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-26-CWP-R)

REVISED CAPITAL WORKPAPERS TO PREPARED DIRECT TESTIMONY OF LANCE R. MUELLER 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

Exhibit SDG&E-26-CWP-R - CYBERSECURITY

Overall Summary For Exhibit No. SDG&E-26-CWP-R

Area: **CYBERSECURITY**

Witness: **Lance R. Mueller**

	In 2021 $ (000)		
	Adjusted-Forecast		
	2022	2023	2024
A. Cybersecurity	8,424	9,660	9,660
Total	**8,424**	**9,660**	**9,660**

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Category: A. Cybersecurity
Workpaper: VARIOUS

Summary for Category: A. Cybersecurity

	In 2021$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	0	1,083	840	840
Non-Labor	0	7,341	8,820	8,820
NSE	0	0	0	0
Total	**0**	**8,424**	**9,660**	**9,660**
FTE	0.0	8.8	6.9	6.9
00906G RAMP - Cyber - SDGE - Perimeter Defenses				
Labor	0	0	200	200
Non-Labor	0	0	2,100	2,100
NSE	0	0	0	0
Total	**0**	**0**	**2,300**	**2,300**
FTE	0.0	0.0	1.6	1.6
00906H RAMP - Cyber - SDGE - Internal Defenses				
Labor	0	19	100	100
Non-Labor	0	1,119	1,050	1,050
NSE	0	0	0	0
Total	**0**	**1,138**	**1,150**	**1,150**
FTE	0.0	0.1	0.8	0.8
00906I RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity				
Labor	0	909	300	300
Non-Labor	0	5,382	3,150	3,150
NSE	0	0	0	0
Total	**0**	**6,291**	**3,450**	**3,450**
FTE	0.0	7.5	2.5	2.5
00906J RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement				
Labor	0	0	100	100
Non-Labor	0	0	1,050	1,050
NSE	0	0	0	0
Total	**0**	**0**	**1,150**	**1,150**
FTE	0.0	0.0	0.8	0.8
00906K RAMP - Cyber - SDGE - Sensitive Data Protection				
Labor	0	155	140	140
Non-Labor	0	840	1,470	1,470
NSE	0	0	0	0
Total	**0**	**995**	**1,610**	**1,610**
FTE	0.0	1.2	1.2	1.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00906G - RAMP - Cyber - SDGE - Perimeter Defenses

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906G - RAMP - Cyber - SDGE - Perimeter Defenses

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	0	200	200
Non-Labor	Zero-Based	0	0	0	0	0	0	2,100	2,100
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**2,300**	**2,300**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6

Business Purpose:

The Perimeter Defenses program includes activities that the Companies take to protect the external access points of their internal information technology systems. Perimeter Defenses are designed to prevent attacks, protect the integrity of, and detect unauthorized access to the Companies' internal information technology systems .

Physical Description:

The types of perimeter defense activities include efforts such as firewall upgrades and process automation , web application firewall protections, distributed denial of service (DDoS) protection and the implementation of other perimeter defensive and threat mitigation mechanisms.

Firewalls provide protection against outside cyber attackers by shielding your computer or network from malicious or unnecessary network traffic. Web application firewalls (WAF) are a type of firewall that protects web applications from a variety of application layer attacks such as cross-site scripting (XSS), SQL injection, and cookie poisoning, among others. Perimeter defenses also include protections from distributed denial of service (DDoS) attacks in which attackers flood a network with high levels of malicious traffic so that it cannot operate or communicate as it normally would . This causes the site's normal traffic, also known as legitimate packets, to come to a halt.

The non-labor capital costs for this category are primarily for the hardware and software materials for cybersecurity systems and contractor services. The labor capital costs for this category are for the employees assigned to design, build, and deploy the new systems.

Project Justification:

Perimeter Defenses reduce the frequency or probability of successful external attacks to the private network. As a security strategy, it accomplishes this by limiting access to authorized users, reducing the likelihood that malicious code will enter the information technology environment, and delaying or frustrating potential attackers. This strategy also helps the Companies to understand the number of pathways into and out of the perimeter while simultaneously monitoring the perimeter in real time.

The activities funded under this area address the following: manipulated data or integrity failure, infrastructure or availability failure, access control or confidentiality failure, malicious software intrusions, cybersecurity control failures, operational system failures, equipment loss or theft, and human error. Perimeter Defenses reduces the potential consequences of data corruption or unavailability, theft or destruction of systems and data, and exposure of sensitive business information including customer records.

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906G - RAMP - Cyber - SDGE - Perimeter Defenses

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

Non-Labor - Zero-Based

A zero-based method was utilized to develop non-labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

NSE - Zero-Based

NA

Beginning of Workpaper Sub Details for
Workpaper Group 00906G

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906G - RAMP - Cyber - SDGE - Perimeter Defenses
Workpaper Detail: 00906G.001 - Cyber - SDGE - Perimeter Defenses On Premise License 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	1,800	0
NSE	0	0	0
Total	**0**	**1,800**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906G - RAMP - Cyber - SDGE - Perimeter Defenses
Workpaper Detail: 00906G.001 - Cyber - SDGE - Perimeter Defenses On Premise License RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-6 Cybersecurity

RAMP Line Item ID: C01

RAMP Line Item Name: Perimeter Defenses

Tranche(s): Tranche1: Overall

GRC Forecast Cost Estimates ($000)

	2021 Historical Embedded Costs (2021 $)	2022 Forecast (2021 $)	2023 Forecast (2021 $)	2024 Forecast (2021 $)	2022 to 2024 Forecast (2021 $)	2022 to 2024 RAMP Range (2020 Incurred $) Low	High
Tranche 1 Cost Estimate	0	0	2,300	2,300	4,600	10,013	12,795

Cost Estimate Changes from RAMP:
Dollars reflect pre-allocated forecast values while RAMP ranges reflect post-allocation values between SoCalGas and SDG&E.

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 NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
NA

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	504.000	160.000

RSE Changes from RAMP:
General changes to risks scores or Risk Spend Efficiency (RSE) values are primarily due to changes in the Multi-Attribute Value Framework (MAVF) and RSE methodology, as discussed in the RAMP to GRC Integration testimony.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906G - RAMP - Cyber - SDGE - Perimeter Defenses
Workpaper Detail:	00906G.002 - Cyber - SDGE - Perimeter Defenses Software Maintenance (Same RAMP item as 00906G.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	300	0
NSE	0	0	0
Total	**0**	**300**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906G - RAMP - Cyber - SDGE - Perimeter Defenses
Workpaper Detail:	00906G.003 - Cyber - SDGE - Perimeter Defenses On Premise License (Same RAMP item as 00906G.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	1,800
NSE	0	0	0
Total	**0**	**0**	**1,800**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906G - RAMP - Cyber - SDGE - Perimeter Defenses
Workpaper Detail:	00906G.004 - Cyber - SDGE - Perimeter Defenses Software Maintenance (Same RAMP item as 00906G.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	300
NSE	0	0	0
Total	**0**	**0**	**300**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906G - RAMP - Cyber - SDGE - Perimeter Defenses
Workpaper Detail:	00906G.005 - Cyber - SDGE - Perimeter Defenses Labor (Same RAMP item as 00906G.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	200	0
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**200**	**0**
FTE	0.0	1.6	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906G - RAMP - Cyber - SDGE - Perimeter Defenses
Workpaper Detail: 00906G.006 - Cyber - SDGE - Perimeter Defenses Labor (Same RAMP item as 00906G.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	200
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**0**	**200**
FTE	0.0	0.0	1.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00906H - RAMP - Cyber - SDGE - Internal Defenses

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906H - RAMP - Cyber - SDGE - Internal Defenses

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	19	100	100
Non-Labor	Zero-Based	0	0	0	0	0	1,119	1,050	1,050
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**1,138**	**1,150**	**1,150**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.8

Business Purpose:

Internal Defense program activities are designed to detect and prevent unauthorized users, those misusing authorized credentials and malicious software (i.e., malware) from propagating inside of the perimeter and moving within the IT system or into the OT system. The enhancements to the Companies' IT and OT systems' Access Management system reduces the risk to internal systems and the likelihood and impact of a Cybersecurity incident. The activities in this category are designed to detect unauthorized users from moving laterally or vertically within the IT system or into the OT system , which improves the ability to identify and respond to threats more quickly.

Physical Description:

The types of internal defense activities include efforts such as more effective endpoint security monitoring , enhancements in threat and vulnerability management, insider threats, incident management, third party and supply chain risk mitigation, and cloud security.

Endpoint security solutions continuously monitor end-user devices to detect and respond to cyber threats like ransomware and malware. Threat and vulnerability management (TVM) is a combination of tools and processes that identify threats and vulnerabilities to reduce potential loss, damage or destruction of assets or data. Insider threats are a type of cybersecurity event where an insider employee or approved contract resource will use his or her authorized access, wittingly or unwittingly, to do harm to the Department's mission, resources, personnel, facilities, information, equipment, networks, or systems. Incident management is the process used by Cybersecurity teams to respond to an unplanned event or service interruption and restore the service to its operational state. Third party risk is the potential threat presented to organizations' employee and customer data, financial information and operations from the organization's supply-chain and other outside parties that provide products and/or services and have access to privileged systems. Cloud security entails securing cloud environments against unauthorized use/access, distributed denial of service (DDOS) attacks, hackers, malware, and other risks.

The non-labor capital costs for this category are primarily for the hardware and software materials for cybersecurity systems and contractor services. The labor capital costs for this category are for the employees assigned to design, build, and deploy the new systems.

Project Justification:

The activities funded under this area address the following : manipulated data or integrity failure, infrastructure or availability failure, access control or confidentiality failure, malicious software intrusions, cybersecurity control failures, operational system failures, equipment loss or theft, human error, data corruption or unavailability, theft or destruction of systems and data, and exposure of sensitive business information including customer records.

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906H - RAMP - Cyber - SDGE - Internal Defenses

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

Non-Labor - Zero-Based

A zero-based method was utilized to develop non-labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

NSE - Zero-Based

NA

Beginning of Workpaper Sub Details for
Workpaper Group 00906H

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail: 00906H.001 - Cyber - SDGE - Internal Defenses On Premise License 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	900	0
NSE	0	0	0
Total	**0**	**900**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail: 00906H.001 - Cyber - SDGE - Internal Defenses On Premise License RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-6 Cybersecurity

RAMP Line Item ID: C02

RAMP Line Item Name: Internal Defenses

Tranche(s): Tranche1: Overall

GRC Forecast Cost Estimates ($000)

	2021 Historical Embedded Costs (2021 $)	2022 Forecast (2021 $)	2023 Forecast (2021 $)	2024 Forecast (2021 $)	2022 to 2024 Forecast (2021 $)	2022 to 2024 RAMP Range (2020 Incurred $) Low	High
Tranche 1 Cost Estimate	0	1,138	1,150	1,150	3,438	9,405	12,018

Cost Estimate Changes from RAMP:
The full RAMP range is reflected on each workpaper; Dollars reflect pre-allocated forecast values while RAMP ranges reflect post-allocation values between SoCalGas and SDG&E.

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 NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
NA

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	299.000	95.000

RSE Changes from RAMP:
General changes to risks scores or Risk Spend Efficiency (RSE) values are primarily due to changes in the Multi-Attribute Value Framework (MAVF) and RSE methodology, as discussed in the RAMP to GRC Integration testimony.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail: 00906H.002 - Cyber - SDGE - Internal Defenses Software Maintenance (Same RAMP item as 00906H.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	150	0
NSE	0	0	0
Total	**0**	**150**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail:	00906H.003 - Cyber - SDGE - Internal Defenses On Premise License (Same RAMP item as 00906H.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	900
NSE	0	0	0
Total	**0**	**0**	**900**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail:	00906H.004 - Cyber - SDGE - Internal Defenses Software Maintenance (Same RAMP item as 00906H.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	150
NSE	0	0	0
Total	**0**	**0**	**150**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail: 00906H.005 - Cyber - SDGE - Internal Defenses Labor (Same RAMP item as 00906H.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	100	0
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**100**	**0**
FTE	0.0	0.8	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail: 00906H.006 - Cyber - SDGE - Internal Defenses Labor (Same RAMP item as 00906H.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	100
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**0**	**100**
FTE	0.0	0.0	0.8

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906H - RAMP - Cyber - SDGE - Internal Defenses
Workpaper Detail: 00906H.007 - Cyber - SDGE - Internal Defenses Software Development (Same RAMP item as 00906H.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	19	0	0
Non-Labor	1,119	0	0
NSE	0	0	0
Total	**1,138**	**0**	**0**
FTE	0.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	909	300	300
Non-Labor	Zero-Based	0	0	0	0	0	5,382	3,150	3,150
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**6,291**	**3,450**	**3,450**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	7.5	2.5	2.5

Business Purpose:

The OT Cybersecurity program focuses on securing the electric and gas control systems for the Companies . The OT environment is essential to critical business functions for the safe and reliable energy delivery to customers throughout the service territory. OT Cybersecurity requires a specialized approach in order to balance operational needs with cybersecurity risk.

Physical Description:

The Companies' cybersecurity program prioritizes operational technology activities , including the management of its existing technology assets, improving threat intelligence and vulnerability management, and securing the communication infrastructure. The Companies are focused on maintaining a secure operational environment to support safe, reliable gas and electric systems and service.

The OT Cybersecurity activities protect Industrial Control Systems (ICS) and Supervisory Control and Data Acquisition (SCADA) such as ensuring proper network segmentation, multifactor authentication (MFA), more secure remote connection capabilities, network anomaly detection, advanced security information and event management (SIEM) and analytics, environment network access control, environment endpoint detection response and malware defense.

Multi-Factor Authentication (MFA) is a network authentication method that requires the user to provide two or more verification factors to gain access to a resource such as an application, online account, or a private network. Network segmentation is a network security technique that divides a network into smaller, distinct sub-networks that enable network teams to compartmentalize the sub-networks and deliver unique security controls and services to each sub-network. SIEM captures event data from a wide range of sources across an organization's entire network. Logs and flow data from users, applications, assets, cloud environments, and networks is collected, stored and analyzed in real-time, giving cybersecurity teams the ability to automatically manage their network's event log and network flow data in one centralized location. Malware defense protects against intrusive software that is designed to damage and destroy computers and computer systems. Examples of common malware include viruses, worms, Trojan viruses, spyware, adware, and ransomware.

The non-labor capital costs for this category are primarily for the hardware and softwar

Project Justification:

The activities funded under this area address the following: ransomware, infrastructure or availability failure, access control or confidentiality failure, malicious software intrusions, cybersecurity control failures, operational system failures, human error, disruption of energy flow systems, data corruption or unavailability, and serious injuries and fatalities.

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

Non-Labor - Zero-Based

A zero-based method was utilized to develop non-labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

NSE - Zero-Based

NA

Beginning of Workpaper Sub Details for
Workpaper Group 00906I

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail: 00906I.001 - Cyber - SDGE - Operational Technology (OT) Cybersecurity On Premise License 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	2,700	0
NSE	0	0	0
Total	**0**	**2,700**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail: 00906I.001 - Cyber - SDGE - Operational Technology (OT) Cybersecurity On Premise License RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-6 Cybersecurity

RAMP Line Item ID: C04

RAMP Line Item Name: Operational Technology (OT) Cybersecurity

Tranche(s): Tranche1: Overall

GRC Forecast Cost Estimates ($000)

	2021 Historical Embedded Costs (2021 $)	2022 Forecast (2021 $)	2023 Forecast (2021 $)	2024 Forecast (2021 $)	2022 to 2024 Forecast (2021 $)	2022 to 2024 RAMP Range (2020 Incurred $) Low	High
Tranche 1 Cost Estimate	0	6,291	3,450	3,450	13,191	16,245	20,758

Cost Estimate Changes from RAMP:
The full RAMP range is reflected; Dollars reflect pre-allocated forecast values while RAMP ranges reflect post-allocation values between SoCalGas and SDG&E.

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 NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
NA

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	527.000	112.000

RSE Changes from RAMP:
General changes to risks scores or Risk Spend Efficiency (RSE) values are primarily due to changes in the Multi-Attribute Value Framework (MAVF) and RSE methodology, as discussed in the RAMP to GRC Integration testimony.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail: 00906I.002 - Cyber - SDGE - Operational Technology Cybersecurity SW Maintenance (Same RAMP item as 00906I.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	450	0
NSE	0	0	0
Total	**0**	**450**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail:	00906I.003 - Cyber - SDGE - Operational Technology Cybersecurity OnPremise License (Same RAMP item as 00906I.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	2,700
NSE	0	0	0
Total	**0**	**0**	**2,700**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail:	00906I.004 - Cyber - SDGE - Operational Technology Cybersecurity SW Maintenance (Same RAMP item as 00906I.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	450
NSE	0	0	0
Total	**0**	**0**	**450**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail:	00906I.005 - Cyber - SDGE - Operational Technology Cybersecurity Labor (Same RAMP item as 00906I.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	300	0
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**300**	**0**
FTE	0.0	2.5	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail: 00906I.006 - Cyber - SDGE - Operational Technology Cybersecurity Labor (Same RAMP item as 00906I.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	300
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**0**	**300**
FTE	0.0	0.0	2.5

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail:	00906I.007 - Cyber - SDGE - Operational Technology Cybersecurity SW Purchase (Same RAMP item as 00906I.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	2,569	0	0
NSE	0	0	0
Total	**2,569**	**0**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail: 00906I.008 - Cyber - SDGE - Operational Technology Cybersecurity SW Maintenance (Same RAMP item as 00906I.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	385	0	0
NSE	0	0	0
Total	**385**	**0**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail:	00906I.009 - Cyber - SDGE - Operational Technology Cybersecurity HW (Same RAMP item as 00906I.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	531	0	0
NSE	0	0	0
Total	**531**	**0**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail: 00906I.010 - Cyber - SDGE - Operational Technology Cybersecurity HW Maintenance (Same RAMP item as 00906I.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	141	0	0
NSE	0	0	0
Total	**141**	**0**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906I - RAMP - Cyber - SDGE - Operational Technology (OT) Cybersecurity
Workpaper Detail:	00906I.011 - Cyber - SDGE - Operational Technology Cybersecurity SW Dev (Same RAMP item as 00906I.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	909	0	0
Non-Labor	1,756	0	0
NSE	0	0	0
Total	**2,665**	**0**	**0**
FTE	7.5	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	0	100	100
Non-Labor	Zero-Based	0	0	0	0	0	0	1,050	1,050
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**1,150**	**1,150**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8

Business Purpose:

One of the fundamental practices that supports a strong cybersecurity program is the refresh of technology, both hardware and software, at regular intervals, to minimize risks posed by out of support technologies that lead to security risks. This is frequently referred to as “Foundational Technology Systems Lifecycle Management.” Technology lifecycles are short and require frequent upgrades to meet modern security standards and capabilities.

In addition to technology obsolescence, this approach also addresses security obsolescence. Security obsolescence refers to cybersecurity tools and processes that are no longer effective, or potentially could create new vulnerabilities. Vulnerabilities inherent in legacy technology can provide a foothold for entry or movement within the Companies’ environment. Failure to invest in modern technologies could degrade the value of modern investments due to compatibility restrictions. Replacing legacy technology is a necessary method of managing cybersecurity risk.

Physical Description:

The types of Obsolete IT Infrastructure and Application Replacement activities include technology refreshes and /or replacements of obsolete infrastructure, operating systems, middleware and applications. Additionally, there is the need to provide ongoing system maintenance activity to confirm continued secure configurations, patching, and upgrading, among others. Lastly, the need to utilize effective architecture and other mechanisms to confirm high availability and service continuity for critical systems.

The non-labor capital costs for this category are primarily for the hardware and software materials for cybersecurity systems and contractor services. The labor capital costs for this category are for the employees assigned to design, build, and deploy the new systems.

Project Justification:

The activities funded under this area address the following: unauthorized remote access and control, manipulated data or integrity failure, infrastructure or availability failure, access control or confidentiality failure, malicious software intrusions, cybersecurity control failures, operational system failures, disruption of energy flow systems, data corruption or unavailability, theft or destruction of systems and data, and exposure of sensitive company and customer data.

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

Non-Labor - Zero-Based

A zero-based method was utilized to develop non-labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

NSE - Zero-Based

NA

Beginning of Workpaper Sub Details for
Workpaper Group 00906J

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement
Workpaper Detail: 00906J.001 - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement On Premise License 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	900	0
NSE	0	0	0
Total	**0**	**900**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement
Workpaper Detail: 00906J.001 - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement On Premise License RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-6 Cybersecurity

RAMP Line Item ID: C05

RAMP Line Item Name: Obsolete Information Technology (IT) Infrastructure and Application Replacement

Tranche(s): Tranche1: Overall

GRC Forecast Cost Estimates ($000)

	2021 Historical Embedded Costs (2021 $)	2022 Forecast (2021 $)	2023 Forecast (2021 $)	2024 Forecast (2021 $)	2022 to 2024 Forecast (2021 $)	2022 to 2024 RAMP Range (2020 Incurred $) Low	High
Tranche 1 Cost Estimate	0	0	1,150	1,150	2,300	7,920	10,121

Cost Estimate Changes from RAMP:
Dollars reflect pre-allocated forecast values while RAMP ranges reflect post-allocation values between SoCalGas and SDG&E.

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 NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
NA

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	371.000	102.000

RSE Changes from RAMP:
General changes to risks scores or Risk Spend Efficiency (RSE) values are primarily due to changes in the Multi-Attribute Value Framework (MAVF) and RSE methodology, as discussed in the RAMP to GRC Integration testimony.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement
Workpaper Detail: 00906J.002 - Cyber - SDGE - Obsolete IT Infra & App Replacement SW Maintenance (Same RAMP item as 00906J.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	150	0
NSE	0	0	0
Total	**0**	**150**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement
Workpaper Detail: 00906J.003 - Cyber - SDGE - Obsolete IT Infra & App Replacement On Premise License (Same RAMP item as 00906J.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	900
NSE	0	0	0
Total	**0**	**0**	**900**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement
Workpaper Detail: 00906J.004 - Cyber - SDGE - Obsolete IT Infra & App Replacement SW Maintenance (Same RAMP item as 00906J.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	150
NSE	0	0	0
Total	**0**	**0**	**150**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement
Workpaper Detail: 00906J.005 - Cyber - SDGE - Obsolete IT Infra & App Replacement Labor (Same RAMP item as 00906J.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	100	0
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**100**	**0**
FTE	0.0	0.8	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906J - RAMP - Cyber - SDGE - Obsolete IT Infrastructure and Application Replacement
Workpaper Detail: 00906J.006 - Cyber - SDGE - Obsolete IT Infra & App Replacement Labor (Same RAMP item as 00906J.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	100
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**0**	**100**
FTE	0.0	0.0	0.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
00906K - RAMP - Cyber - SDGE - Sensitive Data Protection

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906K - RAMP - Cyber - SDGE - Sensitive Data Protection

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2017	2018	2019	2020	2021	2022	2023	2024
Labor	Zero-Based	0	0	0	0	0	155	140	140
Non-Labor	Zero-Based	0	0	0	0	0	840	1,470	1,470
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**995**	**1,610**	**1,610**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2

Business Purpose:

The Sensitive Data Protection program helps reduce the risk of unauthorized access to and disclosure of the Companies' information by understanding where sensitive data is stored, how it is transmitted, and how it is used. This helps to further protect customer and Company information. The activities for this area will help the Companies continue the prudent management of sensitive data.

Physical Description:

The types of sensitive data activities include efforts such as identity access management (IAM) enhancements, data loss prevention (DLP), data crawler technology to identify sensitive data in the environment and mobile device security.

Identity management, also known as identity and access management (IAM), is a framework of policies and technologies to ensure that the right users have the appropriate access to technology resources. Data loss prevention (DLP) is a solution or process that identifies confidential data, tracks that data as it moves through and out of the enterprise and prevents unauthorized disclosure of data by creating and enforcing disclosure policies. Mobile device security includes measures to protect against unauthorized loss of personal or business data, such as bank information, login information, and other data.

The non-labor capital costs for this category are primarily for the hardware and software materials for cybersecurity systems and contractor services. The labor capital costs for this category are for the employees assigned to design, build, and deploy the new systems.

Project Justification:

The activities funded under this area address the following: manipulated data or integrity failure, access control or confidentiality failure, cybersecurity control failures, human error, data corruption or unavailability, theft or destruction of systems and data, and exposure of sensitive business information including customer records.

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906K - RAMP - Cyber - SDGE - Sensitive Data Protection

Forecast Methodology:

Labor - Zero-Based

A zero-based method was utilized to develop labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

Non-Labor - Zero-Based

A zero-based method was utilized to develop non-labor forecast. See Cybersecurity testimony (Exhibit SDG&E-26) Section VI for discussion on capital forecast methodology.

NSE - Zero-Based

NA

Beginning of Workpaper Sub Details for
Workpaper Group 00906K

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail: 00906K.001 - Cyber - SDGE - Sensitive Data Protection On Premise License 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	1,260	0
NSE	0	0	0
Total	**0**	**1,260**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail: 00906K.001 - Cyber - SDGE - Sensitive Data Protection On Premise License RAMP

RAMP Item # 1

RAMP Activity

RAMP Chapter: SDG&E-Risk-6 Cybersecurity

RAMP Line Item ID: C03

RAMP Line Item Name: Sensitive Data Protection

Tranche(s): Tranche1: Overall

GRC Forecast Cost Estimates ($000)

	2021 Historical Embedded Costs (2021 $)	2022 Forecast (2021 $)	2023 Forecast (2021 $)	2024 Forecast (2021 $)	2022 to 2024 Forecast (2021 $)	2022 to 2024 RAMP Range (2020 Incurred $) Low	High
Tranche 1 Cost Estimate	0	995	1,610	1,610	4,215	6,807	8,698

Cost Estimate Changes from RAMP:
The full RAMP range is reflected on each workpaper; Dollars reflect pre-allocated forecast values while RAMP ranges reflect post-allocation values between SoCalGas and SDG&E.

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 NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Work Unit Changes from RAMP:
NA

Risk Spend Efficiency (RSE)

	GRC RSE	RAMP RSE
Tranche 1	202.000	62.000

RSE Changes from RAMP:
General changes to risks scores or Risk Spend Efficiency (RSE) values are primarily due to changes in the Multi-Attribute Value Framework (MAVF) and RSE methodology, as discussed in the RAMP to GRC Integration testimony.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail: 00906K.002 - Cyber - SDGE - Sensitive Data Protection Software Maintenance (Same RAMP item as 00906K.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	210	0
NSE	0	0	0
Total	**0**	**210**	**0**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail:	00906K.003 - Cyber - SDGE - Sensitive Data Protection On Premise License (Same RAMP item as 00906K.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	1,260
NSE	0	0	0
Total	**0**	**0**	**1,260**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail:	00906K.004 - Cyber - SDGE - Sensitive Data Protection Software Maintenance (Same RAMP item as 00906K.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	210
NSE	0	0	0
Total	**0**	**0**	**210**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	CYBERSECURITY
Witness:	Lance R. Mueller
Budget Code:	00906.0
Category:	A. Cybersecurity
Category-Sub:	1. Cyber Security
Workpaper Group:	00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail:	00906K.005 - Cyber - SDGE - Sensitive Data Protection Labor (Same RAMP item as 00906K.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	140	0
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**140**	**0**
FTE	0.0	1.2	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail: 00906K.006 - Cyber - SDGE - Sensitive Data Protection Labor (Same RAMP item as 00906K.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	140
Non-Labor	0	0	0
NSE	0	0	0
Total	**0**	**0**	**140**
FTE	0.0	0.0	1.2

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail: 00906K.007 - Cyber - SDGE - Sensitive Data Protection Software Dev (Same RAMP item as 00906K.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	19	0	0
Non-Labor	200	0	0
NSE	0	0	0
Total	**219**	**0**	**0**
FTE	0.1	0.0	0.0

Note: Totals may include rounding differences.

Area: CYBERSECURITY
Witness: Lance R. Mueller
Budget Code: 00906.0
Category: A. Cybersecurity
Category-Sub: 1. Cyber Security
Workpaper Group: 00906K - RAMP - Cyber - SDGE - Sensitive Data Protection
Workpaper Detail: 00906K.008 - Cyber - SDGE - Sensitive Data Protection Software Dev (Same RAMP item as 00906K.001)
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	136	0	0
Non-Labor	640	0	0
NSE	0	0	0
Total	**776**	**0**	**0**
FTE	1.1	0.0	0.0

Note: Totals may include rounding differences.