	0	0	3,138
FTE	0.0	0.0	5.7

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BJ - Load Curtailment Modernization

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BJ - Load Curtailment 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	0	0	0	0	0	256	0	0
Non-Labor	Zero-Based	0	0	0	0	0	446	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	702	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0

Business Purpose:

This project will automate the Load Curtailment process by converting the excel sheet to a dashboard with integrations from the Emergency Operations Center (EOC) Redbook and Supervisory Control and Data Acquisition (SCADA) PI. The UI (User Interface) pages for the internal and external pages will also be refreshed and the EOC notification process and Geographic Information System (GIS) outputs will be automated.

Physical Description:

- 1) This tool will be leveraged several times next year as the risk of Load Curtailments are higher due to the decommission of plants.
- 2) California Governor's Office of Emergency Services (CALOES) requirements are needed to be fulfilled during this project.

This project impacts three applications for the project duration.

The internal labor costs for this project are driven by various resources including such as business subject matter experts, developers, scrum masters, product owners, and information security engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by software and vendor services. This is a non-shared asset.

Project Justification:

- 1) Provides an automated solution for different notification and communication process increasing efficiency and reducing manual processes and calculations
- 2) Updated customer experience from SDGE.com
- 3) Additional controls and visualization
- 4) Reduce carbon footprint by moving to (Amazon Web Services) AWS Cloud and work towards Net Zero 2045

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BJ - Load Curtailment Modernization

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BJ**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BJ - Load Curtailment Modernization
 Workpaper Detail: 00920BJ.001 - Load Curtailment Modernization
 In-Service Date: 08/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		256	0	0
Non-Labor		446	0	0
NSE		0	0	0
	Total	702	0	0
FTE		2.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920C - Smart Grid Operations 2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920C - Smart Grid Operations 2024

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	1,069	
Non-Labor	Zero-Based	0	0	0	0	0	0	1,300	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	2,369	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	8.9	

Business Purpose:

This project is a Network Management System (NMS) major upgrade in support of enhanced functionality for Distribution Management System (DMS) modules.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan . (Exhibit SDG&E-12, Appendix C)

Physical Description:

This project upgrades the Outage Management System / Distribution Management System (OMS/DMS) which is Oracle Network Management System (NMS) and also upgrades the Oracle Utilities Analytics (OUA) system used in conjunction with NMS.

This project impacts four applications for the project duration.

The internal labor costs for this project are driven by various resources such as business system analysts, project managers, DMS engineers, operators, software developers, domain engineers, Sr. software developers, Sr. domain engineers, principal domain engineers, scrum master team leads, and program delivery managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor managed services and software purchase.

This is a non-shared asset.

Project Justification:

- 1) Mitigate wildfire and public safety risk
- 2) Improve reporting, analytics, and Business Intelligence (BI)
- 3) Maintain latest vendor code line for support

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920C - Smart Grid Operations 2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920C**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920C - Smart Grid Operations 2024
 Workpaper Detail: 00920C.001 - Smart Grid Operations 2024
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	1,069
Non-Labor		0	0	1,300
NSE		0	0	0
	Total	0	0	2,369
FTE		0.0	0.0	8.9

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921Q - Cross-Functional Work Management Enhancements

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921Q - Cross-Functional Work Management Enhancements

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	708	849	142
Non-Labor	Zero-Based	0	0	0	0	0	400	480	80
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,108	1,329	222
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	5.9	7.1	1.2

Business Purpose:

Enhance multiple areas of the SDG&E work management system to improve usability, increase accuracy, and provide additional functionality. This project will impact the Compliance Management Group, Vegetation Management, Transmission Engineering, Program Management, Generation, Hazmat and Pet Lab users.

Physical Description:

- 1) CPUC mandated requirements
- 2) Audit requirements
- 3) Reporting improvements
- 4) Business Process improvements
- 5) User Interface improvements
- 6) Field Mobility/Technology improvements
- 7) System Integration enhancements
- 8) Safety & Compliance enhancements

This project impacts one application for the project duration.
 The internal labor costs for this project are driven by various resources such as project managers, software engineers, architects, and solution analysts. Internal labor roles and allocations may vary.
 The non-labor costs for this project are driven by vendor services for application development and testing services.
 This is a non-shared asset.

Project Justification:

- 1) Provide system enhancements in a leaner and more business focused way
- 2) Reduce manual processes and work arounds providing a better user experience
- 3) Improve data entry and data accuracy reducing errors
- 4) Continued improvement and expansion for applications on the Cloud
- 5) Improve reporting capabilities
- 6) Provide visibility to improve safety and compliance requirements

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: I. Electric Distribution - O&M
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00921Q - Cross-Functional Work Management Enhancements

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921Q**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921Q - Cross-Functional Work Management Enhancements
 Workpaper Detail: 00921Q.001 - SDGE Cross-Functional Work Management Enhancements
 In-Service Date: 02/29/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		708	849	142
Non-Labor		400	480	80
NSE		0	0	0
	Total	1,108	1,329	222
FTE		5.9	7.1	1.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AJ - Distribution Interconnection Info. System - Rule 21 and Net Energy
Metering Enhancements - Phase 1

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: 1. Electric Distribution - O&M
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920AJ - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancements - Phase 1

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	509	0	0
Non-Labor	Zero-Based	0	0	0	0	0	592	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,101	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0

Business Purpose:

This project started in 2021 (phase 1). The Distribution Interconnection Information System (DIIS) has the need for a significant redesign of the Rule-21 Net Energy Metering (NEM) application process. The system can greatly benefit from additional automation as the current functionality is limited and does not fully automate the paper application which makes processing, auditing and record keeping difficult and slow. CPUC reporting is currently manual and prone to error. Other enhancements are also needed to automate and improve workflow, usability, administration, and support.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

- 1) New logic to support migration of customers to NEM 2.0 tariff after 20 yrs. This Includes letters, a new DIIS application, and logic to manage the smart meter opt-out.
- 2) New logic to automate changing a customer to NEM 2.0 tariff when they have a <10kW system and add a >1kW upgrade. This Includes letters, a new DIIS application, and logic to manage the smart meter opt-out.
- 3) New logic to automate changing a customer to NEM 2.0 tariff when they have a >10kW system and add a 10%+ upgrade. This includes letters, a new DIIS application, and logic to manage the smart meter opt-out.
- 4) Various other smaller enhancements

This project impacts 1 application over the project duration.

The internal labor costs for this project are driven by various resources such as product owners, scrum masters, developers, and business systems analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for developers and IT quality assurance.

This is a non-shared asset.

Project Justification:

CPUC reporting and record keeping compliance will be enhanced and automated with these changes. The DIIS business support team projects a 10% growth in applications each year that is driving the need for a significant enhancement to the application.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: 1. Electric Distribution - O&M
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00920AJ - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancements - Pha

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AJ**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920AJ - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancements -
 Workpaper Detail: 00920AJ.001 - DIIS - RULE 21 AND NEM ENHANCEMENTS
 In-Service Date: 06/30/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		509	0	0
Non-Labor		592	0	0
NSE		0	0	0
	Total	1,101	0	0
FTE		4.2	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920X - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering
Enhancements - Phase 2

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: 1. Electric Distribution - O&M
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920X - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancements - Phase 2

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	94	710	729
Non-Labor	Zero-Based	0	0	0	0	0	130	860	680
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	224	1,570	1,409
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.8	5.9	6.1

Business Purpose:

This is phase 2 of the project. The Distribution Interconnection Information System (DIIS) has the need for a significant redesign of the Rule-21 Net Energy Metering (NEM) application process. The system can greatly benefit from additional automation as the current functionality is limited and does not fully automate the paper application which makes processing, auditing and record keeping difficult and slow. CPUC reporting is currently manual and prone to error. Other enhancements are also needed to automate and improve workflow, usability, administration, and support.

The project also supports SDG&E's grid modernization efforts and is part of the Grid Modernization Plan. (Exhibit SDG&E-12, Appendix C)

Physical Description:

This project will focus on Rule 21 application enhancements to support migration of customers to NEM 2.0 tariff. This will include letters, a new DIIS application, and logic to manage the smart meter opt-out. The project will also further automate changing a customer to NEM 2.0 tariff when they have a less than 10kW system and add a greater than 1kW upgrade or a greater than 10kW system and add a 10 percent or more upgrade. In addition, this project has various other smaller enhancements.

This project impacts 1 application over the project duration.

The internal labor costs for this project are driven by various resources including one or more product owners, scrum masters, developers, and business systems analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services and includes five developers, and two IT QA resource.

This is a non-shared.

Project Justification:

CPUC reporting and record keeping compliance will be enhanced and automated with these changes. The DIIS business support team projects a 10% growth in applications each year that is driving the need for a significant enhancement to the application.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: 1. Electric Distribution - O&M
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00920X - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancements - Phas

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920X**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920X - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancements -
 Workpaper Detail: 00920X.001 - DIIS 6.0 - Rule 21 and NEM Enhancements SaaS Subscription
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	180	0
NSE		0	0	0
	Total	0	180	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920X - Distribution Interconnection Info. System - Rule 21 and Net Energy Metering Enhancements -
 Workpaper Detail: 00920X.002 - DIIS 6.0 - Rule 21 and NEM Enhancements SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		94	710	729
Non-Labor		130	680	680
NSE		0	0	0
	Total	224	1,390	1,409
FTE		0.8	5.9	6.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AG - Telecommunications Attachment Management System (TAMS)
Modernization

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00920AG - Telecommunications Attachment Management System (TAMS) 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	0	0	0	268	0	0
Non-Labor	Zero-Based	0	0	0	0	0	819	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,087	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0

Business Purpose:

This project started in 2020. From 2015-2018, the volume of pole attachment applications submitted by Communication Infrastructure Providers (CIPs) increased by 250% and the number of poles associated with those applications increased by 315%. Due to the limitations in the current TAMS design, the current system has several siloed manual processes that create substantial roadblocks for the Compliance Management Group (CMG) to meet the increasing demand of processing CIP pole attachment applications in a timely fashion.

Physical Description:

- 1) TAMS Rewrite: Complete redesign of TAMS is required to fulfill business priority requirements such as the ability to combine multiple pole application types into one submission and the ability to submit multiple poles at once.
- 2) TAMS Enhancements: Additional functionality, validations, integrations, work status updates, reports.
- 3) Mobile Solution: Deploy a mobile solution to enable the QA personnel to automate the verification process.

This project impacts one application for the project duration.

The internal labor costs for this project are driven by various resources such as project managers, IT project managers, business systems analysts, database administrators and enterprise architects. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for software developers, professional services, and testing. This is a shared asset.

Project Justification:

- 1) Enhance CIP customer experience through efficiencies in TAMS Pole attachment application and GO 95 processes.
- 2) Reduce TAMS application processing time due to enhanced system functionality and automation.
- 3) Increase the number of applications and GO 95 fielded by QAs daily due to self-routing capabilities within a mobile solution.
- 4) Increase visibility of CIP safety hazards in Tier 2 and Tier 3 fire areas.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: I. Electric Distribution - O&M
Category-Sub: 3. Transform How We Work
Workpaper Group: 00920AG - Telecommunications Attachment Management System (TAMS) Modernization

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AG**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: I. Electric Distribution - O&M
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00920AG - Telecommunications Attachment Management System (TAMS) Modernization
 Workpaper Detail: 00920AG.001 - TAMS Modernization
 In-Service Date: 07/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	268	0	0
Non-Labor	819	0	0
NSE	0	0	0
Total	1,087	0	0
FTE	2.2	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
Workpaper: VARIOUS

Summary for Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	499	180	0
Non-Labor	0	1,385	6,366	1,678
NSE	0	0	0	0
Total	0	1,884	6,546	1,678
FTE	0.0	4.1	1.5	0.0

00920AN Geospatial Field Improvements

Labor	0	499	180	0
Non-Labor	0	1,385	612	0
NSE	0	0	0	0
Total	0	1,884	792	0
FTE	0.0	4.1	1.5	0.0

00920R RAMP - Vegetation Management - Work Management

Labor	0	0	0	0
Non-Labor	0	0	5,754	1,678
NSE	0	0	0	0
Total	0	0	5,754	1,678
FTE	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AN - Geospatial Field Improvements

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AN - Geospatial Field Improvements

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	499	180	0
Non-Labor	Zero-Based	0	0	0	0	0	1,385	612	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,884	792	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.1	1.5	0.0

Business Purpose:

This project started in 2021. This project will make improvements to Geospatial and work management business applications that are essential to support safety and regulatory requirements and improved workflows to support Vegetation Management (VMS), Transmission Construction and Maintenance (TCM), and Electric Regional Operations (ERO).

Physical Description:

- 1) Provide additional capabilities to support the wood pole inspection audits tracking.
- 2) Vegetation Patrols workflow will improve VMS near electric tie-lines.
- 3) Share PowerWorkz data across other EpochField applications for distribution and field patrols .
- 4) Standardize the data reporting platform and processes to improve vegetation management compliance and regulatory reporting.
- 5) Improve Vegetation Management CCMS billing reports by simplifying integrations with SAP .
- 6) Provision of high-resolution offline aerial imagery for mobile field users .
- 7) Capacitor survey capability for ERO field users.
- 8) Provide mobile solution for VETS (Vegetation Electronic Ticketing System).
- 9) Create a vegetative fuels management system to reduce fire hazard.

This project impacts four applications for the project duration.

The internal labor costs for this project are driven by various resources such as project managers, architects, analysts, developers, and testers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for application development, engineering consultants, IT systems analysts, testing services and software licenses.

This is a non-shared asset.

Project Justification:

- 1) Promotes and enhances the efficient reporting of Vegetation Management and TCM only data .
- 2) Enhances the capture and maintenance of more accurate Vegetation Management and TCM data .
- 3) Provides improved vegetation management, wildfire mitigation, and district patrols .
- 4) Increases consistency in capacitor survey .
- 5) Increases preventive measures to address issues identified with capacitors .

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AN - Geospatial Field Improvements

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AN**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AN - Geospatial Field Improvements
 Workpaper Detail: 00920AN.001 - Geospatial Field Improvements
 In-Service Date: 05/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	499	180	0
Non-Labor	1,385	612	0
NSE	0	0	0
Total	1,884	792	0
FTE	4.1	1.5	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920R - RAMP - Vegetation Management - Work Management

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920R - RAMP - Vegetation Management - Work Management

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	0	5,754	1,678	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	5,754	1,678	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

Aligning with the Field Service Delivery (FSD) goal to build a streamlined technology landscape for the field, this project focuses on the development of a system for Vegetation Management with an IT supported work management solution which aligns with the overall technology roadmap.

Today Vegetation management relies on multiple systems, utilizing a combination of Powerworkz and EPOCH for their work management solution, and a homegrown system (VETS) for intake of requests and management of communications with contract vendors. The current application landscape is not meeting Vegetation Management 's overall work management needs in a single system. This is to propose the use of SAP ECC (current), SAP GEF and SAP Analytics Cloud solutions (new), to meet Vegetation Management's work management requirements in a more holistic solution.

Physical Description:

This project will replace the Vegetation Management Powerworkz/EPOCH and VETS system with an SAP Work Management solution. This project would leverage existing SAP ECC and ESRI Geographic Information System (GIS) as well as incorporate the following:

- 1) SAP Geographical Enablement Framework (GEF) which will allow us to visualize assets, work in a geographical view linked to GIS, and manage (create/edit/view) directly from a geo-view in SAP
- 2) SAP Analytics Cloud which will allow us to explore data to achieve better compliance and work efficiency (forecast, comparison, progress tracking, capacity analysis)

The solution will cover work management for the following:

- 1) Vegetation Assets for planned inspections (compliance)
- 2) Preparations for additional planned work (predictive)
- 3) Corrective and ad-hoc work.

This project impacts two applications over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, architects, and analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by software licenses and vendor services for application design, development, testing, and implementation.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920R - RAMP - Vegetation Management - Work Management

Project Justification:

- 1) Alignment with strategic IT roadmap
- 2) Consolidation of systems lowering the IT support footprint
- 3) Reduction of redundant data entry and manual errors
- 4) Improved alignment with other SAP systems such as Contractor invoicing through Construction Contract Management System (CCMS)
- 5) Improved visualization of work via integrated geospatial solution which aligns with other GIS solutions
- 6) Improved data analytics to support forecasting and capacity planning

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920R - RAMP - Vegetation Management - Work Management

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920R**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920R - RAMP - Vegetation Management - Work Management
 Workpaper Detail: 00920R.001 - RAMP Vegetation Management - Work Management SW purchase
 In-Service Date: 12/31/2024
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	475	0
NSE		0	0	0
	Total	0	475	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920R - RAMP - Vegetation Management - Work Management
 Workpaper Detail: 00920R.001 - RAMP Vegetation Management - Work Management SW purchase

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	5,753	1,678	7,431	0	0

Cost Estimate Changes from RAMP:

New identified projects for RAMP

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 applications over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920R - RAMP - Vegetation Management - Work Management
 Workpaper Detail: 00920R.002 - Vegetation Management - Work Management SW Prepaid Maintenance (Same RAMP item as 00920R.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	86	0
NSE		0	0	0
	Total	0	86	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: J. Elec. Dist. - Wildfire Mitigation & Veg Mgmt
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920R - RAMP - Vegetation Management - Work Management
 Workpaper Detail: 00920R.003 - Vegetation Management - Work Management SW Development (Same RAMP item as 00920R.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	5,193	1,678
NSE		0	0	0
	Total	0	5,193	1,678
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: K. Fleet Services
Workpaper: VARIOUS

Summary for Category: K. Fleet Services

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	90	160	123
Non-Labor	0	376	458	207
NSE	0	0	0	0
Total	0	466	618	330
FTE	0.0	0.7	1.3	1.0

00920BG RAMP - Vehicle Telematics - Phase 1

Labor	0	90	0	0
Non-Labor	0	376	0	0
NSE	0	0	0	0
Total	0	466	0	0
FTE	0.0	0.7	0.0	0.0

00920BI RAMP - Vehicle Telematics - Phase 2

Labor	0	0	160	123
Non-Labor	0	0	458	207
NSE	0	0	0	0
Total	0	0	618	330
FTE	0.0	0.0	1.3	1.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BG - RAMP - Vehicle Telematics - Phase 1

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BG - RAMP - Vehicle Telematics - Phase 1

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	90	0	0
Non-Labor	Zero-Based	0	0	0	0	0	376	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	466	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 started in 2020. SDG&E is facing multiple issues including, under or inefficient utilization of the SDG&E fleet, lack of monitoring Diagnostic Trouble Codes (DTCs) and battery life data, unknown idling cost, inability to address driver behavior with real-time data, lack of situational awareness during normal working conditions and emergency response, and manual Driver Vehicle Inspection Report (DVIR) processing. To address these issues SDG&E will utilize an enterprise fleet monitoring system.

Physical Description:

- 1) Provide an SDG&E enterprise fleet monitoring system.
- 2) Equip entire SDG&E fleet, 1421 vehicles, with Verizon Connect vehicle telematic hardware and subscription to support telematic hardware and secure the additional DVIR component/module.
- 3) Integrate Verizon Connect with existing enterprise applications.
- 4) Develop and build SDG&E telematic program framework (system alignment and integrations).

This project impacts 1 application over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, business project managers, developers, architects, business analysts and information security engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by SaaS subscription, hardware, hardware prepaid maintenance, and vendor services for implementation, integration, and IT quality assurance.

This is a non-shared asset.

Project Justification:

- 1) Improve driver behavior by capturing vehicle data and using it in performance management as it relates to safe driving.
- 2) Improve labor capacity by taking hardcopy Driver Vehicle Inspection Report (DVIR) forms and convert them to electronic and semi-automate the process.
- 3) Create situational Awareness by displaying a visualization of vehicles in field, for utilization by EOC during emergency response.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: K. Fleet Services
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BG - RAMP - Vehicle Telematics - Phase 1

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BG**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BG - RAMP - Vehicle Telematics - Phase 1
 Workpaper Detail: 00920BG.001 - SDG&E Vehicle Telematics RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		90	0	0
Non-Labor		376	0	0
NSE		0	0	0
	Total	466	0	0
FTE		0.7	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BG - RAMP - Vehicle Telematics - Phase 1
 Workpaper Detail: 00920BG.001 - SDG&E Vehicle Telematics RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	416	466	0	0	466	426	544

Cost Estimate Changes from RAMP:

Within the 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 Application	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 application over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00920BI - RAMP - Vehicle Telematics - Phase 2

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2

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	160	123
Non-Labor	Zero-Based	0	0	0	0	0	0	458	207
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	618	330
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.0

Business Purpose:

This project will implement additional functionality for SDG&E Fleet Vehicle Telematics to improve usability and increase accuracy by implementing Active Directory Integration, Outage Map Integration, and a Companywide Electronic Driver Vehicle Inspection Reporting (eDVIR) Program.

Physical Description:

1) Active Directory (AD) Integration:
 - Automatic user creation/permission access and deletion through onboarding AD accounts (currently this is a manual process).
 - New hires set up through AD account system. Terminated employees updated through AD account system.
 - Change of permissions via IT ticket.
 - Automatic logging in, single sign on enablement.

2) Outage Map Integration
 - Integrate customer interfacing through the SDG&E outage map so customers can see the status of an outage and/or vehicles moving in response to the outage.

3) Company-wide Electronic Driver Vehicle Inspection Reporting (DVIR) Program
 - Potential development of a web-based platform through a software vendor.
 - HID badge scanner or FOB scanner in the vehicles to assign a driver to a vehicle, improve DVIR solution based on Kearny pilot lessons learned, hardware.

This project impacts 1 application over the project duration.
 The internal labor costs for this project are driven by various resources such as architects, information security engineers, project managers, business project managers, developers, and business analysts. Internal labor roles and allocations may vary.
 The non-labor costs for this project are driven by hardware, software, and vendor services for development, training, and IT quality assurance.
 This is a non-shared asset.

Project Justification:

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: K. Fleet Services
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2

- 1) Enhanced user experience and security through Active Directory integration .
- 2) Outage Map Integration will improve customer communication, improve customer satisfaction through visual representation of progress, potential decrease in calls to the call center, customer goodwill, improve customer satisfaction survey.
- 3) Company-wide Electronic Driver Vehicle Inspection Reporting (DVIR) Program will enable accurate employee to vehicle tracking, digitization of paper process, improve compliance, automate alerts of non-compliance events, increase visibility of vehicle issues, automate reporting for CHP, decrease physical storage requirements, improve safety by capturing driver information via HID badge scanner or fob scanner.
- 4) Proactive eDVIR program has the potential to become legislation in the next 24-36 months from CA Highway Patrol.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: K. Fleet Services
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BI**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2
 Workpaper Detail: 00920BI.001 - Vehicle Telematics Expansion SW purchase (Same RAMP item as 00920BI.003)
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	150	0
NSE		0	0	0
	Total	0	150	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2
 Workpaper Detail: 00920BI.002 - Vehicle Telematics Expansion SW Maintenance (Same RAMP item as 00920BI.003)
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	23	0
NSE		0	0	0
	Total	0	23	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2
 Workpaper Detail: 00920BI.003 - Vehicle Telematics Expansion SW Dev RAMP
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	160	0
Non-Labor		0	285	0
NSE		0	0	0
	Total	0	445	0
FTE		0.0	1.3	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2
 Workpaper Detail: 00920BI.003 - Vehicle Telematics Expansion SW Dev RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	618	330	948	0	0

Cost Estimate Changes from RAMP:

Newly identified project

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 Application	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 application over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: K. Fleet Services
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BI - RAMP - Vehicle Telematics - Phase 2
 Workpaper Detail: 00920BI.004 - Vehicle Telematics Expansion SW Dev (Same RAMP item as 00920BI.003)
 In-Service Date: 12/31/2024
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	123
Non-Labor		0	0	207
NSE		0	0	0
	Total	0	0	330
FTE		0.0	0.0	1.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: L. Gas Distribution
Workpaper: 00920G

Summary for Category: L. Gas Distribution

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	198	260	0
Non-Labor	0	173	372	0
NSE	0	0	0	0
Total	0	371	632	0
FTE	0.0	1.6	2.2	0.0

00920G Gas Ops Tool Tracker SAP Enhancement

Labor	0	198	260	0
Non-Labor	0	173	372	0
NSE	0	0	0	0
Total	0	371	632	0
FTE	0.0	1.6	2.2	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920G - Gas Ops Tool Tracker SAP Enhancement

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: L. Gas Distribution
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920G - Gas Ops Tool Tracker SAP Enhancement

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	198	260	0
Non-Labor	Zero-Based	0	0	0	0	0	173	372	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	371	632	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.6	2.2	0.0

Business Purpose:

The current tool tracking product used by Gas Operations does not provide the level of accuracy required to maintain regulatory compliance. Improperly managed tool calibration can result in immediate and long-term gas failures.

This project will focus on the development of a replacement solution that would ensure tool calibrations are accurately reported and maintained. It will provide the ability to track tools that are used to conduct new business and compliance activities such as emergency response, inspection, and maintenance.

Physical Description:

- 1) Develop and implement an enhanced tool tracking solution that provides timely and accurate data on tool calibrations.
- 2) This solution will be used by Gas Operations management and field employees to replace a legacy solution.

This project impacts development of one application for the project duration.

The internal labor costs for this project are driven by various resources such as project managers, software engineers, architects, and solution analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for application development and testing services.

This is a non-shared asset.

Project Justification:

- 1) Safety and Reliability - Inaccurate tool readings can affect line pressure requirements which can lead to an explosion if it is a hazardous leak. This can impact the community and Company with asset loss and injury.
- 2) Supports Compliance and Mitigates Risk - Ensures that the calibrated equipment used to build and maintain Gas infrastructure is functioning correctly. If the equipment readings have not been verified for accuracy, the ability to meet federal government, mandated compliance requirements are at risk. Failure to meet line pressure requirements may cause the piping to be in violation. This may subject the Company to fines, additional investigations, invalidation of prior work completed, and investigations which can put existing work out of compliance.
- 3) Employee Accessibility - Offers field employees improved visibility on tooling status and management employees' easy accessibility to tooling information.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: L. Gas Distribution
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920G - Gas Ops Tool Tracker SAP Enhancement

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920G**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: L. Gas Distribution
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920G - Gas Ops Tool Tracker SAP Enhancement
 Workpaper Detail: 00920G.001 - Gas Ops Tool Tracker SAP Enhancement Project
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	198	260	0
Non-Labor	173	372	0
NSE	0	0	0
Total	371	632	0
FTE	1.6	2.2	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: M. Safety, Risk and Asset Management
Workpaper: VARIOUS

Summary for Category: M. Safety, Risk and Asset Management

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	2,471	2,949	2,664
Non-Labor	0	17,727	21,100	19,117
NSE	0	0	0	0
Total	0	20,198	24,049	21,781
FTE	0.0	20.6	24.4	22.1

00920AH Work Management Enhancements

Labor	0	287	0	0
Non-Labor	0	1,456	0	0
NSE	0	0	0	0
Total	0	1,743	0	0
FTE	0.0	2.4	0.0	0.0

00920AS Field Mobility Development

Labor	0	287	0	0
Non-Labor	0	1,548	0	0
NSE	0	0	0	0
Total	0	1,835	0	0
FTE	0.0	2.4	0.0	0.0

00920AW RAMP - Electric GIS Modernization Project

Labor	0	60	0	0
Non-Labor	0	111	0	0
NSE	0	0	0	0
Total	0	171	0	0
FTE	0.0	0.5	0.0	0.0

00920BL RAMP - Electric Distribution Asset Investment

Labor	0	834	1,295	1,251
Non-Labor	0	2,480	4,399	2,480
NSE	0	0	0	0
Total	0	3,314	5,694	3,731
FTE	0.0	7.0	10.8	10.4

00920BM RAMP- Asset 360 - Asset Data Foundation

Labor	0	202	270	190
Non-Labor	0	4,187	3,999	2,157
NSE	0	0	0	0
Total	0	4,389	4,269	2,347
FTE	0.0	1.7	2.2	1.6

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: M. Safety, Risk and Asset Management
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
00920F Construction, Planning and Design (CPD) Enhancements				
Labor	0	0	343	411
Non-Labor	0	0	1,300	1,560
NSE	0	0	0	0
Total	0	0	1,643	1,971
FTE	0.0	0.0	2.8	3.4
00920M RAMP - GIS Modernization				
Labor	0	327	327	82
Non-Labor	0	1,236	2,017	242
NSE	0	0	0	0
Total	0	1,563	2,344	324
FTE	0.0	2.7	2.7	0.7
00920H RAMP - Field Mobile Hardware Replacement				
Labor	0	0	257	281
Non-Labor	0	0	3,232	3,263
NSE	0	0	0	0
Total	0	0	3,489	3,544
FTE	0.0	0.0	2.1	2.3
00920AM RAMP - Field Hardware Mobile Data Terminals (MDT) Replacement				
Labor	0	298	0	0
Non-Labor	0	4,415	500	0
NSE	0	0	0	0
Total	0	4,713	500	0
FTE	0.0	2.5	0.0	0.0
00920E Investment Prioritization				
Labor	0	121	457	449
Non-Labor	0	1,752	5,045	8,807
NSE	0	0	0	0
Total	0	1,873	5,502	9,256
FTE	0.0	1.0	3.8	3.7
00921N Engineering & Construction Document Centralization and Compliance				
Labor	0	55	0	0
Non-Labor	0	542	608	608
NSE	0	0	0	0
Total	0	597	608	608
FTE	0.0	0.4	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AH - Work Management Enhancements

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AH - Work Management Enhancements

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	287	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,456	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,743	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0

Business Purpose:

This project started in 2020. This project will implement additional functionality across multiple areas of the SDG&E SAP work management system to improve usability and increase accuracy. It will also provide additional functionality for CPD (Construction, Planning, and Design) web portal applications and build additional system integrations to support systems such as Procore for construction services. This project will support system enhancements impacting departments such as Design and Construction Management, Electric Regional Operations (ERO), and Reliability.

As SDG&E work management is a large and complex system, and the system of record for Gas and Electric Distribution and Construction Management, maintaining consistent funding for system improvements is important to support business operations.

Physical Description:

This project implements various system enhancements improving usability, data accuracy and reporting in the following areas of CPD/SAP Work Management functionality:

- 1) Procore Integration
- 2) Cash Receipts (PCRS) process
- 3) Cost Estimating for Construction Contract Labor
- 4) CPD Web Application updates and improvements for both Gas and Electric (Design Portal and iPMP)
- 5) PM letter updates
- 6) Reporting improvements.

This project addresses one application for the project duration.

The internal labor costs for this project are driven by various resources such as project managers, software engineers, architects, and solution analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for application developers and testing services.

This is a non-shared.

Project Justification:

- 1) Reduce manual process for SAP work arounds
- 2) Continued improvement and expansion of CPD web-based applications
- 3) Addition of cost estimates for contract labor, improving planning for reliability projects.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AH - Work Management Enhancements

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AH**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AH - Work Management Enhancements
 Workpaper Detail: 00920AH.001 - SDGE WORK MANAGEMENT ENHANCEMENTS
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		287	0	0
Non-Labor		1,456	0	0
NSE		0	0	0
	Total	1,743	0	0
FTE		2.4	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00920AS - Field Mobility Development**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AS - Field Mobility Development

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	287	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,548	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	1,835	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0

Business Purpose:

This project started in 2021. This project will focus on developing a new Gas Mobile Fielding App and enhancing the current Electric Mobile Fielding App. The Mobile Fielding App lays the foundation for the future of field applications and continues to empower the digital workforce. The app automates manual process for field supervisors with mobile technology having superior user experience and provides capability of GIS (Geographic Information System) data and full offline synchronization.

Physical Description:

Gas Mobile Fielding App development scope:

- 1) Enable users to receive work packages, enter required documentation and sync completed details to SAP through an automated process.
- 2) Provide GIS and offline capabilities to users.

Electric Mobile Fielding App enhancement scope:

- 1) Cover additional validations in app
- 2) Additional automatic data updates to SAP
- 3) Improved GIS functions to search on GIS
- 4) Include aerial view integration
- 5) Allow photo redlines in app
- 6) Initiate job notifications from app
- 7) Ability to view/reassign jobs assigned to others

This project impacts two applications for the project duration.

The internal labor costs for this project are driven by various resources such as project managers, architects, and analysts.

Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for application design, development, testing and implementation.

This is a non-shared asset.

Project Justification:

- 1) Automate and reduce manual steps
- 2) Digitalize and streamline processes
- 3) Improve accuracy and quality of data capture
- 4) Enhance user experience

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AS - Field Mobility Development

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AS**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AS - Field Mobility Development
 Workpaper Detail: 00920AS.001 - Field Mobility Development
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	287	0	0
Non-Labor	1,548	0	0
NSE	0	0	0
Total	1,835	0	0
FTE	2.4	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AW - RAMP - Electric GIS Modernization Project

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AW - RAMP - Electric GIS Modernization 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	60	0	0
Non-Labor	Zero-Based	0	0	0	0	0	111	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	171	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0

Business Purpose:

This project started in 2020. Upgrades and enhancements to the GIS (Geographic Information System) desktop, mobile and portal environments are essential in keeping up with the technology to provide improved performance and stability of the GIS applications. GIS is the system of record for much of the electric asset information, feeding mission-critical systems such as NMS, SAP and EDW. Applications like Epoch Field (GIS mobile) and SPARC-EOC (GIS Portal) are critical for day-to-day operations as well as emergency operations. With wildfire risks becoming a year-round reality, the need for GIS applications to perform and be readily available 24/7 has put added pressure in developing GIS data and new GIS applications for situational awareness. This coincides with new mandates coming from the CPUC, Cal OES and Cal Fire around providing GIS data to all entities during emergency events and developing processes to provide this data on a near real-time basis.

Physical Description:

- 1) Identify, evaluate, prioritize and/or implement essential SDG&E Electric GIS only enhancements to our Mobile, Desktop, and Portal environments.
- 2) Desktop technical upgrade from 10.2.1 to 10.6.1., as 10.2.1 reaches end of support Q1 2021.

This project impacts approximately 3 applications over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, architects, analysts, developers, and testers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for application development, engineering consultants, IT systems analysts, testing services and software licenses.

This is a non-shared asset.

Project Justification:

- 1) Promotes and enhances the efficient reporting of GIS only data.
- 2) Enhances the capture and maintenance of more accurate GIS data.
- 3) Provides enhanced emergency response visualization options.
- 4) Reduces as-built, reconciliation and GIS posting costs.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AW - RAMP - Electric GIS Modernization Project

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AW**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AW - RAMP - Electric GIS Modernization Project
 Workpaper Detail: 00920AW.001 - ELECTRIC GIS MODERNIZATION PROJECT RAMP
 In-Service Date: 06/30/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		60	0	0
Non-Labor		111	0	0
NSE		0	0	0
	Total	171	0	0
FTE		0.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AW - RAMP - Electric GIS Modernization Project
 Workpaper Detail: 00920AW.001 - ELECTRIC GIS MODERNIZATION PROJECT RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	1,252	171	0	0	171	365	466

Cost Estimate Changes from RAMP:

Slightly lower Forecast

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 3 applications over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00920BL - RAMP - Electric Distribution Asset Investment

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BL - RAMP - Electric Distribution Asset Investment

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	834	1,295	1,251
Non-Labor	Zero-Based	0	0	0	0	0	2,480	4,399	2,480
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	3,314	5,694	3,731
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	7.0	10.8	10.4

Business Purpose:

This is a continuation of a project that began in 2021. The current Asset Investment Planning tool has reached the end of support and is lacking in capabilities required for upcoming regulatory requirements (RAMP/S-MAP). Regulatory bodies are requesting more transparency and accountability in capital spending. Using a consistent value-based decision model approach, and in alignment with the Company's strategic plan, the project will implement a new Asset Investment Planning and Management (AIPM) tool, which will utilize the enterprise-level value framework to optimize the capital project portfolio for Electric Distribution.

Physical Description:

- 1) Replace the existing Asset Investment Planning tool with a new Investment Prioritization application to enhance managing risk proactively using a data-driven, risk informed and consistent value-based decision model approach to prioritize the Company's capital investments
- 2) Continue to implement the new investment prioritization and optimization tool for Electric TS &D and to include the Electric Distribution portfolio projects.
- 3) Integrate with the Asset Data Foundation (SAP Hana) to provide asset data risk used to inform investment value.
- 4) Integrate the new application with other Company systems and tools into a Cloud solution to centralize critical data and for easier accessibility to enhance the data-driven, consistent, and value-based investment decision-making.
- 5) Implement additional system modules, which includes:
 - (a) Asset Aware and Predictive Analytics to transition into asset-based prioritization.
 - (b) Performance Management to enable recurring re-prioritization capabilities.

This project includes one new application to replace a capital planning application for the duration of the project. The internal labor costs for this project are driven by change management, training, security, and various resources such as project managers, subject matter experts, and business systems analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services to provide the application expertise, best practices for implementing investment prioritization, project management of non-labor, and change management support. In addition, a Software as a Service (SaaS) agreement is required to provide licenses and application support. This is a shared asset.

Project Justification:

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BL - RAMP - Electric Distribution Asset Investment

- 1) Implement a comprehensive solution that aligns with CPUC data and reporting requirements.
- 2) Ensure compliance to Enterprise Risk Management/ RAMP and forthcoming CPUC regulatory standards by implementing common repository for Asset Management.
- 3) Conformance to ISO 55000 standards and recommendations.
- 4) Alignment with enterprise risk management.
- 5) Improve stewardship and transparency to support regulatory outcomes.
- 6) Improved service levels.
- 7) Develop common value framework for capital investments to prioritize capital investments.
- 8) Targeting of investments for worst performing assets, rather than Subject Matter Expert (SME) knowledge.
- 9) Improve asset portfolio decision making to determine priority investment solutions.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BL - RAMP - Electric Distribution Asset Investment

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BL**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BL - RAMP - Electric Distribution Asset Investment
 Workpaper Detail: 00920BL.001 - RAMP - Elec. Distribution Asset Investment
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	834	0	0
Non-Labor	2,480	0	0
NSE	0	0	0
Total	3,314	0	0
FTE	7.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BL - RAMP - Electirc Distribution Asset Investment
 Workpaper Detail: 00920BL.001 - RAMP - Elec. Distribution Asset Investment

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-1 Asset Management
 RAMP Line Item ID: 1
 RAMP Line Item Name: Asset Manageent
 Tranche(s): Tranche1: NA

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	3,314	5,694	3,731	12,739	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 application over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BL - RAMP - Electirc Distribution Asset Investment
 Workpaper Detail: 00920BL.002 - Elec. Distribution Asset Investment Prioritization (Same RAMP item as 00920BL.001)
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	1,295	0
Non-Labor		0	4,399	0
NSE		0	0	0
	Total	0	5,694	0
FTE		0.0	10.8	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BL - RAMP - Electirc Distribution Asset Investment
 Workpaper Detail: 00920BL.003 - Elec. Distribution Asset Investment Prioritization (Same RAMP item as 00920BL.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	1,251
Non-Labor		0	0	2,480
NSE		0	0	0
	Total	0	0	3,731
FTE		0.0	0.0	10.4

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BM - RAMP- Asset 360 - Asset Data Foundation

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BM - RAMP- Asset 360 - Asset Data Foundation

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	202	270	190
Non-Labor	Zero-Based	0	0	0	0	0	4,187	3,999	2,157
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	4,389	4,269	2,347
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.7	2.2	1.6

Business Purpose:

The third Phase of the Asset 360 Project incorporates disparate electric asset data into a consolidated Data Foundation in SAP Hana. It will also advance and enhance consolidated data views, asset health and risk models for electric assets. In the current state, end users do not have a consolidated view of their asset data for the remaining critical electric assets. End users have to manually extract and manipulate data from multiple data sources in order to get pertinent data for decision making.

Physical Description:

- 1) Integrate asset, risk event, outage, and maintenance and inspection data into SAP Hana for critical electric assets.
- 2) Build consolidated views for: inspections and maintenance, failures, nameplate data, geographic attributes, and weather.
- 3) Create asset health and risk indices for key electric assets.
- 4) Create asset hierarchies where applicable.
- 5) Catalog data elements, document and/or resolve data gaps.
- 6) Build and enhance governance processes for asset data.

This project develops approximately 30 models and dashboards for analytics over the duration of the project. The internal labor costs for this project are driven by various resources such as product owners, project managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services.

This is a non-shared asset.

Project Justification:

This project will enable data-driven, risk-informed decision making across Engineering and Operations stakeholders including proactive maintenance and replacement strategies. It will also result in increased data quality, increased situational awareness due to increased transparency for regulatory reporting and data requests and time savings across stakeholder and support groups.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BM - RAMP- Asset 360 - Asset Data Foundation

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BM**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BM - RAMP- Asset 360 - Asset Data Foundation
 Workpaper Detail: 00920BM.001 - RAMP- EAMP Asset Data Foundation
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	202	0	0
Non-Labor	4,187	0	0
NSE	0	0	0
Total	4,389	0	0
FTE	1.7	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BM - RAMP- Asset 360 - Asset Data Foundation
 Workpaper Detail: 00920BM.001 - RAMP- EAMP Asset Data Foundation

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-1 Asset Management

RAMP Line Item ID: 2b

RAMP Line Item Name: Asset Management

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	4,389	4,269	2,347	11,005	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Models	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 30 models for dashboards over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BM - RAMP- Asset 360 - Asset Data Foundation
 Workpaper Detail: 00920BM.002 - EAMP Asset Data Foundation (Same RAMP item as 00920BM.001)
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	270	0
Non-Labor		0	3,999	0
NSE		0	0	0
	Total	0	4,269	0
FTE		0.0	2.2	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BM - RAMP- Asset 360 - Asset Data Foundation
 Workpaper Detail: 00920BM.003 - EAMP Asset Data Foundation (Same RAMP item as 00920BM.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	190
Non-Labor		0	0	2,157
NSE		0	0	0
	Total	0	0	2,347
FTE		0.0	0.0	1.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920F - Construction, Planning and Design (CPD) Enhancements

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920F - Construction, Planning and Design (CPD) Enhancements

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	411	
Non-Labor	Zero-Based	0	0	0	0	0	0	1,560	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	1,971	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	3.4	

Business Purpose:

This project will implement additional functionality across multiple areas of the SDG&E SAP work management system to improve usability and increase accuracy. It will also provide additional functionality for CPD (Construction, Planning and Design) web portal applications and build additional system integrations to support future apps for field personnel. This project will support areas impacting project management, ERO (Electric Regional Operations), and accounting.

Physical Description:

This project will implement CPD/SAP system enhancements improving usability, data accuracy and reporting for Work Management functionality impacting various departments such as Design & Construction Management, ERO, Engineering, Reliability, and Accounting.

This project addresses one application for the project duration.

The internal labor costs for this project are driven by various resources such as project managers, software engineers, architects, and solution analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for application development and testing services.

This is a non-shared asset.

Project Justification:

- 1) Provide system enhancements in a leaner and more business focused way
- 2) Reduce manual processes and work arounds providing a better user experience
- 3) Improve data entry and data accuracy reducing errors
- 4) Provide timely reconciliation for contracted work reducing AFUDC
- 5) Continued improvement and expansion for CPD web-applications
- 6) Provide cost estimations for planned work and contract labor
- 7) Improve planning for reliability projects
- 8) Improve reporting capabilities

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920F - Construction, Planning and Design (CPD) Enhancements

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920F**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920F - Construction, Planning and Design (CPD) Enhancements
 Workpaper Detail: 00920F.001 - SDGE Work Management Enhancements - CPD
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	343	411
Non-Labor		0	1,300	1,560
NSE		0	0	0
	Total	0	1,643	1,971
FTE		0.0	2.8	3.4

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920M - RAMP - GIS Modernization

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920M - RAMP - GIS 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	0	0	0	0	0	327	327	82
Non-Labor	Zero-Based	0	0	0	0	0	1,236	2,017	242
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,563	2,344	324
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.7	2.7	0.7

Business Purpose:

Enhancements to multiple GIS systems will improve reliability, expand application scope, and provide additional functionality throughout the Geographic Information System (GIS).

This project will support enhancements to ArcFM/ESRI GIS desktop (AFES desktop), ArcGIS Portal, Geographic Environmental Reporting System (GEARS) and GIS Integrations. AFES desktop enhancements will focus on reliability to desktop editing and schematics generation. ArcGIS Portal enhancements will deliver enhancements to SPARC, including Emergency Operation Center (EOC) supported apps. GEARS web is used to assess environmental impacts on SDG&E construction projects. GIS Integrations include SAP, Synergee, Outage Management System (OMS), Network Management System (NMS), Pole Information Data System (PIDS), NMS. This project will address threats to the system identified by cyber security across the GIS platform. This project will address CPUC's mandates for GIS data and processes for distributing such data to the various Public Safety Partners.

Physical Description:

- 1) Develop Schematic upgrade strategy on the road to utility network for AFES desktop.
- 2) Enhance GIS web viewer to streamline data delivery on related features for ArcGIS Portal.
- 3) Upgrade GEARS to ArcGIS 10.6.1.
- 4) GIS Integrations include SAP, Synergee, OMS/NMS, PIDS.
- 5) Address Cyber security issues with port 80, TLS 1.0 and Portal web vulnerabilities.
- 6) Satisfy CPUC requirements for GIS data via data mining and reporting.
- 7) Support EOC apps.
- 8) Support GRC with GIS data reporting.

This project impacts enhancements to approximately 4 applications over the project duration. The internal labor costs for this project are driven by various resources such as project managers, software engineers, architects, and solution analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for application development and testing services. This is a non-shared.

Project Justification:

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920M - RAMP - GIS Modernization

- 1) Provide system enhancements to streamline desktop editing and reduce workarounds
- 2) Reduce technical obsolescence with decommission of Geographic Information Systems - External Web Services (GISEWS).
- 3) Reconfigure GIS integration jobs to reduce steps in nightly process.
- 4) Improve performance on web applications
- 5) Improve security with elimination of security risks
- 6) Complete CPUC mandate data requests

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920M - RAMP - GIS Modernization

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920M**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920M - RAMP - GIS Modernization
 Workpaper Detail: 00920M.001 - RAMP SDGE GIS Modernization SW Purchase
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		231	910	0
NSE		0	0	0
	Total	231	910	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920M - RAMP - GIS Modernization
 Workpaper Detail: 00920M.001 - RAMP SDGE GIS Modernization SW Purchase

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	1,564	2,344	324	4,232	3,240	4,140

Cost Estimate Changes from RAMP:

Higher forecast

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 4 applications over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920M - RAMP - GIS Modernization
 Workpaper Detail: 00920M.002 - SDGE GIS Modernization SW Prepaid Maintenance (Same RAMP item as 00920M.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		35	137	0
NSE		0	0	0
	Total	35	137	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920M - RAMP - GIS Modernization
 Workpaper Detail: 00920M.003 - SDGE GIS Modernization SW Development (Same RAMP item as 00920M.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		327	327	82
Non-Labor		970	970	242
NSE		0	0	0
	Total	1,297	1,297	324
FTE		2.7	2.7	0.7

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920H - RAMP - Field Mobile Hardware Replacement

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920H - RAMP - Field Mobile Hardware 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	257	281	
Non-Labor	Zero-Based	0	0	0	0	0	3,232	3,263	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	3,489	3,544	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.1	2.3	

Business Purpose:

This project is to support the field hardware requirements for Gas and Electric Field personnel supported by the Field Technology Solutions team within the Asset Management department. The Field Hardware supports field personnel within Electric Regional Operations (ERO), San Diego Gas Operations (SD Gas) and Customer Service Field (CSF) and ensures adequate and warranted hardware is supplied to employees so they can properly execute their day-to-day activities in a safe and efficient manner.

Physical Description:

The hardware replacement is being done in accordance with guidelines outlined in the standards for hardware lifecycle, due to the environment in which units are used daily, and because of their general condition at the end of four years.

This project allows for provision to accommodate emerging technology needs for companion devices for the field such as tablets.

This project deploys approximately 800 devices over the project duration.

The internal labor costs for this project are driven by various resources such as field computing analysts, senior business systems analysts, and business system analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services.

This is a non-shared asset.

Project Justification:

- 1) Enhance reliability and field reporting capability, which is vital in field personnel's role in response to emergency events such as Wildfire Mitigation (WFM), Red Flag Warning (RFW), and Public Safety Power Shutoff (PSPS).
- 2) Field personnel will have improved wireless network capability to receive planned and emergency orders, job info.
- 3) Improve field personnel experience related to computing hardware performance and usability increasing productivity and reducing inefficiency.
- 4) Reduction in time spent by the Field Technology Solutions team to diagnose and repair failed computing devices .
- 5) Hardware that can take full advantage of field application enhancements and revised business processes.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00920H - RAMP - Field Mobile Hardware Replacement

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920H**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920H - RAMP - Field Mobile Hardware Replacement
 Workpaper Detail: 00920H.001 - Field Hardware Replacement 2023-2025 RAMP
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	257	0
Non-Labor		0	2,752	0
NSE		0	0	0
	Total	0	3,009	0
FTE		0.0	2.1	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920H - RAMP - Field Mobile Hardware Replacement
 Workpaper Detail: 00920H.001 - Field Hardware Replacement 2023-2025 RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	3,489	3,544	7,033	8,303	10,609

Cost Estimate Changes from RAMP:

Lower forecast

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 Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 800 devices over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920H - RAMP - Field Mobile Hardware Replacement
 Workpaper Detail: 00920H.002 - Field Hardware Replacement 2023-2025 HW Prepaid Maintenance (Same RAMP item as 00920H.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	480	0
NSE		0	0	0
	Total	0	480	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920H - RAMP - Field Mobile Hardware Replacement
 Workpaper Detail: 00920H.003 - Field Hardware Replacement 2023-2025 (Same RAMP item as 00920H.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	281
Non-Labor		0	0	2,783
NSE		0	0	0
	Total	0	0	3,064
FTE		0.0	0.0	2.3

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00920H - RAMP - Field Mobile Hardware Replacement
 Workpaper Detail: 00920H.004 - Field Hardware Replacement 2023-2025 HW Prepaid Maintenance (Same RAMP item as 00920H.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	480
NSE		0	0	0
	Total	0	0	480
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AM - RAMP - Field Hardware Mobile Data Terminals (MDT) Replacement

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00920AM - RAMP - Field Hardware Mobile Data Terminals (MDT) 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	298	0	0
Non-Labor	Zero-Based	0	0	0	0	0	4,415	500	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	4,713	500	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0

Business Purpose:

This project started in 2021. This project is to support the field hardware requirements for Gas and Electric Field personnel who utilize Mobile Data Terminals (MDTs) for mapping and work management in the field. These MDTs are supported by the Field Technology Solutions (FTS) within the Asset Management department.

Physical Description:

The hardware replacement is being done in accordance with guidelines outlined in the standards for hardware lifecycle, due to the environment in which units are used daily, and because of their general condition at the end of four years.

This project allows for provision to accommodate emerging technology needs for companion devices for the field such as tablets.

This project deploys approximately 800 devices over the project duration.

The internal labor costs for this project are driven by various resources such as field computing analysts, senior business systems analysts, and business system analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for hardware deployment and configuration.

This is a non-shared asset.

Project Justification:

- 1) Enhance reliability and field reporting capability, which is vital in field personnel's role in response to emergency events such as Wildfire Mitigation (WFM), Red Flag Warning (RFW), and Public Safety Power Shutoff (PSPS).
- 2) Field personnel will have improved wireless network capability to receive planned and emergency orders, job info.
- 3) Improve field personnel experience related to computing hardware performance and usability increasing productivity and reducing inefficiency.
- 4) Reduction in time spent by the Field Technology Solutions team to diagnose and repair failed computing devices .
- 5) Hardware that can take full advantage of field application enhancements and revised business processes.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 3. Transform How We Work
Workpaper Group: 00920AM - RAMP - Field Hardware Mobile Data Terminals (MDT) Replacement

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AM**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00920AM - RAMP - Field Hardware Mobile Data Terminals (MDT) Replacement
 Workpaper Detail: 00920AM.001 - 2021-2022 MDT Replacement Project HW RAMP
 In-Service Date: 02/28/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	298	0	0
Non-Labor	4,415	500	0
NSE	0	0	0
Total	4,713	500	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: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00920AM - RAMP - Field Hardware Mobile Data Terminals (MDT) Replacement
 Workpaper Detail: 00920AM.001 - 2021-2022 MDT Replacement Project HW RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	1,978	4,713	500	0	5,213	1,510	1,929

Cost Estimate Changes from RAMP:
 Higher forecast

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 Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
 Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 800 devices over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:
 NA

**Beginning of Workpaper Group
00920E - Investment Prioritization**

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920E - Investment Prioritization

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	121	457	449
Non-Labor	Zero-Based	0	0	0	0	0	1,752	5,045	8,807
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,873	5,502	9,256
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.0	3.8	3.7

Business Purpose:

The current asset investment planning tool has reached end of support and is limited in capabilities required for the new regulatory requirements. Regulatory agencies are requesting more transparency and accountability in capital spending. Using a data-driven and consistent value-based decision model approach, and in alignment with the Company's strategic plan, the Software as a Service (SaaS) solution - Asset Investment Planning and Management (AIPM) utilizes a consistent enterprise-level value framework to prioritize the capital investments.

This project expands the implementation of the SaaS solution to other departments such as Gas Distribution, Information Technology, Fleet and Facilities, while continuing the business adoption with Electric Transmission, Substation, System Protection and Distribution group.

Physical Description:

- 1) Replace the existing asset investment planning tool with a SaaS solution to enhance risk management using a data-driven, risk informed and consistent value-based decision model approach to prioritize the Company's capital investments
- 2) Implementing the SaaS solution completes the replacement for the remainder of Company business units
- 3) Integrate the SaaS solution with other Company systems and tools to centralize critical data and for easier accessibility to enhance the data-driven, consistent and value-based investment decision-making.
- 4) Implement additional modules including:
 - (a) Asset aware and predictive analytics to transition into asset-based prioritization for electric transmission, substation, system protection and distribution
 - (b) Performance management to enable re-prioritization capabilities.

This project includes one new application to replace a capital planning application for Transmission and Distribution in 2022 and Gas T&D, Generation, IT, Facilities, and Fleet in 2023.

The internal labor costs for this project are driven by change management, training, safety, and various resources such as project managers, subject matter experts, and business systems analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by SaaS subscription and vendor services to provide application expertise, best practices for implementing investment prioritization, project management of non-labor, and change management support.

This is a non-shared asset.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920E - Investment Prioritization

Project Justification:

- 1) Compliance with required CPUC reporting (S-MAP, RAMP, RSAR) through considering multiple alternatives per proposed investment
- 2) Supporting the 2020-2022 Wildfire Mitigation Plan under resource allocation methodology
- 3) Conformance to ISO 55000 standards and recommendations
- 4) Alignment with enterprise risk management
- 5) Improved transparency to support regulatory outcomes, financial performance, and service levels

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920E - Investment Prioritization

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Workpaper detail provides costs supporting the workpaper.

**Beginning of Workpaper Sub Details for
Workpaper Group 00920E**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920E - Investment Prioritization
 Workpaper Detail: 00920E.001 - Asset Investment Prioritization (AIP) SaaS Subscription
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		500	0	0
NSE		0	0	0
	Total	500	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920E - Investment Prioritization
 Workpaper Detail: 00920E.002 - Asset Investment Prioritization (AIP) SW Development
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		121	457	0
Non-Labor		1,252	5,045	0
NSE		0	0	0
	Total	1,373	5,502	0
FTE		1.0	3.8	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920E - Investment Prioritization
 Workpaper Detail: 00920E.003 - Asset Investment Prioritization (AIP) SaaS Subscription
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	5,000
NSE		0	0	0
	Total	0	0	5,000
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920E - Investment Prioritization
 Workpaper Detail: 00920E.004 - Asset Investment Prioritization (AIP) SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	449
Non-Labor		0	0	3,807
NSE		0	0	0
	Total	0	0	4,256
FTE		0.0	0.0	3.7

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921N - Engineering & Construction Document Centralization and Compliance

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921N - Engineering & Construction Document Centralization and Compliance

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	55	0	0
Non-Labor	Zero-Based	0	0	0	0	0	542	608	608
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	597	608	608
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0

Business Purpose:

The purpose of the project is to expand the operational usage of a content management system to new business groups including engineering and construction.

Physical Description:

This project includes deploying and expanding new document and records management capabilities.

This project impacts the OpenText content management system and adds five new application components for the project duration.

The internal labor costs for this project are driven by various resources such as architects, information security engineers, project managers, business analysts, and testing analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services.

This is a non-shared asset.

Project Justification:

This project consolidates documents and records into central repository which supports records management practices for compliance.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: M. Safety, Risk and Asset Management
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00921N - Engineering & Construction Document Centralization and Compliance

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921N**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921N - Engineering & Construction Document Centralization and Compliance
 Workpaper Detail: 00921N.001 - Engineering & Construction Document Centralization and Compliance SW Purchase
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		180	0	0
NSE		0	0	0
	Total	180	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921N - Engineering & Construction Document Centralization and Compliance
 Workpaper Detail: 00921N.002 - Engineering & Construction Document Centralization and Compliance SW Prepaid Maintenance
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		27	0	0
NSE		0	0	0
	Total	27	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921N - Engineering & Construction Document Centralization and Compliance
 Workpaper Detail: 00921N.003 - Engineering & Construction Document Centralization and Compliance SW Development
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	55	0	0
Non-Labor	335	0	0
NSE	0	0	0
Total	390	0	0
FTE	0.4	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: M. Safety, Risk and Asset Management
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921N - Engineering & Construction Document Centralization and Compliance
 Workpaper Detail: 00921N.004 - Engineering & Construction Document Centralization and Compliance SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	608	608
NSE		0	0	0
	Total	0	608	608
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

Summary for Category: O. Information Technology

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	7,150	3,466	2,155
Non-Labor	0	118,255	67,643	60,104
NSE	0	0	0	0
Total	0	125,405	71,109	62,259
FTE	0.0	59.2	28.7	18.0

00907K SAP Computing Resource and Storage Expansion

Labor	0	100	0	0
Non-Labor	0	1,978	0	0
NSE	0	0	0	0
Total	0	2,078	0	0
FTE	0.0	0.8	0.0	0.0

00907N Microsoft Enterprise Agreement

Labor	0	0	0	0
Non-Labor	0	27,900	0	0
NSE	0	0	0	0
Total	0	27,900	0	0
FTE	0.0	0.0	0.0	0.0

00907O Microsoft 365 Service Management

Labor	0	17	0	0
Non-Labor	0	319	0	0
NSE	0	0	0	0
Total	0	336	0	0
FTE	0.0	0.1	0.0	0.0

00908AA RAMP - Network Attached Storage (NAS) Modernization

Labor	0	215	0	0
Non-Labor	0	578	0	0
NSE	0	0	0	0
Total	0	793	0	0
FTE	0.0	1.8	0.0	0.0

00908AC RAMP - IT Converged Infrastructure Compute Capacity Expansion

Labor	0	105	0	0
Non-Labor	0	88	0	0
NSE	0	0	0	0
Total	0	193	0	0
FTE	0.0	0.9	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

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

00908AE RAMP - Digi Remote Manager 2022

Labor	0	164	0	0
Non-Labor	0	333	0	0
NSE	0	0	0	0
Total	0	497	0	0
FTE	0.0	1.3	0.0	0.0

00908C RAMP - Virtual Desktop Expansion (VDI) - Phase 2

Labor	0	0	0	0
Non-Labor	0	0	1,550	1,550
NSE	0	0	0	0
Total	0	0	1,550	1,550
FTE	0.0	0.0	0.0	0.0

00908F RAMP - Emergency Communications Enhancements

Labor	0	119	0	0
Non-Labor	0	744	0	0
NSE	0	0	0	0
Total	0	863	0	0
FTE	0.0	1.0	0.0	0.0

00908G RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023

Labor	0	0	64	0
Non-Labor	0	0	2,016	0
NSE	0	0	0	0
Total	0	0	2,080	0
FTE	0.0	0.0	0.5	0.0

00908I RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022

Labor	0	62	0	0
Non-Labor	0	567	0	0
NSE	0	0	0	0
Total	0	629	0	0
FTE	0.0	0.5	0.0	0.0

00908J RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023

Labor	0	0	64	0
Non-Labor	0	0	567	0
NSE	0	0	0	0
Total	0	0	631	0
FTE	0.0	0.0	0.5	0.0

00908K RAMP - Network Attached Storage (NAS) Archive Tier 2022

Labor	0	62	0	0
Non-Labor	0	487	0	0
NSE	0	0	0	0
Total	0	549	0	0
FTE	0.0	0.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
00908L RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 20				
Labor	0	0	64	0
Non-Labor	0	0	1,710	0
NSE	0	0	0	0
Total	0	0	1,774	0
FTE	0.0	0.0	0.5	0.0
00908O RAMP - Digi Remote Manager 2023				
Labor	0	0	220	0
Non-Labor	0	0	1,053	0
NSE	0	0	0	0
Total	0	0	1,273	0
FTE	0.0	0.0	1.8	0.0
00908U IT Small Capital				
Labor	0	0	0	0
Non-Labor	0	300	0	0
NSE	0	0	0	0
Total	0	300	0	0
FTE	0.0	0.0	0.0	0.0
00908V RAMP - Middleware Platforms Disaster Recovery 2022				
Labor	0	82	0	0
Non-Labor	0	1,030	0	0
NSE	0	0	0	0
Total	0	1,112	0	0
FTE	0.0	0.7	0.0	0.0
00908W RAMP - Infrastructure as a Service (IaaS) Implementation				
Labor	0	0	0	0
Non-Labor	0	0	0	2,000
NSE	0	0	0	0
Total	0	0	0	2,000
FTE	0.0	0.0	0.0	0.0
00908X RAMP - Cloud Foundations				
Labor	0	365	274	274
Non-Labor	0	5,603	4,538	5,038
NSE	0	0	0	0
Total	0	5,968	4,812	5,312
FTE	0.0	3.0	2.3	2.3
00908Y RAMP - Lifecycle Management Data Platform				
Labor	0	42	0	0
Non-Labor	0	282	0	0
NSE	0	0	0	0
Total	0	324	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: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

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

00908Z Telecom Asset Management Capabilities

Labor	0	0	0	0
Non-Labor	0	1,400	300	0
NSE	0	0	0	0
Total	0	1,400	300	0
FTE	0.0	0.0	0.0	0.0

00920AR App Modernization & Vulnerability Reduction - Phase 2

Labor	0	0	0	0
Non-Labor	0	3,270	4,000	4,000
NSE	0	0	0	0
Total	0	3,270	4,000	4,000
FTE	0.0	0.0	0.0	0.0

00920AV App Modernization & Vulnerability Reduction - Phase 1

Labor	0	0	0	0
Non-Labor	0	259	0	0
NSE	0	0	0	0
Total	0	259	0	0
FTE	0.0	0.0	0.0	0.0

00920BK RAMP - Noggin Phase 3B

Labor	0	331	713	0
Non-Labor	0	510	2,035	0
NSE	0	0	0	0
Total	0	841	2,748	0
FTE	0.0	2.7	5.9	0.0

00921G Application Factory - Utility Operations

Labor	0	0	0	0
Non-Labor	0	1,400	600	0
NSE	0	0	0	0
Total	0	1,400	600	0
FTE	0.0	0.0	0.0	0.0

00925B RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022

Labor	0	82	114	0
Non-Labor	0	439	0	0
NSE	0	0	0	0
Total	0	521	114	0
FTE	0.0	0.7	0.9	0.0

00925E RAMP - Emergency Communications Microwave (MW) Auto Alignment Systems

Labor	0	241	93	0
Non-Labor	0	221	0	0
NSE	0	0	0	0
Total	0	462	93	0
FTE	0.0	2.0	0.8	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

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

00925F RAMP - Juniper 2022 Equipment Replacement Agreement

Labor	0	0	0	0
Non-Labor	0	1,193	1,193	1,193
NSE	0	0	0	0
Total	0	1,193	1,193	1,193
FTE	0.0	0.0	0.0	0.0

00925H RAMP - Network Time Protocol (NTP) Clock Refresh

Labor	0	228	0	0
Non-Labor	0	249	0	0
NSE	0	0	0	0
Total	0	477	0	0
FTE	0.0	1.9	0.0	0.0

00925I RAMP - Transmission Communications Reliability Improvement (TCRI) 2022

Labor	0	1,028	0	0
Non-Labor	0	3,385	0	0
NSE	0	0	0	0
Total	0	4,413	0	0
FTE	0.0	8.5	0.0	0.0

00925J RAMP - Transmission Communications Reliability Improvement (TCRI) 2023

Labor	0	0	1,028	0
Non-Labor	0	0	3,385	0
NSE	0	0	0	0
Total	0	0	4,413	0
FTE	0.0	0.0	8.6	0.0

00925K RAMP - Transmission Communications Reliability Improvement (TCRI) 2024

Labor	0	0	0	1,028
Non-Labor	0	0	0	3,385
NSE	0	0	0	0
Total	0	0	0	4,413
FTE	0.0	0.0	0.0	8.6

00925L RAMP - Local Area Network (LAN) Refresh 2022

Labor	0	484	203	493
Non-Labor	0	3,250	4,042	4,452
NSE	0	0	0	0
Total	0	3,734	4,245	4,945
FTE	0.0	4.0	1.7	4.1

00925M RAMP - Field Area Network (FAN) Voice & Dispatch - Phase 2

Labor	0	256	0	0
Non-Labor	0	10,101	0	0
NSE	0	0	0	0
Total	0	10,357	0	0
FTE	0.0	2.1	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
00925N RAMP - Data Center Network (DCN) Core Refresh				
Labor	0	310	0	0
Non-Labor	0	2,689	0	0
NSE	0	0	0	0
Total	0	2,999	0	0
FTE	0.0	2.6	0.0	0.0
00925Q RAMP - Telecom Site Improvements				
Labor	0	67	0	0
Non-Labor	0	1,768	3,721	3,721
NSE	0	0	0	0
Total	0	1,835	3,721	3,721
FTE	0.0	0.6	0.0	0.0
00925R RAMP - Wide Area Network (WAN) Refresh				
Labor	0	395	128	132
Non-Labor	0	2,100	2,800	2,900
NSE	0	0	0	0
Total	0	2,495	2,928	3,032
FTE	0.0	3.3	1.1	1.1
00925T RAMP - Call Recording System Refresh				
Labor	0	60	0	0
Non-Labor	0	211	0	0
NSE	0	0	0	0
Total	0	271	0	0
FTE	0.0	0.5	0.0	0.0
00908H RAMP - Emergency Response Commander Trucks				
Labor	0	138	0	0
Non-Labor	0	211	0	0
NSE	0	0	0	0
Total	0	349	0	0
FTE	0.0	1.1	0.0	0.0
00925S RAMP - EVC and GC Telecom Security Remediation				
Labor	0	7	0	0
Non-Labor	0	43	0	0
NSE	0	0	0	0
Total	0	50	0	0
FTE	0.0	0.1	0.0	0.0
00907A IT Quality and Continuous Testing Platforms				
Labor	0	109	29	0
Non-Labor	0	1,858	750	995
NSE	0	0	0	0
Total	0	1,967	779	995
FTE	0.0	0.9	0.2	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
00908B RAMP - Digital Workspace				
Labor	0	1,515	0	0
Non-Labor	0	9,179	0	0
NSE	0	0	0	0
Total	0	10,694	0	0
FTE	0.0	12.6	0.0	0.0
00921C DevSecOps SCM GitHub				
Labor	0	181	248	0
Non-Labor	0	2,741	2,753	0
NSE	0	0	0	0
Total	0	2,922	3,001	0
FTE	0.0	1.5	2.1	0.0
00921D Test Acceleration Enablement (TAE) with DevSecOps				
Labor	0	112	138	142
Non-Labor	0	1,404	1,347	1,584
NSE	0	0	0	0
Total	0	1,516	1,485	1,726
FTE	0.0	0.9	1.1	1.2
00921I Test Acceleration Enablement (TAE)				
Labor	0	8	0	0
Non-Labor	0	106	0	0
NSE	0	0	0	0
Total	0	114	0	0
FTE	0.0	0.1	0.0	0.0
00921L Source Code Management & DevOps Implementation				
Labor	0	56	0	0
Non-Labor	0	306	0	0
NSE	0	0	0	0
Total	0	362	0	0
FTE	0.0	0.5	0.0	0.0
00907M Cloud Data Lake				
Labor	0	0	0	0
Non-Labor	0	0	2,500	2,500
NSE	0	0	0	0
Total	0	0	2,500	2,500
FTE	0.0	0.0	0.0	0.0
00920AL Virtual Reality Expansion				
Labor	0	109	0	0
Non-Labor	0	2,389	0	0
NSE	0	0	0	0
Total	0	2,498	0	0
FTE	0.0	0.9	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

	In 2021\$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
00920BB RAMP - Energy Transition Digital Twin				
Labor	0	86	86	86
Non-Labor	0	1,900	1,900	1,900
NSE	0	0	0	0
Total	0	1,986	1,986	1,986
FTE	0.0	0.7	0.7	0.7
00920BC RAMP - Digital Process Automation				
Labor	0	0	0	0
Non-Labor	0	4,950	4,950	4,853
NSE	0	0	0	0
Total	0	4,950	4,950	4,853
FTE	0.0	0.0	0.0	0.0
00920BD Foundational Analytics for Safety, Compliance and Efficiency				
Labor	0	0	0	0
Non-Labor	0	6,642	5,767	5,867
NSE	0	0	0	0
Total	0	6,642	5,767	5,867
FTE	0.0	0.0	0.0	0.0
00920BE RAMP - Advanced Data and Decision Modeling				
Labor	0	0	0	0
Non-Labor	0	1,235	3,960	3,960
NSE	0	0	0	0
Total	0	1,235	3,960	3,960
FTE	0.0	0.0	0.0	0.0
00920BF RAMP - Decision Analytics & Situational Awareness				
Labor	0	0	0	0
Non-Labor	0	1,736	1,536	1,536
NSE	0	0	0	0
Total	0	1,736	1,536	1,536
FTE	0.0	0.0	0.0	0.0
00920BH RAMP - Situational Awareness Dashboards				
Labor	0	0	0	0
Non-Labor	0	524	0	0
NSE	0	0	0	0
Total	0	524	0	0
FTE	0.0	0.0	0.0	0.0
00920P RAMP - Digital Asset and Damages Detection Platform				
Labor	0	0	0	0
Non-Labor	0	4,505	3,680	3,680
NSE	0	0	0	0
Total	0	4,505	3,680	3,680
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: INFORMATION TECHNOLOGY
Witness: William J. Exon
Category: O. Information Technology
Workpaper: VARIOUS

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

00921AA OpenShift Modernization on AWS (ROSA)

Labor	0	14	0	0
Non-Labor	0	357	0	0
NSE	0	0	0	0
Total	0	371	0	0
FTE	0.0	0.1	0.0	0.0

00921E Digital Service Integration Platform

Labor	0	0	0	0
Non-Labor	0	1,550	1,550	1,550
NSE	0	0	0	0
Total	0	1,550	1,550	1,550
FTE	0.0	0.0	0.0	0.0

00921F Data Governance Tools & Framework

Labor	0	0	0	0
Non-Labor	0	2,550	2,250	2,250
NSE	0	0	0	0
Total	0	2,550	2,250	2,250
FTE	0.0	0.0	0.0	0.0

00921R Business Adaptation Technologies & Digitalization

Labor	0	0	0	0
Non-Labor	0	1,415	1,190	1,190
NSE	0	0	0	0
Total	0	1,415	1,190	1,190
FTE	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00907K - SAP Computing Resource and Storage Expansion

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907K - SAP Computing Resource and Storage Expansion

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	100	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,978	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	2,078	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0

Business Purpose:

This project addresses the post Customer Information System (CIS) replacement computing and storage growth in the data center. This growth is due to increasing operational functionality that resulted in a need for additional computing resources for the new CIS and the dependent systems.

Physical Description:

The scope of the project includes additional computing and storage resource capacity, approximately adding 900 TB of Pure storage in the data center for the new CIS system.

This project impacts two servers over the project duration.

The internal labor costs for this project are driven by various resources such as infrastructure engineers and support.

Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and prepaid maintenance.

This is a non-shared asset.

Project Justification:

This project increases computing and storage resource capacity to support additional development and organic growth.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00907.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00907K - SAP Computing Resource and Storage Expansion

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00907K**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907K - SAP Computing Resource and Storage Expansion
 Workpaper Detail: 00907K.001 - SAP Computing Resource and Storage Expansion HW Labor
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		100	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	100	0	0
FTE		0.8	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907K - SAP Computing Resource and Storage Expansion
 Workpaper Detail: 00907K.002 - SAP Computing Resource and Storage Expansion HW Purchase
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,555	0	0
NSE		0	0	0
	Total	1,555	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907K - SAP Computing Resource and Storage Expansion
 Workpaper Detail: 00907K.003 - SAP Computing Resource and Storage Expansion HW NL Services
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		211	0	0
NSE		0	0	0
	Total	211	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907K - SAP Computing Resource and Storage Expansion
 Workpaper Detail: 00907K.004 - SAP Computing Resource and Storage Expansion HW Maintenance
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		212	0	0
NSE		0	0	0
	Total	212	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00907N - Microsoft Enterprise Agreement

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907N - Microsoft Enterprise Agreement

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	0	27,900	0	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	27,900	0	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project covers licensing and subscriptions required for select Microsoft software products across the Company. A Microsoft license is essential and required for each employee and contractor to enable productivity and complete common digital tasks in the workplace.

Physical Description:

The Microsoft Enterprise Agreement (EA) covers select software and subscriptions used Company-wide including:

- 1) Microsoft 365 (formerly Office 365)
- 2) Desktop and server Operating Systems
- 3) System Center Configuration Manager
- 4) SQL server licensing
- 5) Visual Studio
- 6) Power Business Intelligence (BI) Premium
- 7) Remote Desktop Services

This project includes one agreement for licensing and subscription renewal. There are no internal labor costs for this project.

The non-labor costs for this project are driven by Microsoft product licensing and prepaid SaaS (Software as a Service) subscription.

This is a non-shared asset.

Project Justification:

This project meets required licensing to promote collaboration, productivity, security, infrastructure, and monitoring. If we do not renew prior to 12/2022 we have a significant risk to Company operations and will be out of compliance with Microsoft.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00907.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00907N - Microsoft Enterprise Agreement

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00907N**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907N - Microsoft Enterprise Agreement
 Workpaper Detail: 00907N.001 - Microsoft NL SW Licenses
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		27,900	0	0
NSE		0	0	0
	Total	27,900	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
009070 - Microsoft 365 Service Management

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907O - Microsoft 365 Service Management

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	17	0	0
Non-Labor	Zero-Based	0	0	0	0	0	319	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	336	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This project started in 2021. This project enables external clients to request and access internal Microsoft 365 and SharePoint resources through an automated process. This project speeds up provisioning while enforcing standards and incorporating a dashboard feature to centralize reporting functions.

Physical Description:

The scope of this project includes integration with various SharePoint and Microsoft resources. This includes provisioning with enforced and preferred configuration management.

This project enables one application over the project duration.

The internal labor costs for this project are driven by various resources such as architects and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services, software, hardware, and prepaid maintenance.

This is a shared asset.

Project Justification:

This project allows for self-provisioning and self-management capabilities that enhance the customer user experience. This project improves reporting efficiency and enables external collaboration for third party and affiliates with affiliate compliance controls.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00907.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00907O - Microsoft 365 Service Management

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 009070**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00907O - Microsoft 365 Service Management
 Workpaper Detail: 00907O.001 - M365 Service Mgmt & Governance
 In-Service Date: 03/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		17	0	0
Non-Labor		319	0	0
NSE		0	0	0
	Total	336	0	0
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908AA - RAMP - Network Attached Storage (NAS) Modernization

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AA - RAMP - Network Attached Storage (NAS) 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	0	0	0	215	0	0
Non-Labor	Zero-Based	0	0	0	0	0	578	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	793	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 started in 2021. This project modernizes our existing Network Attached Storage (NAS) to migrate from on-premise to the Cloud.

Physical Description:

The scope of this project includes a refresh of the existing NAS systems and develop an approach for migrating frozen data to the Cloud from the NAS.

This project adds six nodes of hardware over the project duration.

The internal labor costs for this project are driven by various resources such as technologists, application developers, information security engineers, integration consultants, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services.

This is a shared asset.

Project Justification:

This project leverages Cloud economies of scale and reduces the on-premise NAS footprint in the primary and secondary data-centers. The project improves the long-term storage requirements by migrating required storage from hard assets on-premise to virtual storage owned and maintained by a third-party.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908AA - RAMP - Network Attached Storage (NAS) Modernization

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908AA**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AA - RAMP - Network Attached Storage (NAS) Modernization
 Workpaper Detail: 00908AA.001 - RAMP NAS Modernization
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		215	0	0
Non-Labor		578	0	0
NSE		0	0	0
	Total	793	0	0
FTE		1.8	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AA - RAMP - Network Attached Storage (NAS) Modernization
 Workpaper Detail: 00908AA.001 - RAMP NAS Modernization

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 1

RAMP Line Item Name: Data Center Modernization

Tranche(s): Tranche1: NA

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	2,565	793	0	0	793	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Nodes	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 6 nodes of hardware over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00908AC - RAMP - IT Converged Infrastructure Compute Capacity Expansion

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AC - RAMP - IT Converged Infrastructure Compute Capacity Expansion

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	105	0	0
Non-Labor	Zero-Based	0	0	0	0	0	88	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	193	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0

Business Purpose:

This project started in 2021. This project includes the purchase of additional storage and compute capacity for the primary and secondary data centers. This purchase supports the converged infrastructure growth requirements and allows for optimal utilization of storage, which should remain below 70%.

Physical Description:

The scope of this project includes storage expansion for converged infrastructure at both the primary and secondary data centers.

This project impacts two data centers over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, and infrastructure technologists. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, vendor services, and hardware prepaid maintenance costs.

This is a non-shared asset.

Project Justification:

This project improves performance, increases availability and reliability to meet system demands and allows for capacity to be under 70% utilization.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908AC - RAMP - IT Converged Infrastructure Compute Capacity Expansion

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908AC**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AC - RAMP - IT Converged Infrastructure Compute Capacity Expansion
 Workpaper Detail: 00908AC.001 - RAMP VX Compute Capacity Expansion
 In-Service Date: 05/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		105	0	0
Non-Labor		88	0	0
NSE		0	0	0
	Total	193	0	0
FTE		0.9	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AC - RAMP - IT Converged Infrastructure Compute Capacity Expansion
 Workpaper Detail: 00908AC.001 - RAMP VX Compute Capacity Expansion

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 1
 RAMP Line Item Name: Data Center Modernization
 Tranche(s): Tranche1: NA

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	2,820	193	0	0	193	0	0

Cost Estimate Changes from RAMP:

Project expended to 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 Data centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 data centers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00908AE - RAMP - Digi Remote Manager 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AE - RAMP - Digi Remote Manager 2022

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	164	0	0
Non-Labor	Zero-Based	0	0	0	0	0	333	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	497	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0

Business Purpose:

This project started in 2021. This project phase (year 2022) includes the deployment of software licensing through a Network Services Platform (NSP) for field and data center network Out of Band Management (OOBM) devices at the Company service territories. Integrating OOBM devices into an NSP allows our Network Operations Center (NOC) to monitor and remotely manage the network devices to ensure we are compliant with Cybersecurity audit requirements.

Physical Description:

The scope of this project includes the deployment of software licensing through an NSP, for select field and data center network OOBM devices. This project also leverages an NSP for automated and manual OOBM device inventory input, 24/7 alerts/alarm monitoring, firmware and security patching, remote management, and timely troubleshooting.

This project consists of installing approximately 250 devices over the project duration.

The internal labor costs for this project are driven by various resources such as information security engineers, network engineers, architects, analysts, technologists, union laborers and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, software licenses, prepaid hardware and software maintenance and vendor services.

This is a shared asset.

Project Justification:

This project provides reliable and secure management, device inventory, and remote monitoring of field and data center network OOBM devices.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908AE - RAMP - Digi Remote Manager 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908AE**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AE - RAMP - Digi Remote Manager 2022
 Workpaper Detail: 00908AE.001 - RAMP DIGI REMOTE MANAGER
 In-Service Date: 09/30/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	164	0	0
Non-Labor	333	0	0
NSE	0	0	0
Total	497	0	0
FTE	1.3	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908AE - RAMP - Digi Remote Manager 2022
 Workpaper Detail: 00908AE.001 - RAMP DIGI REMOTE MANAGER

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 3
 RAMP Line Item Name: Monitoring Systems and Services
 Tranche(s): Tranche1: NA

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	430	497	0	0	497	0	0

Cost Estimate Changes from RAMP:

Project extended to 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 Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units is approximately 250 devices over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00908C - RAMP - Virtual Desktop Expansion (VDI) - Phase 2

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908C - RAMP - Virtual Desktop Expansion (VDI) - Phase 2

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	0	0	0	0	0	1,550	1,550	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,550	1,550	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project expands the enterprise Virtual Desktop Infrastructure (VDI) Platform, making Citrix the single VDI Platform for the Company.

Physical Description:

This project converts the current VMware Environment and de-commissions the legacy VDI Environment. This builds out redundant Disaster Recovery (DR) capability and implements a Quality Assurance (QA) and Development (dev) environment.

This project activates approximately 2500 VDI's over the project duration.

The internal labor costs for this project are driven by various resources such as architects, network engineers and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, prepaid maintenance and vendor services.

This is a shared asset.

Project Justification:

This project includes new capabilities such as Bring Your Own Device (BYOD) for IT contractors and supports 3D rendering requirements. It also reduces desktop provisioning time for contractors onboarding thereby increasing productivity.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908C - RAMP - Virtual Desktop Expansion (VDI) - Phase 2

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908C**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908C - RAMP - Virtual Desktop Expansion (VDI) - Phase 2
 Workpaper Detail: 00908C.001 - CITRIX VIRTUAL DESKTOP EXPANSION (VDI) - PHASE 2 HW NL Services RAMP
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	400	400
NSE		0	0	0
	Total	0	400	400
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908C - RAMP - Virtual Desktop Expansion (VDI) - Phase 2
 Workpaper Detail: 00908C.001 - CITRIX VIRTUAL DESKTOP EXPANSION (VDI) - PHASE 2 HW NL Services RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 6

RAMP Line Item Name: End User Access and Supporting Services

Tranche(s): Tranche1: NA

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	1,550	1,550	3,100	5,583	7,134

Cost Estimate Changes from RAMP:

Lower forecast

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 Instances	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year, subsequently, the total work units are approximately 2,500 virtual desktop instances (VDI) over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908C - RAMP - Virtual Desktop Expansion (VDI) - Phase 2
 Workpaper Detail: 00908C.002 - CITRIX VIRTUAL DESKTOP EXPANSION (VDI) - PHASE 2 HW Purchase (Same RAMP item as 00908C.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

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

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908C - RAMP - Virtual Desktop Expansion (VDI) - Phase 2
 Workpaper Detail: 00908C.003 - CITRIX VIRTUAL DESKTOP EXPANSION (VDI) - PHASE 2 HW Maintenance (Same RAMP item as 00908C.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	150	150
NSE		0	0	0
	Total	0	150	150
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908F - RAMP - Emergency Communications Enhancements

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908F - RAMP - Emergency Communications Enhancements

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	119	0	0
Non-Labor	Zero-Based	0	0	0	0	0	744	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	863	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0

Business Purpose:

This project started in 2021. This project enhances the existing emergency communications infrastructure to allow emergency response personnel to communicate through mobile devices.

Physical Description:

This project upgrades existing equipment for emergency mobile communications to ensure we can provide for fire emergencies and business continuity.

This project completes five trailers over the project duration.

The internal labor costs for this project are driven by various resources such as technologists, architects, program managers, and network engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, prepaid maintenance, contract labor, and vendor services.

This is a shared asset.

Project Justification:

This project enables Company site business continuity, better situational awareness for emergency and first responders utilizing the emergency communications network. Additionally, the project allows for enhanced command and control of emergency response personnel and equipment.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908F - RAMP - Emergency Communications Enhancements

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908F**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908F - RAMP - Emergency Communications Enhancements
 Workpaper Detail: 00908F.001 - Emergency Communications Enhancements RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	119	0	0
Non-Labor	339	0	0
NSE	0	0	0
Total	458	0	0
FTE	1.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908F - RAMP - Emergency Communications Enhancements
 Workpaper Detail: 00908F.001 - Emergency Communications Enhancements RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 9
 RAMP Line Item Name: Emergency Operations Center (EOC) Technology Resiliency
 Tranche(s): Tranche1: NA

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	863	0	0	863	0	0

Cost Estimate Changes from RAMP:

New Project identified for RAMP

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 Trailers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 5 trailers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908F - RAMP - Emergency Communications Enhancements
 Workpaper Detail: 00908F.002 - Emergency Communications Enhancements HW Purchase (Same RAMP item as 00908F.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		340	0	0
NSE		0	0	0
	Total	340	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908F - RAMP - Emergency Communications Enhancements
 Workpaper Detail: 00908F.003 - Emergency Communications Enhancements HW Maintenance(Same RAMP item as 00908F.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		65	0	0
NSE		0	0	0
	Total	65	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023

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	64	0
Non-Labor	Zero-Based	0	0	0	0	0	0	2,016	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	2,080	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0

Business Purpose:

This project creates a Network Attached Storage (NAS) Compliance Tier to store NAS data that requires full Federal Information Processing Standards (FIPS) compliance.

Physical Description:

This project includes planning, procuring, and implementing a new NAS Compliance tier to be installed in the primary and secondary data centers.

This project impacts two data centers over the project duration.

The internal labor costs for this project are driven by various resources such as information security engineers, technologists, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, prepaid maintenance and licenses, and vendor services.

This is a shared asset.

Project Justification:

This project meets FIPS 140-2 Compliance requirements by encrypting data at rest using cryptography.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908G**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023
 Workpaper Detail: 00908G.001 - NAS Stringent Compliance Tier 2023 HW Labor RAMP
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	64	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	64	0
FTE		0.0	0.5	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023
 Workpaper Detail: 00908G.001 - NAS Stringent Compliance Tier 2023 HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 1

RAMP Line Item Name: Data Center Modernization

Tranche(s): Tranche1: NA

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	2,080	0	2,080	0	0

Cost Estimate Changes from RAMP:

New project identified for RAMP

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 Data centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 data centers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023
 Workpaper Detail: 00908G.002 - NAS Stringent Compliance Tier 2023 HW NL Services (Same RAMP item as 00908G.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	299	0
NSE		0	0	0
	Total	0	299	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023
 Workpaper Detail: 00908G.003 - NAS Stringent Compliance Tier 2023 HW Purchase (Same RAMP item as 00908G.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	1,431	0
NSE		0	0	0
	Total	0	1,431	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908G - RAMP - Network Attached Storage (NAS) Stringent Compliance Tier 2023
 Workpaper Detail: 00908G.004 - NAS Stringent Compliance Tier 2023 HW Maintenance (Same RAMP item as 00908G.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	286	0
NSE		0	0	0
	Total	0	286	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022

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	0	567	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	629	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0

Business Purpose:

This project expands capacity on the existing primary production Elastic Cloud Storage (ECS) clusters to accommodate additional long-term backup retention needs.

Physical Description:

This project includes planning, procuring, and implementing additional physical storage capacity in two production ECS clusters. This project adds approximately 1,000 TB of capacity for customer allocation to new and existing storage pools and buckets via new Dell ECS nodes.

The project impacts two data centers over the project duration.

The internal labor costs for this project are driven by various resources such as architects, information security engineers, project managers, and technologists. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, prepaid maintenance, and vendor services.

This is a shared asset.

Project Justification:

This project enables long-term retention requirements for critical backup data and increases the reliability and resiliency of on-premise data protection services.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908I**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022
 Workpaper Detail: 00908I.001 - ECS Capacity Expansion 2022 HW Labor RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		62	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	62	0	0
FTE		0.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022
 Workpaper Detail: 00908I.001 - ECS Capacity Expansion 2022 HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 1

RAMP Line Item Name: Data Center Modernization

Tranche(s): Tranche1: NA

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	629	0	0	629	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Data centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 data centers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022
 Workpaper Detail: 00908I.002 - ECS Capacity Expansion 2022 HW NL Services (Same RAMP item as 00908I.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		154	0	0
NSE		0	0	0
	Total	154	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022
 Workpaper Detail: 00908I.003 - ECS Capacity Expansion 2022 HW Purchase (Same RAMP item as 00908I.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		344	0	0
NSE		0	0	0
	Total	344	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908I - RAMP - Elastic Cloud Storage (ECS) Capacity Expansion 2022
 Workpaper Detail: 00908I.004 - ECS Capacity Expansion 2022 HW Maintenance (Same RAMP item as 00908I.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		69	0	0
NSE		0	0	0
	Total	69	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023

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	64	0
Non-Labor	Zero-Based	0	0	0	0	0	0	567	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	631	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0

Business Purpose:

This project consists of a technical refresh to Elastic Cloud Storage (ECS EX300) hardware located at the primary and secondary data centers.

Physical Description:

This project includes the planning, procurement, and implementation of a tech refresh located at the primary and secondary data centers. This project adds approximately 1,000 TB of storage capacity.

The project impacts two data centers over the project duration.

The internal labor costs for this project are driven by various resources including one or more architects, information security engineers, project managers, and technologists. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, prepaid maintenance, and vendor services.

This is a shared asset.

Project Justification:

This project reduces operational risk and increases business continuity by replacing legacy hardware that is reaching end of life with more efficient hardware.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908J**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023
 Workpaper Detail: 00908J.001 - ECS EX300 Hardware Refresh 2023 HW Labor RAMP
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	64	0
Non-Labor	0	0	0
NSE	0	0	0
Total	0	64	0
FTE	0.0	0.5	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023
 Workpaper Detail: 00908J.001 - ECS EX300 Hardware Refresh 2023 HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 1

RAMP Line Item Name: Data Center Modernization

Tranche(s): Tranche1: NA

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	631	0	631	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Data centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 data centers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023
 Workpaper Detail: 00908J.002 - ECS EX300 Hardware Refresh 2023 HW NL Services (Same RAMP item as 00908J.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	154	0
NSE		0	0	0
	Total	0	154	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023
 Workpaper Detail: 00908J.003 - ECS EX300 Hardware Refresh 2023 HW Purchase (Same RAMP item as 00908J.001)
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	344	0
NSE		0	0	0
	Total	0	344	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908J - RAMP - Elastic Cloud Storage (ECS) EX300 Hardware Refresh 2023
 Workpaper Detail: 00908J.004 - ECS EX300 Hardware Refresh 2023 HW Maintenance (Same RAMP item as 00908J.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	69	0
NSE		0	0	0
	Total	0	69	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022

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	0	487	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	549	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0

Business Purpose:

This project creates a Network Attached Storage (NAS) Archive to relocate data that should not leave the on-premise data center infrastructure.

Physical Description:

This project includes planning, procurement, and implementation of an archive tier for NAS data that cannot be moved off-premises. This project adds approximately 1,000 TB of capacity.

This project impacts two data centers over the project duration.

The internal labor costs for this project are driven by various resources such as architects, information security engineers, project managers, and technologists. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, prepaid maintenance, and vendor services.

This is a shared asset.

Project Justification:

This project augments existing NAS overall capacity and automates transparent data migration to lowest cost storage.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908K**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022
 Workpaper Detail: 00908K.001 - NAS Archive Tier 2022 HW Labor RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		62	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	62	0	0
FTE		0.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022
 Workpaper Detail: 00908K.001 - NAS Archive Tier 2022 HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 1

RAMP Line Item Name: Data Center Modernization

Tranche(s): Tranche1: NA

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	549	0	0	549	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Data centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 data centers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022
 Workpaper Detail: 00908K.002 - NAS Archive Tier 2022 HW NL Services (Same RAMP item as 00908K.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		229	0	0
NSE		0	0	0
	Total	229	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022
 Workpaper Detail: 00908K.003 - NAS Archive Tier 2022 HW Purchase (Same RAMP item as 00908K.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		215	0	0
NSE		0	0	0
	Total	215	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908K - RAMP - Network Attached Storage (NAS) Archive Tier 2022
 Workpaper Detail: 00908K.004 - NAS Archive Tier 2022 HW Maintenance (Same RAMP item as 00908K.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		43	0	0
NSE		0	0	0
	Total	43	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency
Workloads Tier 2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 2023

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	64	0
Non-Labor	Zero-Based	0	0	0	0	0	0	1,710	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	1,774	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0

Business Purpose:

This project creates a separate Network Attached Storage (NAS) for high performing workloads. This storage would be isolated from all the general-purpose workload contention, requiring low-latency response times.

Physical Description:

This project consists of planning, procuring, and implementing a net new NAS solution to be installed in the primary and secondary data centers.

This project impacts two data centers over the project duration.

The internal labor costs for this project are driven by various resources such as architects, information security engineers, project managers, and technologists. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, license cost, prepaid maintenance, and vendor services.

This is a shared asset.

Project Justification:

This project provides a NAS environment that delivers higher performance to the most demanding workloads with minimal contention to other transactions and simplifies the upgrade process.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908L**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 2023
 Workpaper Detail: 00908L.001 - NAS Isolated Hi-Perf-Low-Latency Workloads Tier 2023 HW Labor RAMP
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	64	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	64	0
FTE		0.0	0.5	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 2023
 Workpaper Detail: 00908L.001 - NAS Isolated Hi-Perf-Low-Latency Workloads Tier 2023 HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 1
 RAMP Line Item Name: Data Center Modernization
 Tranche(s): Tranche1: NA

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	1,775	0	1,775	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Data centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 data centers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 2023
 Workpaper Detail: 00908L.002 - NAS Isolated Hi-Perf-Low-Latency Workloads Tier 2023 HW NL Services (Same RAMP item as 00908L.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	274	0
NSE		0	0	0
	Total	0	274	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 2023
 Workpaper Detail: 00908L.003 - NAS Isolated Hi-Perf-Low-Latency Workloads Tier 2023 HW Purchase (Same RAMP item as 00908L.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	1,197	0
NSE		0	0	0
	Total	0	1,197	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908L - RAMP - Network Attached Storage (NAS) Isolated Hi-Perf-Low-Latency Workloads Tier 2023
 Workpaper Detail: 00908L.004 - NAS Isolated Hi-Perf-Low-Latency Workloads Tier 2023 HW Maintenance (Same RAMP item as 00908L.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	239	0
NSE		0	0	0
	Total	0	239	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
009080 - RAMP - Digi Remote Manager 2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908O - RAMP - Digi Remote Manager 2023

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	220	0
Non-Labor	Zero-Based	0	0	0	0	0	0	1,053	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	1,273	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0

Business Purpose:

This project phase (year 2023) includes the deployment of software licensing through a Network Services Platform (NSP), for field and data center network Out of Band Management (OOBM) devices at the Company service territories. Integrating OOBM devices into an NSP allows our Network Operations Center (NOC) to monitor and remotely manage the network devices to ensure we are compliant with Cybersecurity audit requirements.

Physical Description:

The scope of this project includes the deployment of software licensing through an NSP, for select field and data center network OOBM devices. This project also leverages an NSP for automated and manual OOBM device inventory input, 24/7 alerts/alarm monitoring, firmware and security patching, remote management, and timely troubleshooting.

This project consists of installing approximately 250 devices.

The internal labor costs for this project are driven by various resources such as information security engineers, network engineers, architects, analysts, technologists, union laborers and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, software licenses, prepaid hardware and software maintenance and vendor services.

This is a shared asset.

Project Justification:

This project provides reliable and secure management, device inventory, and remote monitoring of field and data center network OOBM devices.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908O - RAMP - Digi Remote Manager 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

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

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908O - RAMP - Digi Remote Manager 2023
 Workpaper Detail: 00908O.001 - Digi Remote Manager 2023 HW Labor RAMP
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	220	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	220	0
FTE		0.0	1.8	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908O - RAMP - Digi Remote Manager 2023
 Workpaper Detail: 00908O.001 - Digi Remote Manager 2023 HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 3

RAMP Line Item Name: Monitoring Systems and Services

Tranche(s): Tranche1: NA

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	1,273	0	1,273	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units is approximately 250 devices over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908O - RAMP - Digi Remote Manager 2023
 Workpaper Detail: 00908O.002 - Digi Remote Manager 2023 HW NL Services (Same RAMP item as 00908O.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	993	0
NSE		0	0	0
	Total	0	993	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908O - RAMP - Digi Remote Manager 2023
 Workpaper Detail: 00908O.003 - Digi Remote Manager 2023 HW Purchase (Same RAMP item as 00908O.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	60	0
NSE		0	0	0
	Total	0	60	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00908U - IT Small Capital**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908U - IT Small Capital

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	0	300	0	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	300	0	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project started in 2020. This project addresses routine customer operational issues, network improvements, information security, faster service delivery, collaboration, and innovation.

Physical Description:

The primary use of this project is to purchase replacements or security improvements for defective, broken, or expired infrastructure. This includes net new hardware and/or enhanced platform security features with newer code versions to ensure compliance with vendor hardware compatibility, component integration, security compliance monitoring, inoperability validation reducing the risk of outages induced by untested or incompatible firmware of code releases or defects, through functionality and regression testing.

This project includes multiple releases addressing specific business requirements.

Each release includes internal labor costs that are driven by required support for project management and technology implementation of hardware or enhanced platform security features. Internal labor roles and allocations may vary.

The non-labor costs for these releases are driven by hardware and prepaid maintenance.

This is a non-shared asset.

Project Justification:

This project makes improvements to the overall performance of the network and systems, thereby making it easier for employees to do their job more effectively and efficiently.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908U - IT Small Capital

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908U**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908U - IT Small Capital
 Workpaper Detail: 00908U.001 - SDGE 2020 SMALL CAP HW NL Services
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		300	0	0
NSE		0	0	0
	Total	300	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908V - RAMP - Middleware Platforms Disaster Recovery 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908V - RAMP - Middleware Platforms Disaster Recovery 2022

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	82	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,030	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,112	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 enables business teams to use Middleware platforms and core services on demand for Disaster Recovery (DR).

Physical Description:

This project includes planning, designing, building and implementing Disaster Recovery (DR) for Middleware Platforms at the secondary data center.

This project impacts one data center over the duration of the project.

The internal labor costs for this project are driven by various resources such as product owners, scrum masters, project managers, architects, middleware architects, middleware engineers, and strategy architects. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by software, and licensing.

This is a shared asset.

Project Justification:

This project develops a comprehensive Middleware Platform Disaster Recovery environment and enables application teams to create a reliable Disaster Recovery plan. Executing on the DR plan results in minimal outage time for Middleware core services during a DR event.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908V - RAMP - Middleware Platforms Disaster Recovery 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908V**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908V - RAMP - Middleware Platforms Disaster Recovery 2022
 Workpaper Detail: 00908V.001 - Middleware Platforms DR 2022 SW Labor RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		82	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	82	0	0
FTE		0.7	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908V - RAMP - Middleware Platforms Disaster Recovery 2022
 Workpaper Detail: 00908V.001 - Middleware Platforms DR 2022 SW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 7
 RAMP Line Item Name: IT Service Continuity
 Tranche(s): Tranche1: NA

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	1,112	0	0	1,112	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Data Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 contract over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908V - RAMP - Middleware Platforms Disaster Recovery 2022
 Workpaper Detail: 00908V.002 - Middleware Platforms DR 2022 SW NL Services (Same RAMP item as 00908V.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,030	0	0
NSE		0	0	0
	Total	1,030	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908W - RAMP - Infrastructure as a Service (IaaS) Implementation

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908W - RAMP - Infrastructure as a Service (IaaS) Implementation

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	0	0	2,000	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	2,000	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project provides prepaid infrastructure in Amazon Web Services (AWS) for critical applications to migrate to the Cloud. Additionally, this project enables faster delivery of this infrastructure through a standard consumption and pricing model.

Physical Description:

The scope of this project includes an agreement with AWS for fixed based pricing of various compute types .

This project impacts various Reserved Instances (RI's) of mixed types based on application requirements for compute through one IaaS agreement.

There are no internal labor costs for this project.

The non-labor costs for this project are driven by the IaaS (Infrastructure as a Service) subscription.

This is a shared asset.

Project Justification:

Pricing for infrastructure in the Cloud varies over time. Leveraging a pre-paid amount of compute via a Reserved Instance (RI) allows the business to plan for and commit to a specific consumption over a fixed period achieving discounted pricing. If the organization does not reserve instances, the costs would be significantly higher and unpredictable.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908W - RAMP - Infrastructure as a Service (IaaS) Implementation

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908W**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908W - RAMP - Infrastructure as a Service (IaaS) Implementation
 Workpaper Detail: 00908W.001 - RAMP - IAAS Infrastructure as a Service Implementation IaaS
 In-Service Date: 12/31/2024
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

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

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908W - RAMP - Infrastructure as a Service (IaaS) Implementation
 Workpaper Detail: 00908W.001 - RAMP - IAAS Infrastructure as a Service Implementation IaaS

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 8

RAMP Line Item Name: Cloud Resiliency Services

Tranche(s): Tranche1: NA

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	2,000	2,000	1,956	2,500

Cost Estimate Changes from RAMP:

Within the 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 Contract	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units is 1 contract over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00908X - RAMP - Cloud Foundations

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908X - RAMP - Cloud Foundations

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	365	274	274
Non-Labor	Zero-Based	0	0	0	0	0	5,603	4,538	5,038
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	5,968	4,812	5,312
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.0	2.3	2.3

Business Purpose:

This project started in 2020 and establishes a bridge from on-premise capabilities to Cloud services. It provides a hybrid Cloud environment capable of quickly provisioning or recovering IT services to support business needs more efficiently .

Examples of demand for additional Cloud services from business units include where applicable:

- 1) Infrastructure as a Service (IaaS) - Data archiving, disaster recovery, business continuity
- 2) Platform as a Service (PaaS) - Database as a service, analytics, web application development
- 3) Software as a Service (SaaS) – Standardized on-boarding and integration support

Physical Description:

- 1) Establish bridge for up to three new Cloud providers that align to established governance
- 2) Design and build suitable workloads to verified Cloud providers
- 3) Prepare select Business Applications for Cloud enablement
- 4) Establish minimum baseline funding for key Cloud service providers
- 5) Implement Cloud resources in service catalog
- 6) Update security and performance monitoring tools
- 7) Redesign security, operations, and content management policies
- 8) Develop design patterns, templates, and other development accelerators to deploy and administer Cloud services

This project activates three Cloud environments over the project duration.

The internal labor costs for this project are driven by various resources such as architects, information security engineers, project managers and analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services and SaaS subscription.

This is a shared asset.

Project Justification:

- 1) Strategic alignment with data center modernization
- 2) Enhanced Innovation – Offering greater breadth of IT services and delivery agility
- 3) Improved Reliability - High availability of applications for disaster recovery or performance spikes
- 4) Operations Excellence – Automation of provisioning, monitoring, cost allocation and deprovisioning of services and licenses

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908X - RAMP - Cloud Foundations

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908X**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908X - RAMP - Cloud Foundations
 Workpaper Detail: 00908X.001 - RAMP - Cloud Foundation SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	365	274	274
Non-Labor	5,603	4,538	5,038
NSE	0	0	0
Total	5,968	4,812	5,312
FTE	3.0	2.3	2.3

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908X - RAMP - Cloud Foundations
 Workpaper Detail: 00908X.001 - RAMP - Cloud Foundation SW Development

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 8
 RAMP Line Item Name: Cloud Resiliency Services
 Tranche(s): Tranche1: NA

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	12,442	5,968	4,812	5,312	16,092	0	0

Cost Estimate Changes from RAMP:

Project scope expands and continues to 2022, 2023 and 2024

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 Environments	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 3 Cloud environments over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00908Y - RAMP - Lifecycle Management Data Platform

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Y - RAMP - Lifecycle Management Data Platform

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	42	0	0
Non-Labor	Zero-Based	0	0	0	0	0	282	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	324	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Business Purpose:

This project started in 2021. This project automates, catalogs, and manages lifecycle information for technology assets. This project provides automated dashboards with an enterprise view of technology asset lifecycles by category and provides details for every deployed hardware model and software version that has reached end of support.

Physical Description:

The scope of this project includes automating, normalizing, and categorizing a catalog of hardware and software. This project also automates manufacturer lifecycle management of hardware, software, and integrates the data management platform with various other Company systems. Additionally, this project normalizes architectural components, discovers end of support for architectural components and standardizes taxonomy for hardware and software component naming conventions.

This project addresses two applications over the project duration.
 The internal labor costs for this project are driven by various resources such as architects, project managers and analysts. Internal labor roles and allocations may vary.
 The non-labor costs for this project are driven by vendor services, hardware, software, and prepaid maintenance.
 This is a shared asset.

Project Justification:

This project automates technology categorization, data quality management, and stack detection. The project also allows for better planning of technology upgrades based on technology end of support dates. Additionally, this project automates on demand reporting to view and manage technology lifecycle information, reduce technical risk and vulnerabilities. Lastly, this project creates comprehensive architecture diagrams with up-to-date component information.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908Y - RAMP - Lifecycle Management Data Platform

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908Y**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Y - RAMP - Lifecycle Management Data Platform
 Workpaper Detail: 00908Y.001 - RAMP - Flexera Data Platform (Technopedia) SW Labor
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		42	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	42	0	0
FTE		0.3	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Y - RAMP - Lifecycle Management Data Platform
 Workpaper Detail: 00908Y.001 - RAMP - Flexera Data Platform (Technopedia) SW Labor

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 7
 RAMP Line Item Name: IT Service Continuity
 Tranche(s): Tranche1: NA

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	324	0	0	324	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 2 applications over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Y - RAMP - Lifecycle Management Data Platform
 Workpaper Detail: 00908Y.002 - RAMP - Flexera Data Platform (Technopedia) SW NL Services (Same RAMP item as 00908Y.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		282	0	0
NSE		0	0	0
	Total	282	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908Z - Telecom Asset Management Capabilities

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Z - Telecom Asset Management Capabilities

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	0	0	0	0	0	1,400	300	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,400	300	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

The current network and communication records are not incorporated into a geospatially aware system, resulting in disjointed communication system planning, construction, outage planning and troubleshooting.

This project started in 2021. This project builds a geospatially aware communications record system.

Physical Description:

- 1) Create network and communications asset data
- 2) Develop a geospatial database to store and manage the records
- 3) Develop a visualization of network and communications asset data
- 4) Create a system and process for submission, initiation, resolution, and closure for fiber communication outages
- 5) Enable delivery of Geographic Information System (GIS) fiber manager advance capabilities

This project enhances one application over the project duration.

There is no internal labor cost for this project.

The non-labor costs for this project are driven by hardware purchases, software licensing, prepaid maintenance and vendor professional services for software developers, database administrators, and domain architects.

This is a shared asset.

Project Justification:

- 1) Provides better coordination and timing for fiber deployments
- 2) Provides a clear and quick process to submit IT outages for fiber assets
- 3) Provides ability to troubleshoot and resolve fiber communications outages
- 4) Offers a pre-requisite for advanced capabilities offered by fiber manager within GIS

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00908Z - Telecom Asset Management Capabilities

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908Z**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00908Z - Telecom Asset Management Capabilities
 Workpaper Detail: 00908Z.001 - Telecomm Asset Management Capabilities
 In-Service Date: 03/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,400	300	0
NSE		0	0	0
	Total	1,400	300	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AR - App Modernization & Vulnerability Reduction - Phase 2

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AR - App Modernization & Vulnerability Reduction - Phase 2

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	0	0	0	0	0	3,270	4,000	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	3,270	4,000	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project started in 2021. This project (phase 2) modernizes select legacy on-premise applications. The applications were identified as having out of support technology software components including operating systems, programming languages, utilities and databases that have reached end of support, putting the systems at risk.

Physical Description:

The scope of this project includes utilizing industry standard technology stacks, application frameworks, infrastructure and software development techniques to improve the reliability, robustness, maintainability, flexibility and user experience of the modernized applications.

This project impacts approximately 25 applications over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, architects, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for implementation, development, and IT quality assurance.

This is a shared asset.

Project Justification:

This project utilizes common components shared amongst the applications to optimize development efforts. This project also enhances user interfaces and navigation frameworks that improve user experience and productivity. The new application structure makes it easier to enhance and integrate with other applications. These improvements benefit SDG&E customers by reducing the ongoing costs to support and maintain the software.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AR - App Modernization & Vulnerability Reduction - Phase 2

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AR**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AR - App Modernization & Vulnerability Reduction - Phase 2
 Workpaper Detail: 00920AR.001 - SDGE App Mod & Vulnerability Reduction Phase II
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		3,270	0	0
NSE		0	0	0
	Total	3,270	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AR - App Modernization & Vulnerability Reduction - Phase 2
 Workpaper Detail: 00920AR.002 - SDGE App Mod & Vulnerability Reduction Phase II
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	4,000	0
NSE		0	0	0
	Total	0	4,000	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AR - App Modernization & Vulnerability Reduction - Phase 2
 Workpaper Detail: 00920AR.003 - SDGE App Mod & Vulnerability Reduction Phase II
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	4,000
NSE		0	0	0
	Total	0	0	4,000
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AV - App Modernization & Vulnerability Reduction - Phase 1

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AV - App Modernization & Vulnerability Reduction - Phase 1

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	0	0	0	0	0	259	0	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	259	0	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project started in 2021. This project (phase I) modernizes up to 13 legacy on-premise applications. The applications were identified as having out of support technology software components including operating systems, programming languages, utilities and databases that have reached end of support, putting the systems at risk.

Physical Description:

The scope of this project includes utilizing industry standard technology stacks, application frameworks, infrastructure and software development techniques to improve the reliability, robustness, maintainability, flexibility and user experience of the modernized applications.

This project includes approximately 13 applications over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, developers, architects, business analysts and information security engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for implementation and IT quality assurance .

This is a non-shared asset.

Project Justification:

This project utilizes common components shared amongst the applications to optimize development efforts . This project also enhances user interfaces and navigation frameworks that improve user experience and productivity. The new application structure makes it easier to enhance and integrate with other applications. These improvements benefit SDG&E customers by reducing the ongoing costs to support and maintain the software.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920AV - App Modernization & Vulnerability Reduction - Phase 1

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AV**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920AV - App Modernization & Vulnerability Reduction - Phase 1
 Workpaper Detail: 00920AV.001 - App Modernization and Vulnerability Reduction-SDGE
 In-Service Date: 01/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		259	0	0
NSE		0	0	0
	Total	259	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BK - RAMP - Noggin Phase 3B

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BK - RAMP - Noggin Phase 3B

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	331	713	0
Non-Labor	Zero-Based	0	0	0	0	0	510	2,035	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	841	2,748	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.7	5.9	0.0

Business Purpose:

The Noggin system phase 1, implemented in 2019, supports mission critical functions in the Emergency Operations Center (EOC) for tracking, managing, and reporting incidents. Noggin Phase 2 implemented a system upgrade in 2020 for SDG&E with the digitization of about less than ten SDG&E incident management forms for the Emergency Management team.

The Noggin Phase 3B will introduce additional digitized forms specific for the SDG&E Service Dispatch and Area Resource Service Operators (ARSO) teams for incident tracking to meet regulatory compliance.

Physical Description:

- 1) Digitize 10-15 SDG&E specific incident tracking forms
- 2) Build workflows, dashboards, and notifications to provide situational awareness and automated reporting functionalities to address business and compliance requirements.
- 3) Build less than 5 priority integrations with CIS replacement system, Send Word Now, and KorTerra.

This project impacts one application over the project duration.

The internal labor costs for this project are driven by various resources such as IT project managers, business managers, and business systems analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by Software as a Service (SaaS) subscription, vendor services for system configuration, project implementation, and system testing support.

This is a non-shared asset.

Project Justification:

The project will meet mandatory business requirements to support SDG&E Service Dispatch and ARSO teams for incident tracking by digitalizing SDG&E specific incident tracking forms, workflows, and dashboards to support streamlined business processes. This project streamlines the process for customers to report safety incidents and on-demand situational awareness to meet compliance and safety requirements.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00920BK - RAMP - Noggin Phase 3B

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BK**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BK - RAMP - Noggin Phase 3B
 Workpaper Detail: 00920BK.001 - RAMP - Noggin Ph 3B
 In-Service Date: 11/30/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	331	713	0
Non-Labor	510	2,035	0
NSE	0	0	0
Total	841	2,748	0
FTE	2.7	5.9	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00920BK - RAMP - Noggin Phase 3B
 Workpaper Detail: 00920BK.001 - RAMP - Noggin Ph 3B

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 9
 RAMP Line Item Name: Emergency Operations Center (EOC) Technology Resiliency
 Tranche(s): Tranche1: NA

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	841	2,748	0	3,589	3,807	4,864

Cost Estimate Changes from RAMP:
 Lower forecast

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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
 Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 application over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:
 Not Applicable

Beginning of Workpaper Group
00921G - Application Factory - Utility Operations

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921G - Application Factory - Utility Operations

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	0
Non-Labor	Zero-Based	0	0	0	0	0	1,400	600	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,400	600	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This project modernizes and improves the reliability, security, and performance of on-premise utility operations applications to the Cloud.

Physical Description:

The scope of this project includes refactoring and migrating on-premise applications to Cloud native technologies and enhancements to the user interface for an improved user experience.

This project impacts approximately 12 applications over the project duration.

There is no internal labor cost for this project.

The non-labor costs for this project are driven by vendor services for application development, Cloud architecture and testing services.

This is a non-shared asset.

Project Justification:

This project enables the rapid development and deployment of new solutions in support of reducing technical and operational risk as well as transforming the user experience.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00921G - Application Factory - Utility Operations

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921G**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921G - Application Factory - Utility Operations
 Workpaper Detail: 00921G.001 - Application Factory - Utility Operations SW Development
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,400	0	0
NSE		0	0	0
	Total	1,400	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00921G - Application Factory - Utility Operations
 Workpaper Detail: 00921G.002 - Application Factory - Utility Operations SW Development
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

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

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925B - RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925B - RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022

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	82	114	0
Non-Labor	Zero-Based	0	0	0	0	0	439	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	521	114	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.7	0.9	0.0

Business Purpose:

This project consists of an upgrade to the current Software Defined Wide Area Network (SDWAN) management appliance, transitioning from an on-premise to Cloud based solution.

Physical Description:

The scope of this project includes a hardware refresh for the data center, upgrading the smaller remote units in the emergency vehicle fleet and moving the orchestration from on-premise to a Cloud-based solution.

This project impacts one data center over the project duration.

The internal labor costs for this project are driven by various resources including one or more network engineers, technologists, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services.

This is a shared asset.

Project Justification:

This project enables decommissioning of old data center infrastructure (migration from old perimeter to new perimeter) and increases resiliency in the form of supporting operations out of more than just the secondary data center.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925B - RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925B**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925B - RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022
 Workpaper Detail: 00925B.001 - Silver Peak SDWAN Implementation 2022 Hardware Purchase RAMP
 In-Service Date: 10/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		34	0	0
NSE		0	0	0
	Total	34	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925B - RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022
 Workpaper Detail: 00925B.001 - Silver Peak SDWAN Implementation 2022 Hardware Purchase RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 2

RAMP Line Item Name: Network & Voice System Resiliency

Tranche(s): Tranche1: NA

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	522	115	0	637	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Data center	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 data center over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925B - RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022
 Workpaper Detail: 00925B.002 - Silver Peak SDWAN Implementation 2022 SW NL Services (Same RAMP item as 00925B.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

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

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925B - RAMP - Software Defined Wide Area Network (SD-WAN) Implementation 2022
 Workpaper Detail: 00925B.003 - Silver Peak SDWAN Implementation 2022 Hardware Labor (Same RAMP item as 00925B.001)
 In-Service Date: 10/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		82	114	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	82	114	0
FTE		0.7	0.9	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925E - RAMP - Emergency Communications Microwave (MW) Auto Alignment
Systems

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925E - RAMP - Emergency Communications Microwave (MW) Auto Alignment Systems

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	241	93	0
Non-Labor	Zero-Based	0	0	0	0	0	221	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	462	93	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.0	0.8	0.0

Business Purpose:

This project improves Company emergency communications systems for increased reliability, improved performance and user safety.

Physical Description:

The scope of this project includes upgrading Microwave (MW) antenna systems on the Tactical Communications Trailers (TCT) with antenna positioner systems designed to automatically point and peak directional antennas for microwave line of sight communications.

This project completes eight TCTs for the project duration.

The internal labor costs for this project are driven by various resources such as architects, project managers, and analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services for implementation.

This is a shared asset.

Project Justification:

This project improves reliability and performance of the backhaul microwave solution. Additionally, this project improves efficiency and accuracy by automatically pointing to the microwave line of site communications thereby improving user safety.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925E - RAMP - Emergency Communications Microwave (MW) Auto Alignment Systems

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925E**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925E - RAMP - Emergency Communications Microwave (MW) Auto Alignment Systems
 Workpaper Detail: 00925E.001 - Emergency Communications Microwave(MW) Auto Alignment Systems HW Purchase
 RAMP
 In-Service Date: 04/30/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		202	0	0
NSE		0	0	0
	Total	202	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925E - RAMP - Emergency Communications Microwave (MW) Auto Alignment Systems
 Workpaper Detail: 00925E.001 - Emergency Communications Microwave(MW) Auto Alignment Systems HW Purchase RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	74	462	93	0	555	7,290	9,315

Cost Estimate Changes from RAMP:

Lower forecast

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 Trailers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 8 trailers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925E - RAMP - Emergency Communications Microwave (MW) Auto Alignment Systems
 Workpaper Detail: 00925E.002 - Emergency Communications Microwave(MW) Auto Alignment Sys W NL Srvcs (Same RAMP item as 00925E.001)
 In-Service Date: 04/30/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		19	0	0
NSE		0	0	0
	Total	19	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925E - RAMP - Emergency Communications Microwave (MW) Auto Alignment Systems
 Workpaper Detail: 00925E.003 - Emergency Communications Microwave(MW) Auto Alignment Systems HW Lbr (Same RAMP item as 00925E.001)
 In-Service Date: 04/30/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		241	93	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	241	93	0
FTE		2.0	0.8	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925F - RAMP - Juniper 2022 Equipment Replacement Agreement

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925F - RAMP - Juniper 2022 Equipment Replacement Agreement

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	0	1,193	1,193	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,193	1,193	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project is for the annual Juniper Equipment Replacement agreement. When a Juniper device on the Company network fails this contract allows us to trade that device into Juniper for a new one allowing us to keep our network up and running.

Physical Description:

This project includes the replacement of failed Juniper hardware pieces within the designated time frame.

This project includes one contract over the duration of the project.

There are no internal labor costs for this project.

The non-labor costs for this project are driven by hardware replacement agreement.

This is a non-shared asset.

Project Justification:

This project enables timely replacement of failed production hardware reducing operational risk to the Company network and systems running on the network.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925F - RAMP - Juniper 2022 Equipment Replacement Agreement

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925F**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925F - RAMP - Juniper 2022 Equipment Replacement Agreement
 Workpaper Detail: 00925F.001 - Juniper 2022 Equipment Replacement Contract Hardware NL Services RAMP
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,193	1,193	1,193
NSE		0	0	0
	Total	1,193	1,193	1,193
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925F - RAMP - Juniper 2022 Equipment Replacement Agreement
 Workpaper Detail: 00925F.001 - Juniper 2022 Equipment Replacement Contract Hardware NL Services RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	1,193	1,193	1,193	1,193	3,579	830	1,061

Cost Estimate Changes from RAMP:

Recurring projects identified for RAMP

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 Contracts	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work unit is 1 contract over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00925H - RAMP - Network Time Protocol (NTP) Clock Refresh

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925H - RAMP - Network Time Protocol (NTP) Clock Refresh

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	228	0	0
Non-Labor	Zero-Based	0	0	0	0	0	249	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	477	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0

Business Purpose:

This project is to upgrade the Network Time Protocol (NTP) clocks and their corresponding antennas.

Physical Description:

The scope of this project includes the replacement and upgrade of various discontinued and/ or out of support NTP clocks and their corresponding antennas.

This project impacts approximately 12 sites over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, analysts, and technologists. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and prepaid maintenance.

This is a shared asset.

Project Justification:

Precision timing is necessary to mitigate delays, communication errors and slips.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925H - RAMP - Network Time Protocol (NTP) Clock Refresh

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925H**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925H - RAMP - Network Time Protocol (NTP) Clock Refresh
 Workpaper Detail: 00925H.001 - NTP Clock Refresh Hardware NL Services RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		249	0	0
NSE		0	0	0
	Total	249	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925H - RAMP - Network Time Protocol (NTP) Clock Refresh
 Workpaper Detail: 00925H.001 - NTP Clock Refresh Hardware NL Services RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 2

RAMP Line Item Name: Network & Voice System Resiliency

Tranche(s): Tranche1: NA

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	477	0	0	477	0	0

Cost Estimate Changes from RAMP:

New projects identified for RAMP

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 Sites	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 12 sites over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925H - RAMP - Network Time Protocol (NTP) Clock Refresh
 Workpaper Detail: 00925H.002 - NTP Clock Refresh Hardware Labor (Same RAMP item as 00925H.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		228	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	228	0	0
FTE		1.9	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group

00925I - RAMP - Transmission Communications Reliability Improvement (TCRI) 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925I - RAMP - Transmission Communications Reliability Improvement (TCRI) 2022

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	1,028	0	0
Non-Labor	Zero-Based	0	0	0	0	0	3,385	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	4,413	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	8.5	0.0	0.0

Business Purpose:

This project standardizes the network communications equipment and monitoring by replacing the legacy network communication inter-site and intra-site infrastructure and allows the Companies Network Operation Center (NOC) to better monitor network infrastructure and isolate and troubleshoot network issues. The project further addresses single points of failure in the network by providing diverse communication paths, and intelligent rerouting.

Physical Description:

Phase V of this project designs, implements, and commissions standardized communication infrastructure developed during previous phases of this project for additional substations and telecom sites. All remaining legacy telecommunications equipment shall be decommissioned and removed from the field after the Multiprotocol Label Switching (MPLS) network has been fully implemented.

This project impacts four sites in 2022.

The internal labor costs for this project are driven by various resources such as architects, project managers, information security engineers, and various other supporting engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, and vendor services for design, architecture, and implementation.

This is a non-shared asset.

Project Justification:

This project enables faster provisioning and prioritization of communications services and provides increased monitoring and visibility into the wide area network. Additionally, this project improves the availability and reliability of Supervisory Control and Data Acquisition (SCADA) communications and teleprotection relay traffic between substations.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 009251 - RAMP - Transmission Communications Reliability Improvement (TCRI) 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925I**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 009251 - RAMP - Transmission Communications Reliability Improvement (TCRI) 2022
 Workpaper Detail: 009251.001 - TCRI 2022 Hardware Purchase RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		400	0	0
NSE		0	0	0
	Total	400	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925I - RAMP - Transmission Communications Reliability Improvement (TCRI) 2022
 Workpaper Detail: 00925I.001 - TCRI 2022 Hardware Purchase RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	4,413	0	0	4,413	6,509	8,317

Cost Estimate Changes from RAMP:

Lower forecast

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 Sites	0.00	4.00	0.00	0.00	4.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing. Total work units are 4 sites for the year.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 009251 - RAMP - Transmission Communications Reliability Improvement (TCRI) 2022
 Workpaper Detail: 009251.002 - TCRI 2022 Hardware NL Services (Same RAMP item as 009251.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		2,985	0	0
NSE		0	0	0
	Total	2,985	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925I - RAMP - Transmission Communications Reliability Improvement (TCRI) 2022
 Workpaper Detail: 00925I.003 - TCRI 2022 Hardware Labor (Same RAMP item as 00925I.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		1,028	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	1,028	0	0
FTE		8.5	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group

00925J - RAMP - Transmission Communications Reliability Improvement (TCRI) 2023

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925J - RAMP - Transmission Communications Reliability Improvement (TCRI) 2023

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	1,028	0
Non-Labor	Zero-Based	0	0	0	0	0	0	3,385	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	4,413	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.0

Business Purpose:

This project standardizes the network communications equipment and monitoring by replacing the legacy network communication inter-site and intra-site infrastructure and allows the Companies Network Operation Center (NOC) to better monitor network infrastructure and isolate and troubleshoot network issues. The project further addresses single points of failure in the network by providing diverse communication paths, and intelligent rerouting.

Physical Description:

Phase VI of this project designs, implements, and commissions standardized communication infrastructure developed during previous phases of this project for additional substations and telecom sites. All remaining legacy telecommunications equipment shall be decommissioned and removed from the field after the Multiprotocol Label Switching (MPLS) network has been fully implemented.

This project impacts five sites in 2023.

The internal labor costs for this project are driven by various resources such as architects, project managers, information security engineers, and various other supporting engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, and vendor services for design, architecture, and implementation.

This is a non-shared asset.

Project Justification:

This project enables faster provisioning and prioritization of communications services and provides increased monitoring and visibility into the wide area network. Additionally, this project improves the availability and reliability of Supervisory Control and Data Acquisition (SCADA) communications and teleprotection relay traffic between substations.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925J - RAMP - Transmission Communications Reliability Improvement (TCRI) 2023

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925J**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925J - RAMP - Transmission Communications Reliability Improvement (TCRI) 2023
 Workpaper Detail: 00925J.001 - TCRI 2023 Hardware Purchase RAMP
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	400	0
NSE		0	0	0
	Total	0	400	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925J - RAMP - Transmission Communications Reliability Improvement (TCRI) 2023
 Workpaper Detail: 00925J.001 - TCRI 2023 Hardware Purchase RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 2

RAMP Line Item Name: Network & Voice System Resiliency

Tranche(s): Tranche1: NA

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	4,413	0	4,413	8,910	11,385

Cost Estimate Changes from RAMP:

Lower forecast

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 Sites	0.00	0.00	5.00	0.00	5.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing. Total work units are 5 sites for the year.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925J - RAMP - Transmission Communications Reliability Improvement (TCRI) 2023
 Workpaper Detail: 00925J.002 - TCRI 2023 (P) Hardware Labor (Same RAMP item as 00925J.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	1,028	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	1,028	0
FTE		0.0	8.6	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925J - RAMP - Transmission Communications Reliability Improvement (TCRI) 2023
 Workpaper Detail: 00925J.003 - TCRI 2023 (P) Hardware NL Services (Same RAMP item as 00925J.001)
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	2,985	0
NSE		0	0	0
	Total	0	2,985	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925K - RAMP - Transmission Communications Reliability Improvement (TCRI) 2024

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925K - RAMP - Transmission Communications Reliability Improvement (TCRI) 2024

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	1,028	
Non-Labor	Zero-Based	0	0	0	0	0	0	3,385	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	4,413	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	8.6	

Business Purpose:

This project standardizes the network communications equipment and monitoring by replacing the legacy network communication inter-site and intra-site infrastructure and allows the Companies Network Operation Center (NOC) to better monitor network infrastructure and isolate and troubleshoot network issues. The project further addresses single points of failure in the network by providing diverse communication paths, and intelligent rerouting.

Physical Description:

Phase VII of this project designs, implements, and commissions standardized communication infrastructure developed during previous phases of this project for additional substations and telecom sites. All remaining legacy telecommunications equipment shall be decommissioned and removed from the field after the Multiprotocol Label Switching (MPLS) network has been fully implemented.

This project impacts five sites in 2024.

The internal labor costs for this project are driven by various resources such as architects, project managers, information security engineers, and various other supporting engineers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, and vendor services for design, architecture, and implementation.

This is a non-shared asset.

Project Justification:

This project enables faster provisioning and prioritization of communications services and provides increased monitoring and visibility into the wide area network. Additionally, this project improves the availability and reliability of Supervisory Control and Data Acquisition (SCADA) communications and teleprotection relay traffic between substations.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925K - RAMP - Transmission Communications Reliability Improvement (TCRI) 2024

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925K**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925K - RAMP - Transmission Communications Reliability Improvement (TCRI) 2024
 Workpaper Detail: 00925K.001 - TCRI 2024 (P) Hardware Purchase RAMP
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	400
NSE		0	0	0
	Total	0	0	400
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925K - RAMP - Transmission Communications Reliability Improvement (TCRI) 2024
 Workpaper Detail: 00925K.001 - TCRI 2024 (P) Hardware Purchase RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 2

RAMP Line Item Name: Network & Voice System Resiliency

Tranche(s): Tranche1: NA

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	4,413	4,413	9,720	12,420

Cost Estimate Changes from RAMP:

Lower forecast

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 Sites	0.00	0.00	0.00	5.00	5.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing. Total work units are 5 sites for the year.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925K - RAMP - Transmission Communications Reliability Improvement (TCRI) 2024
 Workpaper Detail: 00925K.002 - TCRI 2024 (P) Hardware Labor (Same RAMP item as 00925K.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	1,028
Non-Labor		0	0	0
NSE		0	0	0
	Total	0	0	1,028
FTE		0.0	0.0	8.6

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925K - RAMP - Transmission Communications Reliability Improvement (TCRI) 2024
 Workpaper Detail: 00925K.003 - TCRI 2024 (P) Hardware NL Services (Same RAMP item as 00925K.001)
 In-Service Date: 12/31/2024
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	2,985
NSE		0	0	0
	Total	0	0	2,985
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925L - RAMP - Local Area Network (LAN) Refresh 2022

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925L - RAMP - Local Area Network (LAN) Refresh 2022

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	484	203	493
Non-Labor	Zero-Based	0	0	0	0	0	3,250	4,042	4,452
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	3,734	4,245	4,945
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.0	1.7	4.1

Business Purpose:

This project replaces end of support Local Area Network (LAN) switches and upgrades the Wireless Local Area Network (WLAN) with newer switches and Access Points (AP) for Company employees and contractors.

Physical Description:

The scope of this project includes replacement of End of Support (EOS) LAN switches, installation of new WLAN switches, and replacement of older wireless APs.

This project upgrades approximately 10 sites over the project duration.

The internal labor costs for this project are driven by various resources such as network engineers, infrastructure technologists, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, prepaid maintenance, and vendor services for architecture, design, and implementation.

This is a non-shared asset.

Project Justification:

This project provides enhanced wireless coverage and a higher Service Level Availability (SLA) to end users. This project also decreases the business risk by reducing outages caused by aging equipment and reduces complexity of operational support by implementing a single network device management system.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925L - RAMP - Local Area Network (LAN) Refresh 2022

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925L**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925L - RAMP - Local Area Network (LAN) Refresh 2022
 Workpaper Detail: 00925L.001 - SDGE LAN Refresh 2022 Hardware Purchase RAMP
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		400	2,300	2,300
NSE		0	0	0
	Total	400	2,300	2,300
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925L - RAMP - Local Area Network (LAN) Refresh 2022
 Workpaper Detail: 00925L.001 - SDGE LAN Refresh 2022 Hardware Purchase RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	3,734	4,245	4,945	12,924	9,720	12,420

Cost Estimate Changes from RAMP:
 Higher forecast

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 Sites	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
 Units were not defined during RAMP because we were unable to break it out by year , subsequently, the total work units are approximately 10 sites over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:
 NA

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925L - RAMP - Local Area Network (LAN) Refresh 2022
 Workpaper Detail: 00925L.002 - SDGE LAN Refresh 2022 Hardware NL Services (Same RAMP item as 00925L.001)
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		2,770	1,282	1,692
NSE		0	0	0
	Total	2,770	1,282	1,692
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925L - RAMP - Local Area Network (LAN) Refresh 2022
 Workpaper Detail: 00925L.003 - SDGE LAN Refresh 2022 Hardware Labor (Same RAMP item as 00925L.001)
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		484	203	493
Non-Labor		0	0	0
NSE		0	0	0
	Total	484	203	493
FTE		4.0	1.7	4.1

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925L - RAMP - Local Area Network (LAN) Refresh 2022
 Workpaper Detail: 00925L.004 - SDGE LAN Refresh 2022 HW Maintenance (Same RAMP item as 00925L.001)
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		80	460	460
NSE		0	0	0
	Total	80	460	460
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925M - RAMP - Field Area Network (FAN) Voice & Dispatch - Phase 2

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925M - RAMP - Field Area Network (FAN) Voice & Dispatch - Phase 2

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	256	0	0
Non-Labor	Zero-Based	0	0	0	0	0	10,101	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	10,357	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0

Business Purpose:

This project started in 2020. This project upgrades the existing unsupported Field Area Network (FAN) voice and dispatch system. The two-way radio system is necessary for continued field crew safety during emergencies and critical gas and electric daily operations.

Physical Description:

- 1) Replace and/or upgrade handheld and vehicle radios
- 2) Enhance coverage model with additional sites.
- 3) Enable georedundant radio cores at datacenters.
- 4) Enhance interoperability with private LTE and SDG&E Regional Communication System (RCS) 800Mhz radios.

This project includes approximately 30 sites over the project duration.
 The internal labor costs for this project are driven by various resources such as architects, information security engineers, network engineers, project managers, and technologists. Internal labor roles and allocations may vary.
 The non-labor costs for this project are driven by hardware and vendor services for architecture, design, and implementation.
 This is a shared asset.

Project Justification:

This project supports reliable means of voice communications and dispatch for day-to-day operations, as well as emergency response. Additionally, this project doubles the call capacity and increases coverage area and LTE interoperability.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925M - RAMP - Field Area Network (FAN) Voice & Dispatch - Phase 2

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925M**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925M - RAMP - Field Area Network (FAN) Voice & Dispatch - Phase 2
 Workpaper Detail: 00925M.001 - SDG&E FIELD AREA NETWORKS VOICE & DISP PH 2 HW NL Services RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		10,101	0	0
NSE		0	0	0
	Total	10,101	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925M - RAMP - Field Area Network (FAN) Voice & Dispatch - Phase 2
 Workpaper Detail: 00925M.001 - SDG&E FIELD AREA NETWORKS VOICE & DISP PH 2 HW NL Services RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	9,922	10,357	0	0	10,357	0	0

Cost Estimate Changes from RAMP:

Project continues to 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 Sites	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 30 sites over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925M - RAMP - Field Area Network (FAN) Voice & Dispatch - Phase 2
 Workpaper Detail: 00925M.002 - SDG&E FIELD AREA NETWORKS VOICE & DISP PH 2 HW LABOR (Same RAMP item as 00925M.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		256	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	256	0	0
FTE		2.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925N - RAMP - Data Center Network (DCN) Core Refresh

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925N - RAMP - Data Center Network (DCN) Core Refresh

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	310	0	0
Non-Labor	Zero-Based	0	0	0	0	0	2,689	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	2,999	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0

Business Purpose:

This project started in 2020. This project upgrades the existing data center network core to a new platform that aligns with the data center strategy and maximizes the benefits of the converged IT infrastructure .

Physical Description:

The scope of this project includes refreshing the existing data center network core to a new platform. Additionally, the scope includes automation and orchestration of the new network platform with the converged IT infrastructure .

This project impacts two data centers over the project duration. There are no internal labor costs for this project. The non-labor costs for this project are driven by vendor services and hardware including fiber, switches, optics line cards and cabling, and spine racks. This is a shared asset.

Project Justification:

This project improves network stability, reliability, resiliency, and uptime. This project also minimizes downtime during migration and upgrades, reduces complexity of configuration, and maximizes high availability.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925N - RAMP - Data Center Network (DCN) Core Refresh

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925N**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925N - RAMP - Data Center Network (DCN) Core Refresh
 Workpaper Detail: 00925N.001 - SDGE DC Network Core Refresh Hardware NL Services RAMP
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		2,689	0	0
NSE		0	0	0
	Total	2,689	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925N - RAMP - Data Center Network (DCN) Core Refresh
 Workpaper Detail: 00925N.001 - SDGE DC Network Core Refresh Hardware NL Services RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 2

RAMP Line Item Name: Network & Voice System Resiliency

Tranche(s): Tranche1: NA

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	8,494	2,999	0	0	2,999	0	0

Cost Estimate Changes from RAMP:

Project continues to 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 Data centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are 2 data centers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925N - RAMP - Data Center Network (DCN) Core Refresh
 Workpaper Detail: 00925N.002 - SDGE DC Network Core Refresh Hardware Labor (Same RAMP item as 00925N.001)
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		310	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	310	0	0
FTE		2.6	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925Q - RAMP - Telecom Site Improvements

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925Q - RAMP - Telecom Site Improvements

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	67	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,768	3,721	3,721
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,835	3,721	3,721
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0

Business Purpose:

This project started in 2021. This project improves infrastructure required at critical telecommunication sites as well as telecommunication services availability levels. These sites support grid communications that are critical to business functions.

Physical Description:

This project upgrades site infrastructure and makes telecommunication site improvements at locations deemed to have the most critical remediation needs.

This project completes approximately 14 sites over the project duration.

The internal labor costs for this project are driven by various resources such as architects, technologists, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services for design, architecture, and implementation.

This is a non-shared asset.

Project Justification:

This project enables higher levels of availability for grid communications that are critical to business functions.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925Q - RAMP - Telecom Site Improvements

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925Q**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925Q - RAMP - Telecom Site Improvements
 Workpaper Detail: 00925Q.001 - SDGE Telecom Site Improvements (P) HW NL Services RAMP
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,768	2,000	2,000
NSE		0	0	0
	Total	1,768	2,000	2,000
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925Q - RAMP - Telecom Site Improvements
 Workpaper Detail: 00925Q.001 - SDGE Telecom Site Improvements (P) HW NL Services RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	2,836	1,836	3,721	3,721	9,278	3,469	4,433

Cost Estimate Changes from RAMP:

Higher forecast

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 Sites	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 14 sites over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925Q - RAMP - Telecom Site Improvements
 Workpaper Detail: 00925Q.002 - SDGE Telecom Site Improvements HW Labor (Same RAMP item as 00925Q.001)
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		67	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	67	0	0
FTE		0.6	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925Q - RAMP - Telecom Site Improvements
 Workpaper Detail: 00925Q.003 - SDGE Telecom Site Improvements HW Purchase (Same RAMP item as 00925Q.001)
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	1,721	1,721
NSE		0	0	0
	Total	0	1,721	1,721
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925R - RAMP - Wide Area Network (WAN) Refresh

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925R - RAMP - Wide Area Network (WAN) Refresh

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	395	128	132
Non-Labor	Zero-Based	0	0	0	0	0	2,100	2,800	2,900
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	2,495	2,928	3,032
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.3	1.1	1.1

Business Purpose:

This project started in 2019. This project replaces end of support Wide Area Network (WAN) routers and firewalls to meet internal compliance requirements. The project also focuses on network resiliency by adding additional telecom connections between the primary and secondary data centers to handle the connections in the event of a telecom circuit failure.

Physical Description:

The scope of this project includes replacement of end of support WAN routers . This project also upgrades microwave links and retrofits specific microwave towers.

This project includes approximately 100 WAN sites over the project duration.

The internal labor costs for this project are driven by various resources such as network engineers, infrastructure technologists, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services for architecture, design, and implementation.

This is a non-shared asset.

Project Justification:

This project provides a higher level of Service Level Availability (SLA) to end users by replacing older equipment. This project decreases the business risk by reducing outages caused by aging equipment.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925R - RAMP - Wide Area Network (WAN) Refresh

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925R**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925R - RAMP - Wide Area Network (WAN) Refresh
 Workpaper Detail: 00925R.001 - SDGE WAN Refresh HW Labor RAMP
 In-Service Date: Not Applicable

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		395	128	132
Non-Labor		0	0	0
NSE		0	0	0
	Total	395	128	132
FTE		3.3	1.1	1.1

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925R - RAMP - Wide Area Network (WAN) Refresh
 Workpaper Detail: 00925R.001 - SDGE WAN Refresh HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	7,400	2,495	2,927	3,032	8,454	12,150	15,525

Cost Estimate Changes from RAMP:

Lower forecast

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 Sites	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 100 sites over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925R - RAMP - Wide Area Network (WAN) Refresh
 Workpaper Detail: 00925R.002 - SDGE WAN Refresh HW NL Services (Same RAMP item as 00925R.001)
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		2,100	2,800	2,900
NSE		0	0	0
	Total	2,100	2,800	2,900
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925T - RAMP - Call Recording System Refresh

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925T - RAMP - Call Recording System Refresh

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	60	0	0
Non-Labor	Zero-Based	0	0	0	0	0	211	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	271	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0

Business Purpose:

This project started in 2021. This project implements mandatory call recording capabilities. This would separate recordings by functional need and utilize the current system for the Company's call center, while migrating compliance recording to the new platform.

Physical Description:

The scope of this project includes the implementation of a call recording management system to record compliance mandated radio and telephone calls.

This project impacts approximately 14 servers over the project duration.

The internal labor costs for this project are driven by various resources such as information security engineers, technologists, network engineers, and project managers. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware and vendor services for implementation.

This is a non-shared asset.

Project Justification:

This project provides a more robust recording system to meet compliance requirements and has the capability to use dedicated recording servers where necessary.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 1. Simplify and Standardize
Workpaper Group: 00925T - RAMP - Call Recording System Refresh

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925T**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925T - RAMP - Call Recording System Refresh
 Workpaper Detail: 00925T.001 - Call Recording System Refresh RAMP
 In-Service Date: 05/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	60	0	0
Non-Labor	211	0	0
NSE	0	0	0
Total	271	0	0
FTE	0.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 1. Simplify and Standardize
 Workpaper Group: 00925T - RAMP - Call Recording System Refresh
 Workpaper Detail: 00925T.001 - Call Recording System Refresh RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 2
 RAMP Line Item Name: Network & Voice System Resiliency
 Tranche(s): Tranche1: NA

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	690	271	0	0	271	405	517

Cost Estimate Changes from RAMP:

Lower forecast

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 Servers	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 14 servers over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

Beginning of Workpaper Group
00908H - RAMP - Emergency Response Commander Trucks

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00908H - RAMP - Emergency Response Commander Trucks

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	138	0	0
Non-Labor	Zero-Based	0	0	0	0	0	211	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	349	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0

Business Purpose:

This project provides internet connectivity to Company vehicles so that users can connect to internal network and Data centers while being out in the field. Secure, encrypted communication will be achieved by leveraging existing Virtual Private Network (VPN) solutions.

Physical Description:

The scope of this project includes retrofitting existing vehicles with necessary network gear to allow users to connect Company-provided laptops to the internet while being out in the field.

This project installs networking hardware for three emergency response vehicles over the project duration. The internal labor costs for this project are driven by various resources such as network engineers and project managers. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by hardware, software, license costs, and prepaid maintenance. This is a shared asset.

Project Justification:

This project allows Company commander crews to conduct business more efficiently while out in the field by being connected to the internal network and data centers.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00908H - RAMP - Emergency Response Commander Trucks

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908H**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00908H - RAMP - Emergency Response Commander Trucks
 Workpaper Detail: 00908H.001 - SDGE Emergency Response Commander Trucks HW Labor RAMP
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		138	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	138	0	0
FTE		1.1	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00908H - RAMP - Emergency Response Commander Trucks
 Workpaper Detail: 00908H.001 - SDGE Emergency Response Commander Trucks HW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 9
 RAMP Line Item Name: Emergency Operations Center (EOC) Technology Resiliency
 Tranche(s): Tranche1: NA

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	349	0	0	349	0	0

Cost Estimate Changes from RAMP:

New project identified for RAMP

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 Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 3 trucks over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00908H - RAMP - Emergency Response Commander Trucks
 Workpaper Detail: 00908H.002 - SDGE Emergency Response Commander Trucks HW NL Services (Same RAMP item as 00908H.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		37	0	0
NSE		0	0	0
	Total	37	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00908H - RAMP - Emergency Response Commander Trucks
 Workpaper Detail: 00908H.003 - SDGE Emergency Response Commander Trucks HW Purchase (Same RAMP item as 00908H.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		145	0	0
NSE		0	0	0
	Total	145	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00908H - RAMP - Emergency Response Commander Trucks
 Workpaper Detail: 00908H.004 - SDGE Emergency Response Commander Trucks HW Maintenance (Same RAMP item as 00908H.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		29	0	0
NSE		0	0	0
	Total	29	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00925S - RAMP - EVC and GC Telecom Security Remediation

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00925S - RAMP - EVC and GC Telecom Security Remediation

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	7	0	0
Non-Labor	Zero-Based	0	0	0	0	0	43	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	50	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This project started in 2020. This project remediates security vulnerabilities that have been identified by the Threat Vulnerability Management (TVM) team on modems used by Electric Volume Correctors (EVC) and Gas Chromatographs (GC).

Physical Description:

The scope of this project includes leveraging the Company's private secured network, such as the advanced Meter network backhaul, established with cellular carriers to remediate the security vulnerabilities with our current IP based communications implementation and old analog dial-up modems. Additionally, the project scope includes implementing security remediation and device segmentation to secure IP based communications, upgrading existing IP based modems to be able to communicate over 4G (LTE), replacing old analog dialup modems with new IP modems, and phasing out analog phone lines, dialup modems and appliances.

This project updates approximately 150 sites to utilize the new secure network over the project duration. The internal labor costs for this project are driven by various resources such as information security engineers, project managers, developers, and analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by hardware, software, and vendor services. This is a non-shared asset.

Project Justification:

This project provides continued Internet Protocol (IP) based communication for noncore volumes and gas quality. Additionally, this project reduces Company risk due to customer data security breach.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00925.0
Category: O. Information Technology
Category-Sub: 2. Proactively Manage Risk
Workpaper Group: 00925S - RAMP - EVC and GC Telecom Security Remediation

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00925S**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00925S - RAMP - EVC and GC Telecom Security Remediation
 Workpaper Detail: 00925S.001 - SDG&E Major Markets EVC GC Telecom Security Remediation RAMP
 In-Service Date: 03/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		7	0	0
Non-Labor		3	0	0
NSE		0	0	0
	Total	10	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: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00925S - RAMP - EVC and GC Telecom Security Remediation
 Workpaper Detail: 00925S.001 - SDG&E Major Markets EVC GC Telecom Security Remediation RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 2

RAMP Line Item Name: Network & Voice System Resiliency

Tranche(s): Tranche1: NA

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	468	50	0	0	50	0	0

Cost Estimate Changes from RAMP:

Project extended to 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 Sites	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 150 sites over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00925.0
 Category: O. Information Technology
 Category-Sub: 2. Proactively Manage Risk
 Workpaper Group: 00925S - RAMP - EVC and GC Telecom Security Remediation
 Workpaper Detail: 00925S.002 - SDG&E Major Markets EVC GC Telecom Security Remediation HW (Same RAMP Item as 00925S.001)
 In-Service Date: 03/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		40	0	0
NSE		0	0	0
	Total	40	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00907A - IT Quality and Continuous Testing Platforms

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00907A - IT Quality and Continuous Testing Platforms

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	109	29	0
Non-Labor	Zero-Based	0	0	0	0	0	1,858	750	995
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,967	779	995
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.9	0.2	0.0

Business Purpose:

Agile and DevSecOps capabilities currently being implemented by the Company highlight a need for additional technology capabilities. These capabilities include further enhancement of test automation of SAP and mobile testing and adding code quality analysis capabilities in support of DevSecOps Continuous Improvement (CI) and Continuous Delivery (CD) pipelines. This project implements and integrates tools and capabilities within our service delivery landscape with new testing platforms.

Physical Description:

This project entails implementing and integrating quality and continuous testing platforms for various application environments including the next generation test automation platform and source code quality coverage tool.

This project implements one testing platform application to be leveraged across multiple environments. The internal labor costs for this project are driven by various resources such as architects, project managers, developers, and analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by software, prepaid maintenance, and vendor services. This is a shared asset.

Project Justification:

This project implementation strengthens the position of the overall business agility transformation while enabling high-quality delivery of an enterprise-scale software testing automation platform. This project also speeds up adoption of continuous testing in agile teams and DevSecOps by introducing next generation test automation and source code quality review tools to our Company's application environments.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00907.0
Category: O. Information Technology
Category-Sub: 3. Transform How We Work
Workpaper Group: 00907A - IT Quality and Continuous Testing Platforms

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00907A**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00907A - IT Quality and Continuous Testing Platforms
 Workpaper Detail: 00907A.001 - IT Quality and Continuous Testing Platforms (Tosca & SonarQube) SaaS Subscription
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,500	0	0
NSE		0	0	0
	Total	1,500	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00907A - IT Quality and Continuous Testing Platforms
 Workpaper Detail: 00907A.002 - IT Quality and Continuous Testing Platforms (Tosca & SonarQube) SW Labor
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		109	29	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	109	29	0
FTE		0.9	0.2	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00907A - IT Quality and Continuous Testing Platforms
 Workpaper Detail: 00907A.003 - IT Quality and Continuous Testing Platforms (Tosca & SonarQube) SW NL Services
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		358	750	995
NSE		0	0	0
	Total	358	750	995
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00908B - RAMP - Digital Workspace

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace

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	1,515	0	0
Non-Labor	Zero-Based	0	0	0	0	0	9,179	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	10,694	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	12.6	0.0	0.0

Business Purpose:

This project started in 2021 and procures, configures, and deploys workstations to Company employees. These workstations include a combination of desktops and laptops with a docking station.

Physical Description:

The scope of this project includes procuring, configuring, and deploying workstations and establishing a centralized workspace management to deploy images, patches, and upgrades.

This project impacts approximately 4,500 devices over the project duration.

The internal labor costs for this project are driven by various resources such as architects, information security engineers, project managers, developers, and analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by hardware, software, vendor services, prepaid maintenance, and SaaS (Software as a Service) subscription.

This is a non-shared asset.

Project Justification:

This project improves client experience, operational efficiency and reduces the risk of technology obsolescence. The project also increases mobility and flexibility for office workers by replacing desktops with laptops.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00908.0
Category: O. Information Technology
Category-Sub: 3. Transform How We Work
Workpaper Group: 00908B - RAMP - Digital Workspace

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00908B**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace
 Workpaper Detail: 00908B.001 - Digital Workspace SDGE SW Labor RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	1,515	0	0
Non-Labor	0	0	0
NSE	0	0	0
Total	1,515	0	0
FTE	12.6	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace
 Workpaper Detail: 00908B.001 - Digital Workspace SDGE SW Labor RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 6
 RAMP Line Item Name: End User Access and Supporting Services
 Tranche(s): Tranche1: NA

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	10,694	0	0	10,694	13,415	17,142

Cost Estimate Changes from RAMP:

Lower forecast

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 Devices	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 4,500 devices over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace
 Workpaper Detail: 00908B.002 - Digital Workspace SDGE SW NL Services (Same RAMP item as 00908B.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		252	0	0
NSE		0	0	0
	Total	252	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace
 Workpaper Detail: 00908B.003 - Digital Workspace SDGE HW Purchase (Same RAMP item as 00908B.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		5,432	0	0
NSE		0	0	0
	Total	5,432	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace
 Workpaper Detail: 00908B.004 - Digital Workspace SDGE HW Maintenance (Same RAMP item as 00908B.001)
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,100	0	0
NSE		0	0	0
	Total	1,100	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace
 Workpaper Detail: 00908B.005 - Digital Workspace SDGE SW license Purchase (Same RAMP item as 00908B.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		2,036	0	0
NSE		0	0	0
	Total	2,036	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00908.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00908B - RAMP - Digital Workspace
 Workpaper Detail: 00908B.006 - Digital Workspace SDGE SW Maintenance (Same RAMP item as 00908B.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		359	0	0
NSE		0	0	0
	Total	359	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

**Beginning of Workpaper Group
00921C - DevSecOps SCM GitHub**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921C - DevSecOps SCM GitHub

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	181	248	0
Non-Labor	Zero-Based	0	0	0	0	0	2,741	2,753	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	2,922	3,001	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.5	2.1	0.0

Business Purpose:

This project enhances our standard enterprise Source Code Management (SCM) repository for managing applications. This project includes establishing and configuring an Azure DevOps pipeline and GitHub repository to enhance our standard source code management repository.

Physical Description:

- 1) Integrate with the following tools: Checkmarx, GitHub Advance Security, CyberArk, and Service Now.
- 2) Standardize SCM and version control tooling, and processes across IT
- 3) Create a Company DevOps Playbook to accelerate the adoption and usage of DevOps tools and practices
- 4) Build DevOps knowledge and skills within Company IT

This project configures one platform for the project duration.
 The internal labor costs for this project are driven by various resources such as architects, project managers and analysts. Internal labor roles and allocations may vary.
 The non-labor costs for this project are driven by vendor services and SaaS subscription.
 This is a shared asset.

Project Justification:

- 1) Enhance our standard source code management repository by extending the existing Azure DevOps (ADO) with GitHub
- 2) Enable self-service capabilities for application teams with Infrastructure as Code (IaC) and Amazon Web Services (AWS)
- 3) Provide Sandbox capabilities for application team testing
- 3) Provide automation capabilities by implementing direct emails to application teams on Splunk monitoring and alerts

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 3. Transform How We Work
Workpaper Group: 00921C - DevSecOps SCM GitHub

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921C**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921C - DevSecOps SCM GitHub
 Workpaper Detail: 00921C.001 - DevSecOps SCM GitHub SW NL SERVICES
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	2,113	2,753	0
NSE	0	0	0
Total	2,113	2,753	0
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921C - DevSecOps SCM GitHub
 Workpaper Detail: 00921C.002 - DevSecOps SCM GitHub SaaS Subscription
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		628	0	0
NSE		0	0	0
	Total	628	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921C - DevSecOps SCM GitHub
 Workpaper Detail: 00921C.004 - DevSecOps SCM GitHub SW Dev LABOR
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)					
	Years	2022	2023	2024	
Labor		181	248	0	
Non-Labor		0	0	0	
NSE		0	0	0	
	Total	181	248	0	
FTE		1.5	2.1	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921D - Test Acceleration Enablement (TAE) with DevSecOps

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921D - Test Acceleration Enablement (TAE) with DevSecOps

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	112	138	142
Non-Labor	Zero-Based	0	0	0	0	0	1,404	1,347	1,584
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,516	1,485	1,726
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.9	1.1	1.2

Business Purpose:

Software testing is largely a manual effort with extensive regression test cycles across projects and programs . System and application issues found during implementations result in re-execution of the regression test cycles that could lead to additional scope and project delays. This project automates system end-to-end testing of critical applications prior to release for production.

Physical Description:

- 1) Automate Smoke Test coverage for Tier 1 & Non-Tier 1 applications
- 2) Create DevSecOps automated continuous testing across Continuous Integration (CI) / Continuous Delivery (CD) pipeline to support high-frequency releases
- 3) Develop automated unit, system, regression, and end to end testing in DevSecOps

This project addresses automated testing for approximately 200 applications over the project duration.
 The internal labor costs for this project are driven by various resources such as architects, project managers, developers, and analysts. Internal labor roles and allocations may vary.
 The non-labor costs for this project are driven by vendor services.
 This is a shared asset.

Project Justification:

This project enables faster delivery of software testing capabilities and enhancements to dashboards and reporting across the organization. This project also enables DevSecOps continuous testing in agile teams to accelerate the qualitative delivery.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 3. Transform How We Work
Workpaper Group: 00921D - Test Acceleration Enablement (TAE) with DevSecOps

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921D**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921D - Test Acceleration Enablement (TAE) with DevSecOps
 Workpaper Detail: 00921D.001 - Test Acceleration Enablement (TAE) with DevSecOps SW NL SERVICES
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,404	1,347	1,584
NSE		0	0	0
	Total	1,404	1,347	1,584
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921D - Test Acceleration Enablement (TAE) with DevSecOps
 Workpaper Detail: 00921D.002 - Test Acceleration Enablement (TAE) with DevSecOps SW LABOR
 In-Service Date: Not Applicable
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		112	138	142
Non-Labor		0	0	0
NSE		0	0	0
	Total	112	138	142
FTE		0.9	1.1	1.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921I - Test Acceleration Enablement (TAE)

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 009211 - Test Acceleration Enablement (TAE)

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	8	0	0
Non-Labor	Zero-Based	0	0	0	0	0	106	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	114	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This project started in 2019. This project implements an automated system testing platform to identify and remediate issues prior to patches, enhancements, and new software being released to production. The Company would benefit from having an additional layer of validation, visibility, and tracking of these activities and their associated results to enable continuous improvement.

Physical Description:

The scope of this project includes setting up a project team to enable multiple workstreams of test automation to be completed using the agile scrum methodology. These workstreams include patch test automation across each technology vertical and new project and program automation to enable streamlined testing capabilities and lower overall testing costs and timelines. Additionally, this project includes enhancements, upgrades, and testing capabilities across our application landscape.

This project impacts approximately 350 applications over the project duration.

The internal labor costs for this project are driven by various resources such as project managers, developers, and analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services.

This is a shared asset.

Project Justification:

This project enables faster delivery of software testing capabilities across the organization, provides a cohesive solution and a "One Team" approach to working with IT and Business clients for delivery of automation capabilities and continued innovation within the IT Quality Assurance team.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 3. Transform How We Work
Workpaper Group: 009211 - Test Acceleration Enablement (TAE)

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 009211**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 009211 - Test Acceleration Enablement (TAE)
 Workpaper Detail: 009211.001 - Test Acceleration Enablement (TAE) SW Dev
 In-Service Date: 02/28/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		8	0	0
Non-Labor		106	0	0
NSE		0	0	0
	Total	114	0	0
FTE		0.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921L - Source Code Management & DevOps Implementation

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921L - Source Code Management & DevOps Implementation

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	56	0	0
Non-Labor	Zero-Based	0	0	0	0	0	306	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	362	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0

Business Purpose:

This project started in 2019. This project implements a standard enterprise Source Code Management (SCM) repository for managing application source code using Cloud-based services along with other standardized integration tools.

Physical Description:

The scope of this project includes standardizing SCM and version control tooling and processes across the Company and migrating existing source code from applications into a controlled managed environment. This project also establishes and configures Development Operations (DevOps) pipelines and creates a DevOps playbook to accelerate the adoption and usage of DevOps tools and practices.

This project addresses approximately 1,000 applications over the project duration.

The internal labor costs for this project are driven by various resources such as architects, project managers, developers, and analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services.

This is a non-shared asset.

Project Justification:

This project provides speed of delivery through features such as Continuous Integration (CI), Continuous Delivery (CD), and Continuous Testing (CT). This project also reduces operational risk through reusability of source code and improved efficiency, and quality.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 3. Transform How We Work
Workpaper Group: 00921L - Source Code Management & DevOps Implementation

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921L**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921L - Source Code Management & DevOps Implementation
 Workpaper Detail: 00921L.001 - SOURCE CODE MGMT & DEVOPS IMPL Labor
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		56	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	56	0	0
FTE		0.5	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 3. Transform How We Work
 Workpaper Group: 00921L - Source Code Management & DevOps Implementation
 Workpaper Detail: 00921L.002 - SOURCE CODE MGMT & DEVOPS IMPL SW NL SERVICES
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		306	0	0
NSE		0	0	0
	Total	306	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00907M - Cloud Data Lake

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00907M - Cloud Data Lake

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	0	0	0	0	0	2,500	2,500	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	2,500	2,500	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project develops and scales the Cloud data lake to support data analytics, machine learning, digital twin, and related data analytics solutions. This project incorporates predictive analytics into its business processes and decision support models to modernize analytics platforms and streamline access to data.

Physical Description:

The scope of this project includes establishing data pipelines and a scalable central data repository in the Cloud. This also includes supporting batch and streaming data ingestion from various on premise, Cloud and third-party data sources including change data capture. This project also builds integrations, data repositories, catalogs and governance models enabling proper data classification, security and access controls thereby making data securely available to various consumers, end users and third parties.

This project impacts approximately 12 applications per year in the Company's application portfolio and technology stack. The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for development and implementation, and SaaS (Software as a Service) licensing. This is a shared asset.

Project Justification:

This project minimizes data replication and provides centralized data governance in the Cloud, thereby improving data quality and accessibility. This project also ensures Company level data security and access.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00907.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00907M - Cloud Data Lake

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00907M**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00907M - Cloud Data Lake
 Workpaper Detail: 00907M.001 - Cloud Data Lake SW NL Services
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	1,500	2,500
NSE		0	0	0
	Total	0	1,500	2,500
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00907.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00907M - Cloud Data Lake
 Workpaper Detail: 00907M.002 - Cloud Data Lake SaaS Subscription
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

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

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920AL - Virtual Reality Expansion

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920AL - Virtual Reality 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	0	0	0	109	0	0
Non-Labor	Zero-Based	0	0	0	0	0	2,389	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	2,498	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0

Business Purpose:

This project started in 2021. This project builds out a new Virtual Reality (VR) or Extended Reality (XR) training application that simulates real world scenarios and situations to effectively train the Electrical Test System (ETS) staff to find and troubleshoot faults.

Physical Description:

The scope of this project includes the implementation of a new image analytics platform and repository that enables asset inspection using mobile devices, drone asset inspections, and vegetation management image processing solutions. The project also creates a virtual reality environment and links across pre-established objects.

This project impacts one application per year in the Company's business application portfolio and technology stack. The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for development and implementation, hardware, and software licenses. This is a non-shared asset.

Project Justification:

This project enhances customer user experience, reduces training time and field visits, and enables the identification of sub-switches and Planned Safety Power Shutoff (PSPS) events.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920AL - Virtual Reality Expansion

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920AL**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920AL - Virtual Reality Expansion
 Workpaper Detail: 00920AL.001 - Emerging Tech - Virtual Reality Expansion
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		109	0	0
Non-Labor		2,389	0	0
NSE		0	0	0
	Total	2,498	0	0
FTE		0.9	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BB - RAMP - Energy Transition Digital Twin

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin

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	86	86	86
Non-Labor	Zero-Based	0	0	0	0	0	1,900	1,900	1,900
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,986	1,986	1,986
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7

Business Purpose:

This project drives Company sustainability objectives for energy transition by establishing a capability that leverages internal and external data sources to inform high impact decisions on the path to Net Zero.

Physical Description:

The scope of this project includes emissions detection for fleet, optimal electric vehicle station placement, utility impacts on disadvantaged communities, and heat island ID for vegetation placement. This project will utilize a combination of machine learning, artificial intelligence, and data to run simulated environments that can be manipulated to model the effects of specific changes on these environments.

This project impacts the three use cases as listed above.

The internal labor costs for this project are driven by various resources including such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for development, scrum managers, Cloud implementation and SaaS (Software as a Service) licenses.

This is a non-shared asset.

Project Justification:

This project enables Company alignment with Net Zero goals by providing models that can be used to implement solutions that will help reduce Company emissions and carbon footprint.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BB**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin
 Workpaper Detail: 00920BB.001 - SDGE Energy Transition Digital Twin SaaS Subscription (Same RAMP item as 00920BB.002)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		200	0	0
NSE		0	0	0
	Total	200	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin
 Workpaper Detail: 00920BB.002 - SDGE Energy Transition Digital Twin SW Development RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		86	0	0
Non-Labor		1,700	0	0
NSE		0	0	0
	Total	1,786	0	0
FTE		0.7	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin
 Workpaper Detail: 00920BB.002 - SDGE Energy Transition Digital Twin SW Development RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems

RAMP Line Item ID: 3

RAMP Line Item Name: Monitoring Systems and Services

Tranche(s): Tranche1: NA

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	1,986	1,986	1,986	5,958	0	0

Cost Estimate Changes from RAMP:

New identified RAMP project

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 Use cases	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 3 use cases over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin
 Workpaper Detail: 00920BB.003 - SDGE Energy Transition Digital Twin SW Development (Same RAMP item as 00920BB.002)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	86	0
Non-Labor		0	1,700	0
NSE		0	0	0
	Total	0	1,786	0
FTE		0.0	0.7	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin
 Workpaper Detail: 00920BB.004 - SDGE Energy Transition Digital Twin SaaS Subscription (Same RAMP item as 00920BB.002)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	200	0
NSE		0	0	0
	Total	0	200	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin
 Workpaper Detail: 00920BB.005 - SDGE Energy Transition Digital Twin SaaS Subscription (Same RAMP item as 00920BB.002)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	200
NSE		0	0	0
	Total	0	0	200
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BB - RAMP - Energy Transition Digital Twin
 Workpaper Detail: 00920BB.006 - SDGE Energy Transition Digital Twin SW Development (Same RAMP item as 00920BB.002)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	86
Non-Labor		0	0	1,700
NSE		0	0	0
	Total	0	0	1,786
FTE		0.0	0.0	0.7

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BC - RAMP - Digital Process Automation

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation

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	0	0	0	0	0	4,950	4,853	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	4,950	4,853	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project automates business processes across the Company to standardize, expedite operational backlogs and optimize labor capacity for strategic work.

Physical Description:

The scope of the project will address new high value automation opportunities utilizing robotic process automation to reduce manual business processes, business process management to deliver applications that manage workflows and approvals in a standardized, simplified application, and application factory to deliver custom and dynamic applications that leverage the Cloud to deliver business value.

This project impacts approximately 15 applications per year.

The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for development and implementation and SaaS (Software as a Service) licenses.

This is a non-shared asset.

Project Justification:

- 1) Improve process accuracy, timeliness, quality, and standardization
- 2) Improve process security and compliance
- 3) Enhance process controls and consistency
- 4) Improve digitization and efficiency of workflows, traceability, and document storage
- 5) Provides secure access to online and offline applications
- 6) Enable high volume data processing
- 7) Enable access to business processes through mobile devices

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BC - RAMP - Digital Process Automation

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BC**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.001 - SDGE Digital Process Automation SaaS Subscription (Same RAMP item as 00920BC.002)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	333
NSE		0	0	0
	Total	0	0	333
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.002 - SDGE Digital Process Automation SW Development RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,633	0	0
NSE		0	0	0
	Total	1,633	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.002 - SDGE Digital Process Automation SW Development RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	1,633	1,633	1,604	4,870	3,645	4,657

Cost Estimate Changes from RAMP:

Higher forecast

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 Applications	0.00	15.00	15.00	15.00	45.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing. Total work units are approximately 15 applications per year.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.003 - SDGE Digital Process Automation SW Development (Same RAMP item as 00920BC.002)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	1,633	0
NSE		0	0	0
	Total	0	1,633	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.004 - SDGE Digital Process Automation SW Development (Same RAMP item as 00920BC.002)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	1,271
NSE		0	0	0
	Total	0	0	1,271
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.005 - SDGE Digital Process Automation SaaS Subscription
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	667
NSE		0	0	0
	Total	0	0	667
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.006 - SDGE Digital Process Automation SW Development
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		3,317	0	1
NSE		0	0	0
	Total	3,317	0	1
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.007 - SDGE Digital Process Automation SW Development
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	3,317	2
NSE		0	0	0
	Total	0	3,317	2
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BC - RAMP - Digital Process Automation
 Workpaper Detail: 00920BC.008 - SDGE Digital Process Automation SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	2,579
NSE		0	0	0
	Total	0	0	2,579
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BD - Foundational Analytics for Safety, Compliance and Efficiency

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BD - Foundational Analytics for Safety, Compliance and Efficiency

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	0
Non-Labor	Zero-Based	0	0	0	0	0	6,642	5,767	5,867
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	6,642	5,767	5,867
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This project provides business insights that drive business operational decisions. The project also designs and develops new and enhanced data views, data integrations, data cataloging, data visualizations and reports to allow the business to drive operational decisions.

Physical Description:

The scope of this project includes meeting strategic imperatives related to data governance and Cloud, including implementation of data governance framework, data catalog, data quality toolset and Cloud data lake. The project also includes capacity to support finance initiatives such as accountability reporting, business planning and financial system upgrades.

This project impacts approximately 50 applications per year in the Company's application portfolio and technology stack. The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for development and implementation. This is a non-shared asset.

Project Justification:

This project enables business centric planning and reporting tools that support self-service, collaboration, and advanced forecasting. This project also includes data quality remediation, data masking, anonymization, and data lineage.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BD - Foundational Analytics for Safety, Compliance and Efficiency

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BD**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BD - Foundational Analytics for Safety, Compliance and Efficiency
 Workpaper Detail: 00920BD.001 - SDGE Foundational Awareness for Compl, Efficcy & SAF SaaS Subscription
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		875	0	0
NSE		0	0	0
	Total	875	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BD - Foundational Analytics for Safety, Compliance and Efficiency
 Workpaper Detail: 00920BD.002 - SDGE Foundational Awareness for Compl, Effcy & SAF SW
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		5,767	0	0
NSE		0	0	0
	Total	5,767	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BD - Foundational Analytics for Safety, Compliance and Efficiency
 Workpaper Detail: 00920BD.003 - SDGE Foundational Awareness for Compl, Efficcy & SAF SW Dev
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	5,767	0
NSE		0	0	0
	Total	0	5,767	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BD - Foundational Analytics for Safety, Compliance and Efficiency
 Workpaper Detail: 00920BD.004 - SDGE Foundational Awareness for Compl, Efficcy & SAF SW Dev
 In-Service Date: 12/31/2024
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	5,867
NSE		0	0	0
	Total	0	0	5,867
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BE - RAMP - Advanced Data and Decision Modeling

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BE - RAMP - Advanced Data and Decision Modeling

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	0	0	0	0	0	1,235	3,960	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,235	3,960	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project started in 2021. This project focuses on advanced machine learning and statistical or decision science use cases that drive wildfire mitigation, safety, electric reliability, energy transition and the ability to leverage on the elasticity of Cloud resources. It also focuses on the development and implementation of data science workbench and machine learning operations to support the enterprise.

Physical Description:

The scope of this project includes building capabilities for data science, identifying critical data for the machine learning platform, and delivering on these use cases. The project also includes setting up an artificial intelligence and machine learning data foundation in the Cloud data lake for advanced modeling and improving Artificial Intelligence (AI) quality. Lastly, this project includes developing infrastructure as code modules for analytics and ensuring security in the Cloud.

This project impacts approximately five applications per year in the Company's business application portfolio. The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for development and implementation. This is a non-shared asset.

Project Justification:

This project allows for scalability and re-usability of data science pipelines. This project also utilizes serverless components of the Cloud and reduces turnaround time to operationalize the machine learning model.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BE - RAMP - Advanced Data and Decision Modeling

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BE**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BE - RAMP - Advanced Data and Decision Modeling
 Workpaper Detail: 00920BE.001 - SDGE Advanced Data and Decision Modeling SaaS Subscription (Same RAMP item as 00920BE.002)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		175	0	0
NSE		0	0	0
	Total	175	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BE - RAMP - Advanced Data and Decision Modeling
 Workpaper Detail: 00920BE.002 - SDGE Advanced Data and Decision Modeling SW Dev RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,060	0	0
NSE		0	0	0
	Total	1,060	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BE - RAMP - Advanced Data and Decision Modeling
 Workpaper Detail: 00920BE.002 - SDGE Advanced Data and Decision Modeling SW Dev RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	1,235	3,960	3,960	9,155	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP project

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 Applications	0.00	5.00	5.00	5.00	15.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing. Total work units are approximately 5 applications per year.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BE - RAMP - Advanced Data and Decision Modeling
 Workpaper Detail: 00920BE.003 - SDGE Advanced Data and Decision Modeling SW Dev (Same RAMP item as 00920BE.002)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	3,960	0
NSE		0	0	0
	Total	0	3,960	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BE - RAMP - Advanced Data and Decision Modeling
 Workpaper Detail: 00920BE.004 - SDGE Advanced Data and Decision Modeling SW Dev (Same RAMP item as 00920BE.002)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	3,960
NSE		0	0	0
	Total	0	0	3,960
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BF - RAMP - Decision Analytics & Situational Awareness

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BF - RAMP - Decision Analytics & Situational Awareness

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	0	0	0	0	0	1,736	1,536	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,736	1,536	1,536
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project provides reporting and data analytics services that will drive business operational decisions. The project designs and develops new and enhanced data views, data integrations, data cataloging, data visualizations and reports to allow the business to make operational decisions.

Physical Description:

The scope of this project includes delivering dashboards to drive operational efficiencies through the reduction of manual processes across the Company. The project also focuses on advanced concepts such as work forecasting to enhance resource planning and enabling self-service for end users to develop their own dashboards.

This project impacts five applications per year in the Company's business application portfolio. The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for development and implementation. This is a non-shared asset.

Project Justification:

This project improves timeliness and completeness of data available to support decision making across the Company thereby improving safety and compliance.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BF - RAMP - Decision Analytics & Situational Awareness

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BF**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BF - RAMP - Decision Analytics & Situational Awareness
 Workpaper Detail: 00920BF.001 - SDGE Decision Analytics & Situational Awareness SaaS Subscription (Same RAMP item as 00920BF.002)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		200	0	0
NSE		0	0	0
	Total	200	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BF - RAMP - Decision Analytics & Situational Awareness
 Workpaper Detail: 00920BF.002 - SDGE Decision Analytics & Situational Awareness Dev RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,536	0	0
NSE		0	0	0
	Total	1,536	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BF - RAMP - Decision Analytics & Situational Awareness
 Workpaper Detail: 00920BF.002 - SDGE Decision Analytics & Situational Awareness Dev RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	1,736	1,536	1,536	4,808	0	0

Cost Estimate Changes from RAMP:

Newly identified RAMP project

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 Applications	0.00	5.00	5.00	5.00	15.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing. Total work units are approximately 5 applications per year.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BF - RAMP - Decision Analytics & Situational Awareness
 Workpaper Detail: 00920BF.003 - SDGE Decision Analytics & Situational Awareness SW Dev (Same RAMP item as 00920BF.002)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	1,536	0
NSE		0	0	0
	Total	0	1,536	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BF - RAMP - Decision Analytics & Situational Awareness
 Workpaper Detail: 00920BF.004 - SDGE Decision Analytics & Situational Awareness SW Dev (Same RAMP item as 00920BF.002)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	1,536
NSE		0	0	0
	Total	0	0	1,536
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920BH - RAMP- Situational Awareness Dashboards

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BH - RAMP- Situational Awareness Dashboards

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	0
Non-Labor	Zero-Based	0	0	0	0	0	524	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	524	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This project started in 2019. This project develops operational situational awareness and executive dashboards to support high value business use cases.

Physical Description:

This project enhancing the Company's situational awareness environment by adding new dashboards that will drive operational efficiencies through the reduction of manual processes across the Company and promotes self-service and advanced visualization techniques.

This project impacts five applications in the Company's business application portfolio.

The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for development and implementation.

This is a non-shared asset.

Project Justification:

This project improves timeliness and completeness of data available to support decision making and safety and compliance.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920BH - RAMP- Situational Awareness Dashboards

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920BH**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BH - RAMP- Situational Awareness Dashboards
 Workpaper Detail: 00920BH.001 - SDGE SITUATIONAL ANALYTICS DASHBOARD RAMP
 In-Service Date: 03/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		210	0	0
NSE		0	0	0
	Total	210	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BH - RAMP- Situational Awareness Dashboards
 Workpaper Detail: 00920BH.001 - SDGE SITUATIONAL ANALYTICS DASHBOARD RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	1,040	210	0	0	210	0	0

Cost Estimate Changes from RAMP:

Project delayed to 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 Applications	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing because we were unable to break it out by year , subsequently, the total work units are approximately 5 applications over the project duration.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920BH - RAMP- Situational Awareness Dashboards
 Workpaper Detail: 00920BH.002 - SDGE SITUATIONAL ANALYTICS DASHBOARD
 In-Service Date: 03/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		314	0	0
NSE		0	0	0
	Total	314	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00920P - RAMP - Digital Asset and Damages Detection Platform

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920P - RAMP - Digital Asset and Damages Detection Platform

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	0	0	0	0	0	4,505	3,680	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	4,505	3,680	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project addresses the increasing backlog of opportunities to utilize Intelligent Image Processing (IIP) and machine learning to automatically identify gas and electric assets, third party equipment and asset damages.

Physical Description:

The scope of the project includes development and implementation of high value intelligent image process and extended reality opportunities utilizing machine learning, centralized imagery on the Cloud, and creating virtual reality experiences to support Company transformational and security goals.

This project impacts approximately 15 applications per year in the Company's business application portfolio. The internal labor costs for this project are driven by various resources including one or more Company product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for development and Cloud implementation. This is a non-shared SDG&E asset.

Project Justification:

This project improves our asset management processes and inspection efficiency. The project reduces risk of wildfire events through rapid, automated detection of asset damages and improves asset management efficiency.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00920.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00920P - RAMP - Digital Asset and Damages Detection Platform

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00920P**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920P - RAMP - Digital Asset and Damages Detection Platform
 Workpaper Detail: 00920P.001 - SDGE Digital Asset and Damages Detection Platform RAMP
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		3,680	0	0
NSE		0	0	0
	Total	3,680	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920P - RAMP - Digital Asset and Damages Detection Platform
 Workpaper Detail: 00920P.001 - SDGE Digital Asset and Damages Detection Platform RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-CFF-4 Foundational Technology Systems
 RAMP Line Item ID: 4
 RAMP Line Item Name: Electric Operations Systems (SDGE) Resiliency
 Tranche(s): Tranche1: NA

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	4,505	3,680	3,680	11,865	0	0

Cost Estimate Changes from RAMP:

New project for RAMP

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 Applications	0.00	15.00	15.00	15.00	45.00	0.00	0.00

Work Unit Changes from RAMP:

Units were not defined during RAMP filing. Total work units are approximately 15 applications per year.

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	0.000	0.000

RSE Changes from RAMP:

Not Applicable

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920P - RAMP - Digital Asset and Damages Detection Platform
 Workpaper Detail: 00920P.002 - SDGE Digital Asset and Damages Detection Platform (Same RAMP item as 00920P.001)
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	0	3,680	0
NSE	0	0	0
Total	0	3,680	0
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920P - RAMP - Digital Asset and Damages Detection Platform
 Workpaper Detail: 00920P.003 - SDGE Digital Asset and Damages Detection Platform (Same RAMP item as 00920P.001)
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	3,680
NSE		0	0	0
	Total	0	0	3,680
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00920.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00920P - RAMP - Digital Asset and Damages Detection Platform
 Workpaper Detail: 00920P.004 - SDGE Digital Asset and Damages Detection Platform SaaS Subscription (Same RAMP item as 00920P.001)
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		825	0	0
NSE		0	0	0
	Total	825	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921AA - OpenShift Modernization on AWS (ROSA)

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921AA - OpenShift Modernization on AWS (ROSA)

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	14	0	0
Non-Labor	Zero-Based	0	0	0	0	0	357	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	371	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This project enhances and modernizes our existing container platform by upgrading to a newer Amazon Web Services (AWS) platform.

Physical Description:

The scope of this project includes upgrading the container platform, implementing advanced cluster automation and application continuous delivery automation capabilities.

This project impacts one application in the Company's business application portfolio over the project duration. The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary. The non-labor costs for this project are driven by vendor services for development, SaaS licensing and implementation. This is a shared asset.

Project Justification:

This project ensures platform availability and continuity by implementing disaster recovery for the platform.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00921AA - OpenShift Modernization on AWS (ROSA)

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921AA**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921AA - OpenShift Modernization on AWS (ROSA)
 Workpaper Detail: 00921AA.001 - OpenShift Modernization on AWS ROSA SW Development
 In-Service Date: 02/28/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		14	0	0
Non-Labor		0	0	0
NSE		0	0	0
	Total	14	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: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921AA - OpenShift Modernization on AWS (ROSA)
 Workpaper Detail: 00921AA.002 - OpenShift Modernization on AWS ROSA SaaS IaaS Reserved Instance
 In-Service Date: 02/28/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		357	0	0
NSE		0	0	0
	Total	357	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921E - Digital Service Integration Platform

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921E - Digital Service Integration Platform

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	0	0	0	0	0	1,550	1,550	
NSE	Zero-Based	0	0	0	0	0	0	0	
Total		0	0	0	0	0	1,550	1,550	
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Business Purpose:

This project addresses the backlog of Cloud-based application programming interfaces and microservice capabilities that are required by various Company technology modernization initiatives.

Physical Description:

This project enhances our integration platform and enables IT to deliver rapid business value by implementing new integration capabilities for both on-prem and Cloud applications including Talend migration to the Cloud, Red Hat Fuse migrations to Amazon Web Services (AWS), Electronic Data Interchange Exchange (EDIX) upgrade, and Application Programming Interface (API) modernization.

This project impacts six applications over the project duration.

The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for development and implementation, as well as SaaS licenses.

This is a non-shared asset.

Project Justification:

This project improves speed to business value, improves technology reliability and reduces operational risk.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00921E - Digital Service Integration Platform

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921E**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921E - Digital Service Integration Platform
 Workpaper Detail: 00921E.001 - SDGE Digital Service Integration Platform SW Development
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)			
Years	2022	2023	2024
Labor	0	0	0
Non-Labor	950	1,550	1,550
NSE	0	0	0
Total	950	1,550	1,550
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921E - Digital Service Integration Platform
 Workpaper Detail: 00921E.002 - SDGE Digital Service Integration Platform SaaS Subscription
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

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

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921F - Data Governance Tools & Framework

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921F - Data Governance Tools & Framework

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	0	2,550	2,250	2,250
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	2,550	2,250	2,250
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This project implements toolsets and automations to support data governance initiatives, including data catalog, data quality workflows and data management. It also develops and deploys data governance, policies and procedures and scales data governance across IT and business groups.

Physical Description:

The scope of this project includes the implementation of a data catalog tool that includes business glossary, data definitions, and data lineage. This project designs, implements and tunes data quality business rules and workflows. Additionally, this project develops and implements data governance and quality policies, procedures, practices.

This project impacts two applications per year in the Company's application portfolio.

The internal labor costs for this project are driven by various resources such as product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for development, and implementation.

This is a shared asset.

Project Justification:

This project provides a centralized listing of critical data, enhances data quality, ensures reporting accuracy, clearly identifies data sources of truth, and improves data integrity.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00921F - Data Governance Tools & Framework

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921F**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921F - Data Governance Tools & Framework
 Workpaper Detail: 00921F.001 - Data Governance Tools & Framework SaaS SUBSCRIPTION
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		300	0	0
NSE		0	0	0
	Total	300	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921F - Data Governance Tools & Framework
 Workpaper Detail: 00921F.002 - Data Governance Tools & Framework SW NL SERVICES
 In-Service Date: 12/31/2023
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		2,250	2,250	0
NSE		0	0	0
	Total	2,250	2,250	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921F - Data Governance Tools & Framework
 Workpaper Detail: 00921F.003 - Data Governance Tools & Framework SW NL SERVICES
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	2,250
NSE		0	0	0
	Total	0	0	2,250
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00921R - Business Adaptation Technologies & Digitalization

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921R - Business Adaptation Technologies & Digitalization

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	0
Non-Labor	Zero-Based	0	0	0	0	0	1,415	1,190	1,190
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1,415	1,190	1,190
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

This project implements emerging technology to provide scalable business capabilities that align with the Company's digital transformation and digital acceleration goals.

Physical Description:

The scope of this project includes testing, development, and implementation of digital capabilities such as advanced Artificial Intelligence (AI), Internet of Things (IoT), and blockchain technology for customer transaction and carbon credit tracing.

This project impacts three applications per year in the business application portfolio by adding new apps and technology. The internal labor costs for this project are driven by various resources including one or more product owners, IT architects, information security engineers, product delivery managers, and business analysts. Internal labor roles and allocations may vary.

The non-labor costs for this project are driven by vendor services for development, Cloud implementation costs and SaaS licenses.

This is a non-shared asset.

Project Justification:

This project enables asset and operational data visualization to improve Company operational planning. This project also maximizes our Electric Vehicle (EV) charging infrastructure with route optimization to support customer service and operational efficiency goals. This project also modernizes the way we track customer transactions and carbon credit tracing to support operations.

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
Witness: William J. Exon
Budget Code: 00921.0
Category: O. Information Technology
Category-Sub: 4. Accelerate Digital
Workpaper Group: 00921R - Business Adaptation Technologies & Digitalization

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop the labor forecast.

Non-Labor - Zero-Based

A zero-based method was utilized to develop the non-labor forecast.

NSE - Zero-Based

Not Applicable

**Beginning of Workpaper Sub Details for
Workpaper Group 00921R**

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921R - Business Adaptation Technologies & Digitalization
 Workpaper Detail: 00921R.001 - SDGE Business Adaptation Technologies & Digitalization SW Dev
 In-Service Date: 12/31/2022

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		1,190	0	0
NSE		0	0	0
	Total	1,190	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921R - Business Adaptation Technologies & Digitalization
 Workpaper Detail: 00921R.002 - SDGE Business Adaptation Technologies & Digitalization SaaS Subscription
 In-Service Date: 12/31/2022
 Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		225	0	0
NSE		0	0	0
	Total	225	0	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921R - Business Adaptation Technologies & Digitalization
 Workpaper Detail: 00921R.003 - SDGE Business Adaptation Technologies & Digitalization SW Dev
 In-Service Date: 12/31/2023

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	1,190	0
NSE		0	0	0
	Total	0	1,190	0
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.

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

Area: INFORMATION TECHNOLOGY
 Witness: William J. Exon
 Budget Code: 00921.0
 Category: O. Information Technology
 Category-Sub: 4. Accelerate Digital
 Workpaper Group: 00921R - Business Adaptation Technologies & Digitalization
 Workpaper Detail: 00921R.004 - SDGE Business Adaptation Technologies & Digitalization SW Dev
 In-Service Date: 12/31/2024

Description:

Workpaper Detail provides description of costs supporting the workpaper.

Forecast In 2021 \$(000)				
	Years	2022	2023	2024
Labor		0	0	0
Non-Labor		0	0	1,190
NSE		0	0	0
	Total	0	0	1,190
FTE		0.0	0.0	0.0

Note: Totals may include rounding differences.