Company: Southern California Gas Company (U 904 G)
Proceeding: 2024 General Rate Case
Application: A.22-05-015/-016 (cons.)
Exhibit: SCG-04-R-E

REVISED

PREPARED DIRECT TESTIMONY OF

MARIO A. AGUIRRE

(GAS DISTRIBUTION)

ERRATA

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

~~August 2022~~May 2023

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SUMMARY

GAS DISTRIBUTION (In 2021 $)			
	2021 Adjusted-Recorded (000s)	**TY2024 Estimated (000s)**	**Change (000s)**
Total Non-Shared Services	170,759~~896~~	167,880~~8,017~~	-2,879
Total Shared Services (Incurred)	410	410	0
Total O&M	**171,169~~306~~**	**168,290~~427~~**	**-2,879**

GAS DISTRIBUTION (In 2021 $)				
	2021 Adjusted-Recorded (000s)	**Estimated 2022 (000s)**	**Estimated 2023 (000s)**	**Estimated 2024 (000s)**
Total CAPITAL	**380,525**	**388,786**	**413,355**	**391,525**

Southern California Gas Company (SoCalGas or the Company) requests the California Public Utilities Commission (CPUC or Commission) adopt its Test Year 2024 (TY 2024) General Rate Case (GRC) forecast of $168,290~~427~~,000 for Gas Distribution operations and maintenance (O&M) expenses, which is composed of $167,880~~8,017~~,000 for non-shared service activities and $410,000 for shared service activities. SoCalGas further requests the Commission adopt its forecast of $388,786,000, $413,355,000, and $391,525,000 for capital expenditures in 2022, 2023, and 2024, respectively. SoCalGas's O&M and capital requests are reasonable and fully justified in that the activities:

- maintain and enhance the delivery of clean, safe, and reliable service to customers;
- are consistent with operational laws, codes, and standards established by local, state, and federal authorities;
- support SoCalGas's commitment to mitigate risks associated with hazards to customer/public and employee/contractor safety, infrastructure integrity, and system reliability;
- respond to operations, maintenance, and construction needs associated with the projected customer and system growth, and the demands of city, county, and state agencies under the Company's franchise agreements;

- support construction activities to transition to clean energy;
- maintain and strengthen a qualified workforce; and
- support new field technologies.

The activities described in my testimony below are consistent with the operational laws, the codes, and the standards established by local, state, and federal authorities.[1] This work safeguards the long-term safety and the integrity of the system and includes compliance activities, such as facility inspections, cathodic protection maintenance, pipeline facility maintenance, and odorant levels monitoring. SoCalGas anticipates this work to continue increasing as it manages an aging infrastructure and responds to changing regulatory and legislative requirements.

The activities in my testimony maintain the delivery of clean, safe, and reliable service to SoCalGas's customers while working towards a more sustainable and resilient energy future. SoCalGas prioritizes work to comply with laws and regulations and to provide system integrity and reliability in accordance with the Company's commitment to safety:

> Southern California Gas Company's longstanding commitment to safety focuses on three primary areas: employee and contractor safety, customer safety and public safety, and the safety of the gas delivery system. This commitment to safety is embedded in what we do and is the foundation for who we are – from initial employee training, to the installation, operation, and maintenance of our utility infrastructure, and to providing safe and reliable service to our customers.[2]

The key work categories included in my request in support of this commitment to safety and gas system integrity are as follows:

- Leak Repairs – Main and service line leak evaluation and repair work is completed to address risks to the medium pressure pipeline system.
- Locate and Mark – Gas facilities are located and marked to avoid third-party damage that could create a safety hazard and/or disrupt gas service. Through the completion of this work, SoCalGas provides important information to excavators to safeguard those working around gas facilities and protect the integrity of the

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[1] Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, 49 CFR § 192 et seq.; Cal. Gov't Code § 4216 et seq.; General Order (GO) 112-F; and GO 58-A.

[2] SoCalGas, *2021 Gas Safety Plan* (March 15, 2021) at 7, *available at:* https://www.socalgas.com/sites/default/files/2021_SoCalGas_Gas_Safety_Plan_Final.pdf.

pipeline system. SoCalGas anticipates this work will continue to trend up, as seen in the last five years, due to an increase in construction activity in the public and private sectors. In addition, as Senate Bill (SB) 297, the Wade Kilpatrick Gas Safety and Workforce Adequacy Act of 2021, was signed into law, SoCalGas anticipates increased participation in the One-Call (Dig Alert or Underground Service Alert (USA)), which will further increase locate-and-mark tickets.

- Leak Survey – SoCalGas proactively surveys its gas distribution system for leakage at frequencies determined based on the pipe material involved, the operating pressure, the cathodic protection of the pipe, and the proximity of the pipe to various population densities.
- System Renewal – This includes activities to replace and/or abandon pipeline facilities, such as mains, services, regulating and metering equipment, cathodic protection systems, and electronic equipment, that have reached the end of their useful lives and present a risk of failure.
- High-Pressure Pipeline Documentation – SoCalGas is committed to continue maintaining verifiable, traceable, and complete records for all high-pressure pipeline facilities. Recordkeeping and quality control processes have been established for high-pressure pipeline installations, including limited access to the high-pressure material storage area and an electronic pipeline documentation management system.

The activities in my testimony respond to operations, maintenance, and construction needs associated with the projected customer and system growth and the demands of city, county, and state agencies under the Company's franchise agreements. These activities support the Company's obligation to serve its customers and mitigate system reliability risks. Some examples of this work include:

- New Business – System expansion is performed mainly under SoCalGas's obligation to provide service to new customers and includes the installation of new pipeline infrastructure. SoCalGas anticipates that this work will continue to increase along with the number of new meter set installations due to growth in housing starts and local employment, as discussed by Scott Wilder (Exhibit (Ex.) SCG-35).

- Capacity Improvements – Projects to improve system capacity, such as adding new pipelines or replacing existing infrastructure with larger systems, are completed to accommodate customer and/or load growth.
- Freeway and Franchise – This work is driven by external state and municipal agencies that submit requests for SoCalGas to relocate pipe and any associated facilities that would, in their current locations, interfere with planned construction or reconstruction of freeways, highways, streets, sewers, storm drains, and water lines. SoCalGas anticipates that these agencies will continue with infrastructure improvements to address their aging infrastructure and expansion needs, thus requiring an increase in SoCalGas's pipeline facilities alterations.
- Control Center Modernization – SoCalGas plans to enable Gas Control (GC) to remotely monitor and control the gas distribution system through the development and commissioning of an enterprise pipeline monitoring and asset management system.

The activities in my testimony also maintain and strengthen a qualified workforce. Safety is rooted in all phases of gas distribution training. SoCalGas is taking proactive actions to enhance employee training, qualification, and work quality. An integral component of the overall workforce proficiency is the Operator Qualification (OpQual) program. As a part of the OpQual compliance, employees are trained, as significant changes occur in a work task or as required under SoCalGas's Gas Standards, state pipeline safety standards under General Order (GO) 112-F, and federal pipeline safety standards under the Department of Transportation's (DOT) Pipeline Safety and Hazardous Materials Administration's (PHMSA) 49 Code of Federal Regulations (CFR) § 192. My testimony covers the time associated to Gas Distribution personnel training and qualification. Additional information regarding the OpQual program and skills training can be found in the Gas System Staff & Technology testimony of Wallace Rawls (Ex. SCG-05).

The activities in my testimony also support new technologies. SoCalGas invests in systems and tools that provide innovative ways of maintaining the distribution system and completing the repair of its facilities to improve gas system safety. As SoCalGas continues to implement new technologies, the organization will adapt to the changes.

Lastly, my testimony establishes the reasonableness of the cost incurred in executing the ongoing Mobilehome Park Utility Upgrade Program (MHP Program). As directed by the Commission in D.14-03-021, SoCalGas submits the costs in the Mobilehome Park Utility Upgrade Program Report annually and supports the reasonableness in my testimony. Reasonableness review of costs is limited to recorded costs and excludes any program cost forecasts.

REVISED SOCALGAS DIRECT TESTIMONY OF MARIO A. AGUIRRE

I. INTRODUCTION

A. Summary of Gas Distribution Costs and Activities

My testimony supports the TY 2024 forecasts for O&M costs for both non-shared and shared services, and capital costs for the forecast years 2022, 2023, and 2024, associated with the Gas Distribution area for SoCalGas.

In total, SoCalGas requests the Commission adopt its TY 2024 forecast of $168,290~~427~~,000 for Gas Distribution O&M expenses, which is composed of $167,880~~8,017~~,000 for non-shared service activities and $410,000 for shared service activities. SoCalGas further requests the Commission adopt its forecast of capital expenditures for 2022, 2023, and 2024 of $388,786,000, $413,355,000, and $391,525,000, respectively. In addition, my testimony establishes the reasonableness of $184,971,148 ($180,376,249 in capital expenditures and $4,594,899 in O&M expenditures) incurred through 2021 in executing the ongoing Mobilehome Park Utility Upgrade Program (MHP Program). TABLE MA-1 summarizes my sponsored costs.

TABLE MA-1
Test Year 2024 Summary of Total Costs

GAS DISTRIBUTION (In 2021 $)			
	2021 Adjusted-Recorded (000s)	**TY2024 Estimated (000s)**	**Change (000s)**
Total Non-Shared Services	170,759~~896~~	167,880~~8,017~~	-2,879
Total Shared Services (Incurred)	410	410	0
Total O&M	**171,169~~306~~**	**168,290~~427~~**	**-2,879**

GAS DISTRIBUTION (In 2021 $)				
	2021 Adjusted-Recorded (000s)	**Estimated 2022 (000s)**	**Estimated 2023 (000s)**	**Estimated 2024 (000s)**
NON-COLLECTIBLE (NC)		378,897	387,782	383,220
COLLECTIBLE (CO)		9,889	25,573	8,305
Total CAPITAL	**380,524**	**388,786**	**413,355**	**391,525**

The purpose of this testimony is to demonstrate the reasonableness of SoCalGas's Gas Distribution capital and O&M expenditure forecasts to operate and maintain the gas distribution system and construct new gas distribution facilities. SoCalGas's goal is to become the cleanest, safest, and most innovative energy company in America. This commitment requires that SoCalGas continue to invest in its employees, pipeline assets, and support services to mitigate risks associated with the safety of the public and employees, system reliability, and infrastructure integrity. Specifically, the activities discussed herein:

- Maintain and enhance safety;
- Reflect local, state, and federal regulatory and legislative requirements;
- Maintain overall system integrity and reliability;
- Support construction activities that support the transition to clean energy;
- Respond to customer growth;
- Comply with franchise obligations; and
- Maintain and strengthen a qualified workforce.

This testimony discusses the non-shared and the shared expenses in support of the O&M functions for gas distribution mains and services, measurement and regulator stations, customer meters, regulators, and electronic equipment, and includes the associated engineering, supervision, planning, and regional public affairs support. The capital expenditures presented herein are in support of the installation, replacement, and relocation of distribution pipeline infrastructure. All costs in this testimony are shown in 2021 dollars, unless otherwise noted.

In addition to this testimony, please refer to my workpapers, Ex. SCG-04-WP (O&M) and Ex. SCG-04-CWP (Capital), for additional information about the activities described herein.

SoCalGas's gas distribution system consists of approximately 101,603 miles[3] of interconnected gas mains, services, and associated pipeline facilities. These mains and services, constructed of both steel and plastic materials in varying diameters, are located in most streets within SoCalGas's service territory. The primary function of this distribution pipeline network is to deliver natural gas from SoCalGas's transmission system to approximately 5.9 million

[3] Total mileage that Gas Distribution operates including supply lines greater than 20% Specified Minimum Yield Strength (SMYS) that are reported on the DOT-Transmission report.

customer meters[4] in an area of approximately 24,000 square miles, stretching from Visalia in the north to Mexico in the south, and as far east as the California/Nevada border.

SoCalGas's Gas Distribution network is composed of approximately 51,670 miles[5] of gas mains, which operate at either high pressure (over 60 pounds per square inch (psi)) or medium pressure (60 psi and below). This system contains numerous valves that are capable of isolating the large service territory into smaller operating areas for operational, construction, and emergency purposes. SoCalGas operates regulator stations located throughout the system to maintain gas pressure, regulate the distribution system, and provide adequate capacity to meet customer needs. In addition, SoCalGas's Gas Distribution maintains approximately 49,933 miles of service lines. The gas service lines connect high- and medium-pressure mains to each customer meter set assembly (MSA) and "house pipeline."

SoCalGas routinely performs work to maintain the daily operation of the system, connect new customers, sustain the necessary capacity to serve all customers, replace damaged or deteriorating facilities, and relocate facilities to meet customer or governmental agency needs. SoCalGas's workforce ranges from front-line construction crews to planners and engineers. There are approximately 2,200 distribution employees located at four operating regional headquarter facilities and 52 operating bases throughout SoCalGas's service territory. These employees are responsible for maintaining safe and reliable operation of the gas distribution system.

SoCalGas is committed to the continued long-term investment in its pipeline infrastructure to maintain the integrity of its distribution system and comply with applicable local, state, and federal laws and regulations. SoCalGas actively evaluates the condition of its pipeline system through the operations and maintenance activities and replaces pipeline segments to preserve the safe and reliable system that the customers expect. With the forecasted level of funding and by continuing to identify ways to improve the installation, operation, maintenance, and support activities, SoCalGas anticipates that it can continue to manage the

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[4] SoCalGas, *Company Profile, available at*: http://www.socalgas.com/about-us/company-info.shtml.

[5] Total miles of mains that Gas Distribution operates including supply lines greater than 20% Specified Minimum Yield Strength (SMYS) that are reported on the Department of Transportation (DOT)-Transmission report.

distribution system through business and operational challenges, and to provide service at reasonable rates.

SoCalGas faces a number of challenges affecting both the physical operation of the pipeline system and the cost management aspects of its business that contribute to the forecasts presented in this testimony. These challenges include:

Trained and Qualified Workforce

Safety is rooted in all phases of Gas Distribution training. Maintaining a skilled, qualified, and dedicated workforce is critical to SoCalGas's ability to deliver reliable service to customers and maintain the integrity of its pipeline infrastructure at reasonable rates.

SoCalGas is experiencing increased pressures associated with maintaining a highly trained and qualified workforce while continuing to fulfill the increasing operational demands of the distribution network. Within the workforce, there is increased turnover, primarily due to retirements and employee movement as a result of promotions and transfers, which poses challenges to SoCalGas in the areas of knowledge transfer, skills development, and overall proficiency. Gas Distribution is taking appropriate measures to maintain its highly skilled workforce, recognizing that safety and system reliability cannot be sacrificed during the employment transition times. SoCalGas plans to expand its field workforce and the required vehicles to maintain the necessary skillsets and knowledge within the Company, conscientiously training and mentoring them through on-the-job experience and greater levels of supervision and quality assurance to instill a continued focus on safety and proficiency. For more details on training and skill development, see the Gas Systems Staff & Technology testimony of Wallace Rawls (Ex. SCG-05).

Aging Infrastructure

SoCalGas has a long history of delivering safe and reliable natural gas service, notwithstanding the fact that a significant portion of the pipeline infrastructure has been in service for more than 50 years. Effective maintenance practices have allowed SoCalGas to operate these pipeline facilities safely and reliably for this extended period. However, as the Company's pipeline infrastructure continues to age, it requires higher levels of maintenance, which results in higher costs. This eventually manifests itself in the need for capital replacement of those pipelines. SoCalGas attempts to maintain a reasonable balance between increased maintenance needs and eventual replacement.

In addition to the aging pipelines, SoCalGas is also addressing the aging infrastructure, including, but not limited to, measurement and regulation (M&R) equipment, electronic systems, and cathodic protection system components, such as anode beds and rectifiers. All components of the gas distribution system have a finite useful life that must be observed, and repairs must be anticipated to avoid any service interruptions, non-compliance situations, or adverse safety conditions.

System Growth

SoCalGas's pipeline infrastructure will grow for new construction. With this new construction, additional demands are placed on the existing infrastructure. For example, load growth creates the need for facility upgrades, customer density increase may necessitate the relocation of the existing infrastructure, and general business improvements require the Company to protect its infrastructure from potential damage due to third-party constructions. The new facilities add to the inventory of assets that require operations and maintenance attention, as pipelines must be leak surveyed to monitor asset conditions, and any identified deficiencies must be corrected. Facilities must be located and marked to minimize potential damage from outside sources. System valves, meters, and regulators must be inspected, operated, and maintained. Each of these actions must be completed in accordance with federal and state regulations and are critical to maintaining a safe and reliable distribution system for a growing base of customers.

State and Municipal Agency Construction Requirements

The construction, operation, and maintenance of SoCalGas's vast pipeline system requires interaction and compliance with numerous agencies. These agencies continue to impose new and often more stringent administrative, planning, and field construction operating conditions that can result in increased cost pressures to maintain the gas distribution system. This includes increased costs associated with permits, traffic control plans, paving repair requirements, and restricted work hours. SoCalGas works diligently with these agencies to find solutions that are in the best interest of the customers and the agencies. Nevertheless, these rules often result in cost increases.

Regulatory Requirements

The activities described in my testimony are consistent with the operational laws, codes, and standards established by local, state, and federal authorities.[6] These requirements continue to increase, necessitating changes in work processes and the addition of resources to complete the impacted operations, maintenance, and construction work. Some of these incremental pressures are associated with the implementation of GO 112-F and SB 297.

Effective January 1, 2017, GO 112-F is the State of California's code governing the design, construction, testing, operation, and maintenance of natural gas lines. Some of the continued upward pressures associated with compliance under the General Order include:

- Increase leak survey frequency for high-pressure pipelines (DOT-defined transmission lines)[7] from every year to every 6 months. In Gas Distribution, these lines are known as supply lines.
- Requirements for managing encroachments, including notifications; and development of written plans.
- Monitoring, reporting, and recordkeeping, including new parsing of leak repair and response time data (*e.g.*, response time to make safe and arrive on scene captured in 5-minute intervals up to 45 minutes, 45-60 minutes, and greater than 60 minutes); new monitoring and reporting of timelines to update maps; new criteria and notification for over-pressure incidents; and new parsing of excavation damage data (*e.g.*, damages and costs related to homeowners).

In 2016, the California Governor signed SB 661, named the Dig Safe Act of 2016, which added enforcement to the digging law by establishing the California Underground Facilities Safe Excavation Board. The Board is authorized to take action against those parties who violate the excavation law under California Government Code Section 4216. In addition, in 2021, the California Governor signed SB 297, named the Wade Kilpatrick Gas Safety and Workforce Adequacy Act of 2021, which makes any contractor that causes damage to a subsurface installation as a result of failing to provide notice of the need for a gas corporation to locate and

[6] Transportation of Natural and Other Gas By Pipeline: Minimum Federal Safety Standards, 49 CFR § 192 et seq.; Cal. Gov't Code § 4216 et seq.; GO 112-F; and GO 58-A.

[7] 49 CFR § 192.3.

mark its subsurface installations or commencing excavation before a gas corporation marks its subsurface installations subject to a civil penalty in an amount not to exceed $100,000 and possible suspension or revocation of the contractor's license if specified conditions are met. The State's added enforcement and SB 297's amendments increasing the maximum penalties are expected to compel more excavators to call USA, which will add upward pressure to an already increasing USA ticket volume in California.

SoCalGas anticipates that the level of funding requested in this testimony will provide resources to comply with these incremental regulatory requirements.

My cost forecasts support the Company's goals of continuous improvement while providing clean, safe, and reliable delivery of natural gas to customers at reasonable rates. These costs also mitigate risks associated with hazards to customer/public and employee/contractor safety, infrastructure integrity, and system reliability.

B. Support To and From Other Witnesses

My testimony also references the testimony and workpapers of several other witnesses, either in support of their testimony or as referential support for mine. Those witnesses are Naim Jonathan Peress and Michelle Sim (Ex. SCG-02, Sustainability and Climate Policy), R. Scott Pearson and Gregory S. Flores (Ex. SCG/SDG&E-03, Chapter 2, RAMP to GRC Integration), Neena N. Master (Ex. SCG-27, Safety & Risk Management Systems), L. Patrick Kinsella (Ex. SDG&E-04, SDG&E Gas Distribution), Wallace Rawls (Ex. SCG-05, Gas System Staff & Technology), Rick Chiapa, Aaron Bell, and Steve Hruby (Ex. SCG-06, Gas Transmission Operations & Construction), Maria T. Martinez (Ex. SCG-07, Gas Engineering), Amy Kitson and Travis Sera (Ex. SCG-09, Gas Integrity Management Programs), Armando Infanzon (Ex. SCG-12, Clean Energy Innovations), Daniel J. Rendler (Ex. SCG-14, Customer Services – Field and Advanced Meter Operations), Joseph Chow (Ex. SCG-17, Supply Management, Logistics & Supplier Diversity), Michael Franco (Ex. SCG-18, Fleet Services), Tia L. Ballard, William J. Exon, and Ben W. Gordon (Ex. SCG-21, Information Technology), Angel N. Le and Paul D. Malin (Ex. SCG-30, Shared Services Billing, Shared Assets Billing, Segmentation, & Capital Reassignments), Dane A. Watson (Ex. SCG-32, Depreciation), Scott Wilder (Ex. SCG-35, Gas Customer Forecast), and Rae Marie Yu (Ex. SCG-38, Regulatory Accounts).

1. Gas System Integrity

Gas Distribution receives support from centralized staff organizations, including System Integrity and Asset Management. The support activities provided by these two groups are discussed by Wallace Rawls (Ex. SCG-05). These activities include providing formal training to Gas Distribution employees at our training facilities; Gas Standards development and maintenance; Damage Prevention and Public Awareness Programs management; tools and technology research and implementation; and OpQual program management.

2. Information Technology

Gas Distribution also receives support from centralized staff organizations in Information Technology. The support activities provided by this group are discussed by Tia L. Ballard (Ex. SCG-21, Ch. 2). These activities include the support of enterprise systems (GIS, Click, SAP, etc.) and OpQual program management.

3. Small Meter and Regulator Purchases

I sponsor the capital costs associated with the purchase of both Gas Distribution and Customer Services meters and regulators. The labor costs associated with the replacement of small meters and regulators, typically at residential and small commercial sites, are discussed by Daniel J. Rendler (Ex. SCG-14). Additional information about these capital purchases may be found in Section VI.M (M&R Devices) of my testimony.

4. New Meter Set Forecast

Gas Distribution's New Business construction capital costs, and related meter and regulator unit purchases, are driven by the number of new customer meter set installations. Details on the forecast of housing growth can be found in the workpaper of Scott Wilder (Ex. SCG-35-WP). Additional information about the forecasts related to the new meter sets may be found in Sections VI.A (New Business Construction) and VI.M (M&R Devices) of my testimony.

5. Economic Growth

Gas Distribution utilized the housing start information, as reported by IHS Global Insight, as a directional indicator for general economic conditions and potential economic growth, shown in the workpaper of Scott Wilder (Ex. SCG-35-WP). Additional information may be found in the following sections of my testimony: Sections VI.A (New Business); Section IV.A.2 (Locate

and Mark); Section IV.B (Asset Management); and Section VI.E (Main and Service Abandonments).

6. Incremental Vehicles

SoCalGas is adding the following vehicles in each year to support the additional field workforce associated with the forecasted level of O&M and capital activities as discussed in Section A above regarding Trained and Qualified Workforce:

TABLE MA-2
Incremental Vehicles

Vehicle Type	2022	2023	2024
Light Truck Vans	83	106	123
Medium Duty Trucks	24	31	45
Total	107	137	168

The cost associated with these vehicles are discussed by Michael Franco (Ex. SCG-18).

C. Organization of Testimony

My testimony is organized as follows:

- Introduction;
- Risk Assessment Mitigation Phase (RAMP) Integration;
- Sustainability and Safety Culture;
- Non-Shared Costs;
- Shared Costs;
- Capital;
- Mobilehome Park Reasonableness Review;
- Conclusion.

II. RISK ASSESSMENT MITIGATION PHASE (RAMP) INTEGRATION

Certain costs supported in my testimony are driven by activities described in SoCalGas and SDG&E's respective 2021 Risk Assessment Mitigation Phase (RAMP) Reports (the 2021 RAMP Reports).[8] The 2021 RAMP Reports presented an assessment of the key safety risks for

[8] *See* Application (A.) 21-05-011/-014 (cons.) (RAMP Proceeding). Please refer to the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (Ex. SCG-03/SDG&E-03, Ch. 2) for more details regarding the 2021 RAMP Reports.

SoCalGas and SDG&E and proposed plans for mitigating those risks. As discussed in the testimony of the RAMP to GRC Integration witnesses R. Scott Pearson and Gregory S. Flores (Ex. SCG-03/SDG&E-03, Ch. 2), the costs of risk mitigation projects and programs were translated from the 2021 RAMP Reports into the individual witness areas.

In the course of preparing the Gas Distribution GRC forecasts, SoCalGas continued to evaluate the scope, schedule, resource requirements, and synergies of RAMP-related projects and programs. Therefore, the final presentation of RAMP costs may differ from the ranges shown in the 2021 RAMP Reports. TABLE MA-3 and TABLE MA-4 provide a summary of the RAMP-related costs supported in my testimony:

TABLE MA-3
Summary of RAMP Capital Costs

	2022 Estimated RAMP Total ($000)	**2023 Estimated RAMP Total ($000)**	**2024 Estimated RAMP Total ($000)**	**2022-2024 Estimated RAMP Total ($000)**
RAMP Report Risk Chapter				
SCG-Risk-2 Excavation Damage (Dig-In) on the Gas System	1,872	1,084	1,196	4,152
SCG-Risk-3 Incident Related to the Medium Pressure System	95,550	95,793	92,712	284,055
Sub-Total	97,422	96,877	93,908	288,207
Total RAMP Capital Costs	**97,422**	**96,877**	**93,908**	**288,207**

TABLE MA-4
Summary of RAMP O&M Costs[9]

	BY 2021 Embedded Costs ($000)	TY 2024 Total ($000)	TY 2024 Estimated Incremental ($000)
RAMP Report Chapter			
SCG-Risk-2 Excavation Damage (Dig-In) on the Gas System	19,757	22,023	2,266
SCG-Risk-3 Incident Related to the Medium Pressure System	59,233	49,663	-9,570
SCG-Risk-5 Incident Involving an Employee	111	111	0
Sub-Total	79,101	71,797	-7,304
RAMP Report Cross-Functional Factor (CFF) Chapter			
SCG-CFF-1 Asset and Records Management	0	250	250
Sub-Total	0	250	250
Total RAMP O&M Costs	**79,101**	**72,047**	**-7,054**

A. RAMP Risk and Cross-Functional Factor Overview

As summarized in TABLE MA-3 and above, my testimony includes costs to mitigate the risks and cross-functional factors (CFFs) included in the 2021 RAMP Report.[10] These risks and factors are further described in TABLE MA-5 below:

TABLE MA-5
RAMP Risk and CFF Chapter Description

SCG-Risk-2 – Excavation Damage (Dig-In) on the Gas System	This addresses the risk of excavation damage on the gas system, which includes both medium and high-pressure pipelines upstream of the gas meter, regardless of the party (1st, 2nd, 3rd) that results in significant consequences including serious injuries and/or fatalities.
SCG-Risk-3 – Incident Related to the Medium Pressure System	This addresses the risk of damage, caused by a medium pressure system (maximum allowable operating pressure (MAOP) at or lower than 60 psig) failure event, which

[9] CFF-related information, in accordance with the March 30, 2022 Assigned Commissioner Ruling in A.21-05-011/-014 (cons.), is provided in the RAMP to GRC Integration testimony of R. Scott Pearson and Gregory S. Flores (Ex. SCG-03/SDG&E-03, Ch. 2).

[10] Unless otherwise indicated, references to the 2021 RAMP Report refer to SoCalGas's respective RAMP Report.

	results in serious consequences such as injuries, fatalities, or outages and includes consequences beyond the customer meter.
SCG-Risk-5 – Incident Involving an Employee	This addresses the risk of an employee safety incident that causes serious injuries or fatalities while on duty.
SCG-CFF-1 – Asset and Records Management	Enterprise Asset Management (EAM) is integrated at SoCalGas with the adoption of the national International Standards Organization (ISO) 55000 standard as a guide, and is a core component of SoCalGas's Safety Management Systems (SMS) organization, aligned with the American Petroleum Institute (API) 1173 recommended practice for pipeline safety.

In developing my request, priority was given to these key safety risks to assess which risk mitigation activities Gas Distribution currently performs and what incremental efforts are needed to further mitigate these risks. While developing the GRC forecasts, SoCalGas evaluated the scope, schedule, resource requirement, and synergies of RAMP-related projects and programs to determine costs already covered in the base year and those that are incremental increases expected in the test year.

Mr. Pearson and Mr. Flores (Ex. SCG-03/SDG&E-03, Ch. 2) discuss all of the risks and CFFs included in the 2021 RAMP Reports and the RAMP to GRC integration process.

B. GRC Risk Controls and Mitigations

TABLE MA-6 below provides a narrative summary of the forecasted RAMP-related activities that I sponsor in my testimony.

TABLE MA-6
Summary of RAMP Risk and CFF Activities

RAMP ID	Activity	Description
SCG-Risk-2-C01	Locate & Mark Training (MP)	Locate and mark training provides employees who perform locating tasks with the necessary knowledge and operator qualification to locate and mark underground gas facilities, an imperative task to reduce the risk of accidental damage.
SCG-Risk-2-C02	Locate & Mark Training (HP)	Locate and mark training provides employees who perform locating tasks with the necessary knowledge and operator qualification to locate and mark underground gas facilities, an imperative task to reduce the risk of accidental damage.

RAMP ID	Activity	Description
SCG-Risk-2-C03	Locate and Mark Activities (MP)	Locate and Mark Activities include locating and marking underground gas facilities before excavation occurs, observing (stand-by) pipeline excavation activities, and providing staff support for compliance and improvement.
SCG-Risk-2-C04	Locate and Mark Activities (HP)	Locate and Mark Activities include locating and marking underground gas facilities before excavation occurs, observing (stand-by) pipeline excavation activities, and providing staff support for compliance and improvement.
SCG-Risk-2-C05	Locate & Mark Annual Refresher Training and Competency Program (MP)	This program consists of local supervisors reviewing SoCalGas Gas Standards with the locate and mark workforce. Employees are required to pass the annual refresher training in order to continue locate and mark activities.
SCG-Risk-2-C06	Locate & Mark Annual Refresher Training and Competency Program (HP)	This program consists of local supervisors reviewing SoCalGas Gas Standards with the locate and mark workforce. Employees are required to pass the annual refresher training in order to continue locate and mark activities.
SCG-Risk-2-C13	Locating Equipment (MP)	This control involves providing hardware that is appropriate for rugged outdoor environment that is updated with the latest software to run efficiently and provide correct information to accurately locate underground pipelines.
SCG-Risk-2-C14	Locating Equipment (HP)	This control involves providing hardware that is appropriate for rugged outdoor environment that is updated with the latest software to run efficiently and provide correct information to accurately locate underground pipelines.
SCG-Risk-2-C27	Company Excavator Training (MP)	Company Excavator Training includes the cost of formal training of employees to cover all operational aspects for the safe use of a particular piece of equipment, including the required personal protective equipment, manufacturers recommendations and instructions, and any guidelines and limitations.
SCG-Risk-2-C28	Company Excavator Training (HP)	Company Excavator Training includes the cost of formal training of employees to cover all operational aspects for the safe use of a particular piece of equipment, including the required personal protective equipment, manufacturers recommendations and instructions, and any guidelines and limitations.
SCG-Risk-3-C01	CP Base Activities	CP Base Activities include the monitoring of CP areas, remediation of CP areas that are out of tolerance, and preventative installations to avoid out of tolerance areas.

RAMP ID	Activity	Description
SCG-Risk-3-C02	CP10 Activities	CP10 Activities include the inspection and maintenance of pipeline that is under cathodic protection as prescribed by 49 CFR § 192.465.
SCG-Risk-3-C03	100mV Requalification	100mV Requalification includes the re-evaluation of existing 100mV polarization shift areas at least once every ten years to verify their effectiveness as a measurement for adequate cathodic protection of an area.
SCG-Risk-3-C04	M&R Station and Electronic Pressure Monitor (EPM) Inspection	M&R Station and EPM Inspection includes the inspection and maintenance as preventative measures prescribed within the Code of Federal Regulations.
SCG-Risk-3-C05	Regulator Station Installation & Replacement	Regulator Station Installation & Replacement includes activities to mitigate the top 1% of the regulator stations based on the risk assessment tool.
SCG-Risk-3-C06	MSA Inspection and Maintenance	MSA Inspection and Maintenance target the risk of equipment failures, corrosion, and outside force before operation and safety issues arise.
SCG-Risk-3-C07	EPM Installations & Replacements	EPMs monitor and record system operating pressure and generate alarms when pressure exceed or drop below alarm set points, monitoring for maximum allowable operating pressure (MAOP) exceedance or under-pressure conditions.
SCG-Risk-3-C08	Leak Survey	Leak Survey consists of a thorough search for gas leak indications in an assigned area and report of all detectable leaks using an approved survey method.
SCG-Risk-3-C09/C10/C11	Pipeline Monitoring (Pipeline Patrol, Bridge & Span Inspections, Unstable Earth Inspection)	Pipeline Monitoring activities include the inspections to observe surface conditions on and adjacent to the pipeline right-of-way for indications of leaks, construction activity, and other factors affecting safety and operation to comply with the Code of Federal Regulations.
SCG-Risk-3-C12	Valve Inspection	Valve maintenance is a program that validates that the valves within the system operate at optimum effectiveness, enhancing public safety by providing SoCalGas with the ability to control the pressure and flow of gas in the system.
SCG-Risk-3-C13	Valve Installs and Replacement	Valve Installs and Replacement include activities to remediate any critical valves found inoperable.
SCG-Risk-3-C14	Cathodic Protection – Install / Replace Impressed Current Systems	Cathodic Protection – Install / Replace Impressed Current Systems includes activities to reduce corrosion on the pipeline system utilizing a rectifier and sacrificial anodes as primary components in the system.
SCG-Risk-3-C15	Company Crew & Contractor Inspections	Company Authorized Representatives inspect and score construction work performed by SoCalGas and

RAMP ID	Activity	Description
	on O&M & Capital Pipeline Jobs	contractors to monitor that Company quality standards are met.
SCG-Risk-3-C16	Service Replacements – Leakage, Abnormal Op. Conditions, CP Related	Service Replacements include the replacements due to leakage and anticipated leakages, defects, corrosion, deterioration of pipes, and to meet cathodic protection mandates.
SCG-Risk-3-C17	Main & Service Leak Repair	Main & Service Leak Repair establishes guidelines and requirements for assessing the degree of hazard and coding of leaks or leak indications found on the Company's belowground piping system, and actions required to provide for public safety and repair of the leak as required by SoCalGas's Gas Standards.
SCG-Risk-3-C18	Residential Meter Protection Program	The Residential Meter Protection Project (RMPP) addresses the prevention of potential vehicular damage associated with above-ground distribution facilities at residential properties.
SCG-Risk-3-C19	Main Replacements – Leakage, Abnormal Op. Conditions, CP Related	Main Replacements include the replacements due to leakage and anticipated leakages, defects, corrosion, deterioration of pipes, and to meet cathodic protection mandates.
SCG-Risk-3-C24	CCM SCG Distribution Field Asset Real-Time Monitoring and Control Site Installations / Upgrades and New Control Room Technologies	The Control Center Modernization (CCM) project will enhance distribution field assets by installing control and real-time pressure monitoring capabilities and implementing control room technologies.
SCG-Risk-3-C32	Safety Related Field Orders	Safety Related Field Orders include activities that the field service technicians perform to maintain safe operations of Company facilities.
SCG-Risk-5-C06	Personal Protection Equipment	The procurement and usage of Personal Protection Equipment (PPE) is a fundamental aspect of how SoCalGas conducts operations and maintains the safety of its employees.
SCG-CFF-1-7	Establish an Enterprise Asset Management Operating Model	The Enterprise Asset Management (EAM) operating model includes the implementation and training of risk-based decision-making within Gas Distribution.

These activities are discussed further below in Sections IV and VI, as well as in my workpapers. For additional information and a roadmap, please refer to Appendix B, which contains a table identifying by workpaper the TY 2024 forecast dollars associated with activities in the 2021 RAMP Report that are discussed in this testimony.

The RAMP risk mitigation efforts are associated with the size of the Gas Distribution system (*i.e.*, footage of main and number of services) and specific actions, such as programs, projects, processes, and technology. For each of these mitigation efforts, an evaluation was made to determine the portion, if any, that was already performed as part of historical activities (*i.e.*, embedded base costs) and the portion, if any, that was incremental to base year activities. Furthermore, for the incremental activities, a review was completed to determine if any portion of incremental activity was part of the workgroup's base forecast methodology. The result is what SoCalGas considers to be a true representation of incremental increases over the base year.

My incremental request supports the ongoing management of these risks that could pose significant safety, reliability, and financial consequences.

C. Changes from RAMP Report

As discussed in more detail in the RAMP to GRC Integration testimony of Messrs. Pearson and Flores (Ex. SCG-03/SDG&E-03, Ch. 2), in the RAMP Proceeding, the Commission's Safety Policy Division (SPD) and intervenors provided feedback on the Companies' 2021 RAMP Reports. Appendix B in Ex. SCG-03/SDG&E-03, Ch. 2 provides a complete list of the feedback and recommendations received and the Companies' responses.

Other than as discussed below, the RAMP-related activities described in my GRC testimony are consistent with the activities presented in the 2021 RAMP Report. 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.

Changes from the 2021 RAMP Report presented in my testimony, including updates to forecasts and the amount and timing of planned work, are summarized as follows:

- In response to stakeholder feedback received in the RAMP Proceeding, SoCalGas performed additional "tranching" analysis at a more granular level for some of the risk mitigations described in my testimony.[11] SoCalGas identified five new tranches in this GRC for High Pressure Supply Lines, Medium Pressure Mains – Plastic, Medium Pressure Mains – Steel, Medium Pressure Services – Plastic,

[11] "Tranching" refers to a logical disaggregation of a group of assets (physical or human) or systems into subgroups with like characteristics for purposes of risk assessment. D.18-12-014 at 18.

Medium Pressure Services – Steel, and Meter and Beyond the Meter, as compared to the 2021 RAMP Report. In addition, for some of the risk mitigations that depend on pressure only, SoCalGas utilized High Pressure Supply Lines and Medium Pressure Mains – Plastic & Steel as the two tranches.

- SCG-Risk-3 C16, initially named Cathodic Protection (CP) 10 Service Replacements,[12] has been renamed to Service Replacements – Leakage, Abnormal Operating Conditions, CP Related, and its scope has been extended to include additional risks associated with the service replacements, including leakage, abnormal operating conditions, and encroachment. This is consistent with the scope of Main Replacements – Leakage, Abnormal Operating Conditions, CP Related (SCG-Risk-3 C19), as both main and services are replaced due to leakage and anticipated leakages, defects, corrosion, deterioration, and any other abnormal operating conditions, critical to sustain operational reliability and public safety.
- Activities for Excess Flow Valve or Curb Valve Installation (SCG-Risk-2 C24) and Warning Mesh (SCG-Risk-2 C29 & C30) were presented as discrete controls in the 2021 RAMP Report; however, for purposes of the GRC, SoCalGas has incorporated these activities into those various capital work categories discussed in my testimony.

III. SUSTAINABILITY AND SAFETY CULTURE

Sustainability at SoCalGas focuses on continuous improvement, innovation, and partnerships to advance California's climate objectives incorporating holistic and sustainable business practices and approaches. SoCalGas's sustainability strategy, ASPIRE 2045, integrates five key focus areas across the Company's operations to promote the public interest, and the wellbeing of utility customers, employees, and other stakeholders. Please refer to the Sustainability and Climate Change Policy testimony of Ms. Sim and Mr. Peress (Ex. SCG-02) for a more detailed discussion of SoCalGas's sustainability and climate policies.

[12] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-21.

Safety is foundational to SoCalGas and SoCalGas's sustainability strategy. As the nation's largest gas distribution utility, the safety of SoCalGas's customers, employees, contractors, system, and the communities served has been – and will remain – a fundamental value for the Company and is interwoven in everything SoCalGas does. This safety-first culture is embedded in every aspect of SoCalGas's business. The tradition of providing safe and reliable service spans 150 years of the Company's history and is summarized in SoCalGas's Leadership Commitment statement, which is endorsed by the entire senior management team:

> *SoCalGas leadership is fully committed to safety as a core value. SoCalGas's Executive Leadership is responsible for overseeing reported safety concerns and promoting a strong, positive safety culture and an environment of trust that includes empowering employees to identify risks and to "Stop the Job."*

SoCalGas's approach to safety is one of continuous learning and improvement where all employees and contractors are encouraged and expected to engage in areas of opportunity for learning and promote open dialogue where learning can take place. To learn about SoCalGas's overall safety approach please see the Safety & Risk Management Systems testimony of Ms. Master (Ex. SCG-27).

The activities described in this testimony advance the state's climate goals and align with SoCalGas's sustainability priorities. The distribution system supports SoCalGas's ability to provide continuous service and transport capacity, safeguarding against interruption of service to customers. The underground pipeline infrastructure remains resilient to extreme weather conditions while providing service to power plants and fuel cell systems at some critical facilities for back-up power in the event of an electrical outage.

In addition, the gas distribution system is necessary in reducing carbon intensity and achieving net zero. To meet California's environmental goals, the distribution system has the potential to deliver renewable natural gas, non-greenhouse gas emitting fuels such as hydrogen, and captured carbon to homes and businesses. Surveying and repairing all leaks within the system in a timely manner, responding to the increasing number of USA tickets, and replacing pipelines to enhance the infrastructure for current customers and demand, as well as preparing it for the safe and reliable delivery of clean energy will drive progress in the areas of accelerating the transition to clean energy, protecting the climate, and improving air quality in communities.

SoCalGas's longstanding commitment to safety focuses on three primary areas – (1) employee/contractor safety, (2) customer/public safety, and (3) the safety of the gas delivery system. This safety focus is embedded in what SoCalGas does and is the foundation of who SoCalGas is – from initial employee training, to the installation, operation, and maintenance of SoCalGas's utility infrastructure, and to its commitment to provide safe, clean, and reliable service to customers at reasonable rates. SoCalGas regularly assesses its safety culture and encourages two-way communication between employees and management as a means of identifying and managing safety risks. In addition to the reporting of pipeline and occupational safety incidents, there are multiple methods for employees to report close calls/near misses. At SoCalGas, safety is a core value so the Company provides all employees with the training necessary to safely perform their job responsibilities, such as the continuous Fleet Defense course, regular discussion on Illness Prevention, regular enforcement of "Stop the Job", and the importance of using Personal Protective Equipment (PPE).

Public safety is another top priority for SoCalGas. Gas Distribution O&M covers the management of the programs designed to mitigate the frequency and impact of excavation damages. Additionally, SoCalGas responds to any emergencies to its infrastructure. The Emergency Operations Center, the Regional Emergency Operations Centers, and the Transmission Command Center activate as needed to monitor, coordinate, communicate, and support the field crews and personnel responding to emergencies.

SoCalGas takes an integrated approach to pipeline safety and integrity, beginning with the design and the construction of facilities, followed by continual evaluation and improvement of the operations and maintenance activities, public communication and awareness, emergency response, safety programs and practices, implementation of new technologies, the defined procurement processes that facilitate materials traceability, and a workplace that encourages continual open and informal discussion of safety-related issues. On a daily basis, O&M and capital work elements are managed based on a variety of risk factors and work drivers, such as federal and state regulatory requirements, customer and pipeline growth expectations, franchise obligations, permitting requirements, and conditions found during inspections. These work elements are prioritized first, based on immediate safety and compliance considerations, and then, work is actively prioritized considering factors such as regulatory compliance deadlines,

customer scheduling requirements, and overall infrastructure condition. Safety and compliance considerations are captured throughout the Company's policies and procedures.

Generally, examples of O&M activities categorized as safety and compliance include: leak survey and patrols; leak repairs; locate and mark, stand-by observations, and depth checks; inspections of valves, bridges, spans, and M&R facilities; and maintenance of cathodic protection systems. These elements are generally prioritized ahead of work that can be safely managed to occur within a more flexible schedule. For example, in the case of Code 1 (hazardous) leaks, Gas Distribution crews are required to take immediate and continuous action until the hazard has been mitigated. Activities with more flexible schedules that are also required to safeguard the integrity of the pipeline system include: main and service alterations; compliance work self-audits; and employee training. Additionally, there are several support activities necessary to complete work. These include: dispatch and work scheduling; supervision; technical support; tools; technology systems; and quality assurance.

In addition to the O&M activities, SoCalGas executes a variety of capital improvements, including pressure betterment projects to improve areas of low pressure, pipeline renewals to replace pipelines or obsolete equipment, installations and replacements of cathodic protection systems, and the purchase of electronic monitoring devices for pressure tracking to maintain safe and reliable service. The specific factors considered in the prioritization process of capital work that is performed to mitigate these RAMP risks may vary depending on the type of project. The prioritization of pipeline projects (e.g., mains, services, cathodic protection, valves, and regulator station replacements) is driven by a review of maintenance activities and findings, results of field workforce inspections, and records of condition. These inspection evaluation elements are some of the factors used to determine the replacement needs.

Other factors considered for the replacement of assets include the age of the infrastructure, general equipment reliability, and/or design obsolescence. In addition, during the evaluation of distribution main and service replacements, field and technical staff consider many factors, including the cost of repair versus that of replacement, pipe condition, and results from a risk model used, to help assess the risk-rank of pipeline segments.

Since capital work is dynamic, ongoing assessment of system operations is necessary. For example, construction timelines can be affected by permitting, material availability, customer schedules, other construction-related factors, and/or additional work requirements that

may arise throughout the year in response to maintenance, inspection, and other routine activities. These real-time operational situations are considered when evaluating and subsequently addressing daily distribution pipeline safety and reliability risks.

SoCalGas understands its responsibilities and objectives to create an effective safety culture and does so by building and maintaining a qualified workforce and by mitigating risks associated with public and employee safety hazards, system integrity, and reliability. The OpQual program in Gas Distribution addresses employee training, qualifications, and work quality. It is an integral part of an overall workforce proficiency effort and key to SoCalGas's safety culture. OpQual compliance is closely monitored and employees are trained as significant changes occur. The OpQual program aligns with the recommendations by CPUC auditors and industry leading practices, and it complies with SB 705, which requires pipeline operators to establish and update a Gas Safety Plan that is consistent with leading practices and federal statutes. These activities will drive progress in the area of achieving world-class safety. Refer to the witness testimony of Ms. Master (Ex. SCG-27) for additional details.

IV. NON-SHARED COSTS

"Non-Shared Services" are activities that are performed by a utility solely for its own benefit. Corporate Center provides certain services to the utilities and to other subsidiaries. For purposes of GRC, SoCalGas treats costs for services received from Corporate Center as Non-Shared Services costs, consistent with any other outside vendor costs incurred by the utility.

Spending to comply with federal Distribution Integrity Management Program (DIMP) regulations governing distribution pipeline integrity is addressed by Ms. Kitson and Mr. Sera (Ex. SCG-09). Spending associated with gas operations staff support, including formal training for Gas Distribution; Gas Standards development and maintenance; the management of the Damage Prevention and Public Awareness Programs; tools and technology research and implementation; and OpQual program management is addressed by Mr. Rawls (Ex. SCG-05). Spending associated with the operations staff support of enterprise systems (GIS, Click, SAP, etc.) is addressed by Ms. Ballard (Ex. SCG-21, Ch. 2).

Unique cost centers are used to record the cost of O&M activities performed within Gas Distribution operations. Collectively, approximately 184 cost centers are used in recording the costs presented within this testimony. To facilitate the analysis of historical spending and to

complete an evaluation of the projected expenditures, the cost centers are aggregated into "workgroups" representing similar functions and/or having similar cost drivers. These 184 cost centers are thus aggregated into 12 groups, which are reviewed within this testimony under the following categories:

- Field Operations and Maintenance;
- Asset Management;
- Operations and Management; and
- Regional Public Affairs

In preparing projections for the TY 2024 forecast, SoCalGas Gas Distribution reviewed the historical spending levels, including the units of work, and developed an assessment of the future needs and the associated risks. This analysis entailed a review of the historical 2017 through 2021 spending and consideration of the underlying cost drivers. Depending on the future expectations of the underlying cost drivers, a primary forecast methodology was selected. The selected methods include forecasting based on the historical averages, simple linear trending of the historical data, and 2021 adjusted recorded base year spending. In addition, incremental work above the historical spending levels to maintain the safe and reliable operation of the distribution system and to support the work processes were identified. An analytical calculation was then performed to determine the funding of these new or more extensive work elements. The overall result is a forecast that has its foundation based on the historical representation, to which the incremental expenses have been added.

In summary, Gas Distribution requests that the Commission adopt a TY 2024 forecast of O&M expense for non-shared services of $167,880~~8,017~~,000. This is a decrease of $2,879,000 over the 2021 adjusted recorded base. This decrease is the result of efficiencies identified and an acceleration of leak repairs from the SB1371 Emissions Strategy Program (ESP), which would otherwise result in costs incurred by Gas Distribution base O&M. TABLE MA-7 summarizes the total non-shared O&M forecasts for the listed cost categories.

TABLE MA-7
Non-Shared O&M Summary of Costs

GAS DISTRIBUTION (In 2021 $)			
Categories of Management	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
A. Field Operations and Maintenance	143,027	136,577	-6,450
B. Asset Management	13,119	15,691	2,572
C. Operations and Management	10,768	11,642	874
D. Regional Public Affairs	3,845~~982~~	3,970~~4,107~~	125
Total Non-Shared Services	**170,759~~896~~**	**167,880~~8,017~~**	**-2,879**

The Commission should find this forecast reasonable and fully justified in that: (1) the activities support continued delivery of clean, safe and reliable service; (2) the activities are consistent with local, state, and federal regulations; (3) the activities respond to the operations, maintenance, and construction needs associated with the projected growth demands of city, county, and state agencies; (4) the forecast amounts are reasonable in light of the historical spending and the anticipated work; and (5) the activities support SoCalGas's commitment to mitigate risk associated with hazards to public and employee safety, infrastructure integrity, and system reliability.

A. FIELD OPERATIONS AND MAINTENANCE

TABLE MA-8
Non-Shared O&M Summary of Costs

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
1. Field Support	18,401	22,194	3,793
2. Leak Survey	10,448	7,548	-2,900
3. R - Locate & Mark	19,092	21,301	2,209
4. Main Maintenance	15,362	8,957	-6,405
5. Service Maintenance	5,790	5,004	-786
6. Tools Fittings & Materials	20,555	24,728	4,173
7. Leakage	25,638	17,214	-8,424
8. Measurement & Regulation	10,402	11,150	748
9. Cathodic Protection	17,339	18,481	1,142
Total	**143,027**	**136,577**	**-6,450**

Included in this section of my testimony are the activities and the associated O&M expenses to address the physical condition of the gas distribution system. Gas distribution activities are performed from a regional organizational structure. Similar activities are completed at 52 operating bases located throughout the 24,000 square-mile service territory. The activities completed at these operating bases form the essence of the Field Operations and Maintenance category. These activities can be described as preventative, corrective, or supportive in nature. Preventative work is generally completed on a scheduled basis. It includes the activities and associated costs presented within the workgroups of Leak Survey, Locate and Mark, and Measurement & Regulation. Corrective work is generally reactive to a situation or a facility condition. This includes the activities and the associated costs presented in the workgroups of Main Maintenance, Service Maintenance, Leakage, and Cathodic Protection. Finally, supportive elements are necessary to complete work assignments and include the activities and the associated costs presented in the workgroups of Field Support and Tools, Fittings, and Materials.

1. LEAK SURVEY

Recorded to this workgroup are the labor and non-labor expenses associated with federal and state pipeline safety regulations,[13] which requires SoCalGas to survey its distribution system for leakage. TABLE MA-9 below summarizes Gas Distribution O&M costs associated with Leak Survey activities.

TABLE MA-9
Leak Survey

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
2. Leak Survey	10,448	7,548	-2,900

[13] 49 CFR § 192.723 (Distribution systems: Leakage surveys); GO 112-F.

a. Description of Costs and Activities

SoCalGas pipelines are routinely leak surveyed at intervals of one or five years or multiple times per year. The frequency of this survey is determined by the pipe material involved (i.e., plastic or steel), the operating pressure, the cathodic protection of the pipe, and the proximity of the pipe to various population densities. For example, annual surveys are scheduled in business districts, which are defined as a principal business area in a community where large numbers of people regularly congregate to engage in business activities, and near public service establishments, such as schools, churches, and hospitals.[14] Five-year survey cycles are typically used for plastic and cathodically protected steel mains and services installed in residential areas. SoCalGas has accelerated leak surveying of pre-1986 plastic pipe (Aldyl-A) from a five-year cycle to an annual cycle. Aldyl-A is a polyethylene plastic pipe material widely used in the gas industry. Early vintages of this material (1970s and 1980s) can experience brittleness as it ages, increasing the risk for leakage. SoCalGas has also increased the survey cycles for all cathodically unprotected mains and services from a three-year cycle to an annual cycle.

In addition to the routine leak surveys, the Company performs special leak surveys, as needed, and on more frequent cycles than those discussed above (*e.g.*, two, three, or six months). Examples of this work include conducting leak surveys ahead of street improvements to address pending leaks prior to street moratoriums; after the occurrence of any significant incident (*e.g.*, train derailment, explosion, earthquake, flooding, landslides, etc.) over or adjacent to high-pressure pipelines or related facilities; when increasing the MAOP of a pipeline; when routine survey requirements are not considered adequate because of pipe condition or limited opportunity for gas to vent safely; or when there is a need to monitor pipe condition for special situations, such as material evaluations. During the survey, the field employee patrols above the identified location of SoCalGas's distribution subsurface main and service pipelines with a leak detector to identify, classify, and generate an immediate repair work order, when necessary. SoCalGas currently has approximately 101,603 miles of main and service pipeline that require leak survey.

Included in the Leak Survey workgroup is the forecasted expenditures and the associated work units of the RAMP Leak Survey activity (SCG-Risk-3-C08). The leak survey cost supports

[14] 49 CFR § 192.723.

the safety and reliability of SoCalGas's system by performing the fundamental compliance safety process of leak surveying pipelines to monitor for leakage in the pipeline system. Furthermore, this activity supports SoCalGas's commitment to Sustainability as identifying and fixing leaks on the pipeline system is an important part of SoCalGas's goal to achieve net zero carbon emissions by 2045. Accordingly, this workgroup in its entirety, aligns with a RAMP activity.

TABLE MA-10 below provides the RAMP activity, the forecast, and the RSE for this workpaper. For additional details on this RAMP activity, please refer to my workpapers SCG-04-WP 2GD001.000.

TABLE MA-10
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE[15]
2GD001	SCG-Risk-3-C08	Leak Survey	$10,447	$ 7,547	-$2,900	-
		Sub-Total		**$ 7,547**		

b. Forecast Method

SoCalGas increased the survey cycle frequency for DOT-T defined High Pressure pipelines to semi-annually and quarterly (depending on class location) from annual to comply with added requirements in GO 112-F. SoCalGas has also increased survey cycle requirements for all pre-1986 plastic pipe (Aldyl-A) from a five-year survey cycle to an annual cycle and increased the survey cycle for cathodically unprotected steel pipe from three years to one year. SoCalGas also made efforts to level the leak survey footage throughout the months of the year and between different years within the survey cycles to remove any spikes in survey footage from month to month and between different years. TABLE MA-11 below shows the annual distribution pipe leak surveyed by year. Given these previous efforts, SoCalGas has chosen a base year forecast to forecast the base spending for the leak survey work. This forecast methodology best captures the changes in work described above. Additionally, SoCalGas

[15] Tranche level RSEs are available in SCG-04-WP.

anticipates efficiencies through improved scheduling processes which will lower overall costs in this workgroup.

TABLE MA-11
Annual Distribution Pipe Leak Surveyed by Year

Year	2017	2018	2019	2020	2021
Footage Surveyed	156,995,777	178,588,304	174,379,309	188,681,750	190,116,919

To concentrate personnel on the task of leak survey and maintain costs at a reasonable level, SoCalGas has created a position of Leak Survey Technician that is at a level below the current Construction Technician, who generally performs this task at this time. SoCalGas will be adding 40 Leak Survey Technicians in 2022 and will be adding 40 light duty trucks to support the Leak Survey Technicians. The costs associated with these vehicles are discussed by Mr. Franco (ex. SCG-18). A reduction of $2,900,000 was made below the 2021 adjusted recorded base for TY 2024. Below is a description of the reduction.

i. Leak Survey Improvement

A net benefit of $2,900,000 is included in the TY 2024 request for Leak Survey. SoCalGas implemented process improvements that focus on innovating and modernizing the current processes to strengthen the impact of the work. Specifically, Gas Distribution has been identifying ways to increase the efficiency of scheduling and work execution in the field for O&M activities. SoCalGas has identified ways to eliminate down time of the Leak Survey Technicians through various innovative techniques.[16] TABLE MA-12 provides a summary of the benefit cost efficiencies.

TABLE MA-12
Leak Survey Improvement Benefit Savings (-)

Leak Survey Improvement (In 2021 $) - Benefit Savings (-)	Estimated 2022 (000s)	Estimated 2023 (000s)	Estimated 2024 (000s)
Leak Survey - Benefit Savings	2,900	2,900	2,900

[16] Transforming Our Business (TOB) is a process improvement effort at SoCalGas, undertaken to support SoCalGas's mission to build the cleanest, safest, most innovative energy company in America.

c. Cost Drivers

Costs incurred in this workgroup are primarily related to the amount of footage requiring leak survey. As previously mentioned, SoCalGas has increased survey cycles for high-pressure pipelines and for pre-1986 pipes. Efforts have also been made to level the leak survey footage from month to month and from year to year. Also, a new lower-level position of Leak Survey Technician has been added to help keep costs at consistent levels. Efficiencies gained through scheduling will serve to bring costs down below current levels.

2. LOCATE AND MARK

Locate and Mark is a process mandated by 49 CFR § 192 and California's "One-Call" statute,[17] which requires the owner of the underground facilities to identify their substructures at locations of planned excavations. TABLE MA-13 below summarizes Gas Distribution O&M costs associated with Locate and Mark activities.

TABLE MA-13
Locate and Mark

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
3. R - Locate & Mark	19,092	21,301	2,209

a. Description of Costs and Activities

The activities completed under this cost workgroup are preventative in nature and are required to avert damages caused by excavators working near gas underground substructures. This work is primarily comprised of:

- Locating and marking SoCalGas's underground pipelines;
- Conducting job observations;
- Performing pothole operations; and
- Performing depth checks.

[17] *See* Cal. Gov't Code § 4216, et seq.

Once a notification is received from Underground Service Alert (the Underground Service Alert Region Notification Center), SoCalGas has two working days to respond and identify the location of SoCalGas pipelines within the identified parameter of a pending excavation project.[18] SoCalGas's employees receive Locate and Mark work orders electronically on a Mobile Data Terminal (MDT) through a wireless connection or while docked at the operating base. The employee must travel to the project site and identify the location of SoCalGas's underground substructures utilizing an electronic pipe-locating device, substructure maps, and service history records. Color-coded markings are then placed over the substructures to visually identify the location of SoCalGas's underground facilities. Locate requests can range in scope from a construction project that entails a single excavation, to projects comprised of thousands of feet of construction that require extensive effort to appropriately mark the location throughout the length of SoCalGas's underground pipelines. Details on the historical Locate and Mark work orders (tickets) can be found in TABLE MA-14 below.

TABLE MA-14
Locate and Mark

Total SoCalGas Gas Distribution USA Tickets					
	2017	2018	2019	2020	2021
Number of USA Tickets	661,413	722,201	832,913	815,669	900,960
Annual Expense (000s)	$ 15,704	$ 16,003	$ 17,585	$ 18,181	$ 19,092

Conducting job observations of other entities excavating in close proximity to SoCalGas's pipelines is another important damage prevention activity included in this workgroup. Generally, this involves an employee inspecting job sites to notify excavators of the location of critical SoCalGas facilities. The State of California mandates a preconstruction meeting with excavators requesting Locate and Mark support and requires continuous monitoring of all excavations within 10 feet of high-pressure pipelines.[19]

Another damage prevention activity included in this workgroup is referred to as "potholing" and relates to the California State Code for "Tolerance Zone".[20] A customer

[18] *See* Cal. Gov't Code § 4216.2.

[19] *See* Cal. Gov't Code §4216.2(c).

[20] *See* Cal. Gov't Code §4216(u).

notification to USA generates a formal request sent to SoCalGas, known as a USA ticket, to locate and mark the existing gas facilities. USA markings are used by the requesting agency to establish if the underground facilities pose a conflict with proposed plans. If needed, a small excavation may be done to visually verify the exact location of any facilities indicated at that location.

The fourth damage prevention activity included in this workgroup is referred to as a "depth check". This entails excavating over SoCalGas's underground pipelines in advance of specific construction projects to identify their elevation. This information is often required in advance of a municipal construction project to avoid conflicts with, and potential relocation of, SoCalGas's existing underground pipelines. If the depth information is known, there are often ways to negotiate the design changes to avoid costly relocation requirements.

In 2016, the California Governor signed SB 661, named the Dig Safe Act of 2016, which added enforcement to the digging law by establishing the California Underground Facilities Safe Excavation Board. The Board is authorized to take action against those parties who violate the excavation law under California Code Section 4216. The Dig Safe Act is expected to continue to require more excavators to notify USA, which will add upward pressure to an already increasing USA ticket volume in California. In 2021, SB 297, Subsurface Installations: Penalties, was passed, which enacts the Wade Kilpatrick Gas Safety and Workforce Adequacy act of 2021. SB 297 prescribes a civil penalty of up to $100,000 to be imposed on an operator or excavator who knowingly and willfully violates provisions relating to excavations and subsurface installations and damages a gas or hazardous liquid pipeline subsurface installation in a way that results in the escape of any flammable, toxic, or corrosive gas or liquid. SoCalGas anticipates that this Senate Bill, along with previous legislation and efforts by SoCalGas to advertise the use of calling "one-call" before digging, will have a significant impact on the amount of USA tickets called in over the forecast period. As a result, more employees will be needed to perform Locate and Mark activities in order for the Company to meet the increasing USA ticket demands and prevent marking delays.

Other notable impacts of the Dig Safe Act include the requirement for marking the presence of known abandoned lines and keeping abandoned line records, which will continue to increase the time spent locating each ticket and create additional work for supporting activities. Damages resulting from excavation activity is a RAMP risk and represents a great safety threat

to SoCalGas's pipeline infrastructure, with potential for catastrophic consequences to public safety. SoCalGas manages the risk of third-party dig-ins through mitigation actions that have been developed and implemented over many years, including locate and mark activities.[21] Properly locating and marking gas facilities, as well as performing job observations and depth checks, are activities completed to avert damage by third-party excavators that can interrupt gas service. Furthermore, the completion of this work provides important information to safeguard those working around gas facilities and to protect the integrity and reliability of the pipeline system.

Included in the Locate and Mark workgroup is the forecasted expenditures and the associated work units of the following RAMP activities: (1) Locate and Mark Activities (MP) (SCG-Risk-2-C03), and (2) Locate and Mark Activities (HP) (SCG-Risk-2-C04) identified in the 2021 RAMP Report. Accordingly, this workgroup in its entirety, aligns with a RAMP activity.

TABLE MA-15 below provides the RAMP activities, their respective cost forecast, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers SCG-04-WP 2GD002.000.

TABLE MA-15
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE
2GD002	SCG-Risk-2-C03	Locate and Mark Activities (MP)	$17,756	$19,810	$2,054	14
2GD002	SCG-Risk-2-C04	Locate and Mark Activities (HP)	$1,336	$1,491	$155	98
		Sub-Total		**$ 21,301**		

SoCalGas requests a two-way balancing account for this workpaper due to new regulations (SB 297), which will have the effect of increasing SoCalGas's locate and mark activities, and the uncertainty surrounding just how much the activities will increase. These

[21] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-2 SCG-2-14.

costs will be balanced and recorded in a regulatory balancing account, Locate and Mark Balancing Account (LMBA), which is discussed by Ms. Yu (Ex. SCG-38). A two-way balancing account gives SoCalGas sufficient flexibility to perform the necessary locate and mark work and at the same time allows unspent funds to be returned to ratepayers.

b. Forecast Method

In developing the TY 2024 forecast, the historical expenditures and the associated work units for 2017 through 2021 were evaluated. As previously discussed, one of the cost drivers for locate and mark work are changes in federal, state, and local regulations and requirements that increase the number of tickets, size of work area, and time on premise. Furthermore, the locate and mark activity is driven by general construction activity in public and private rights-of-way and customer growth, which generally fluctuate with economic conditions. For these reasons, the locate and mark forecast is based on the linear trend observed during the last three years (2019 through 2021). Using an average or base year forecast would not appropriately account for the increase in work anticipated over the forecast period, as implementation activities associated with new requirements and construction activities continue to increase. The three-year (2019-2021) linear trend forecast results in a $2,209,000 increase from the 2021 adjusted recorded base in TY 2024.

c. Cost Drivers

The common drivers for the four damage prevention activities in this workgroup are changes to federal, state, and local regulations and requirements, as well as the level of general construction and development activity in the public and private sectors. Examples of these types of construction activities include private construction projects, such as commercial and industrial centers, strip malls, residential remodeling projects; and city, county, and state projects, such as freeway and street improvements, and storm drain and sewer work. In addition, as SoCalGas's infrastructure expands into outlying areas to provide service to new residential developments, increased activity follows as developers move in to construct schools, shops, restaurants, etc. to meet the needs of those new communities.

Federal, state, and local agencies continue to impose new, and often more stringent, operating conditions that can result in increased cost pressures to maintain the gas distribution

system. Increasing permit costs and construction requirements, such as engineered traffic control plans, additional paving requirements, and a growing trend towards restricted working hours, will increase SoCalGas's expenses when excavating for depth to identify elevation data of SoCalGas's facilities in public rights-of-way in advance of construction projects.

3. MEASUREMENT & REGULATION (M&R)

Recorded to this workgroup are labor and non-labor expenses for maintaining and operating regulator stations, medium and large MSAs (also known as customer meters), and associated components. TABLE MA-16 below summarizes Gas Distribution O&M costs associated with M&R activities.

TABLE MA-16
M&R

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
8. Measurement & Regulation	10,402	11,150	748

a. Description of Costs and Activities

M&R activities focus primarily on maintaining and operating approximately 1,951 regulator stations and approximately 102,010 medium and large customer MSAs in the SoCalGas service territory. Regulator stations reduce the pressure of gas entering the distribution system from high-pressure pipelines to provide lower pressures to the distribution pipeline network. Medium and large customers MSAs require routine maintenance of the meters, regulators, and other components to meet customers' capacity requirements and to measure gas volume accurately.

Federal pipeline safety regulation 49 CFR § 192.739(a) (Pressure Limiting and Regulating Stations: Inspection and Testing) requires annual inspection and maintenance of all regulator stations to maintain these devices in good mechanical condition. Pressure checks are done to verify that the station's pressure protection devices perform as designed. If a station does not perform properly, internal maintenance and inspections are conducted. This consists of disassembling the regulator devices and inspecting the internal components for worn or damaged parts. The regulator is cleaned and inspected for corrosion and any faulty parts are replaced. As

regulator stations age, their parts and equipment begin to wear, malfunction, and are hard to disassemble, increasing maintenance requirements.

GO 58-A requires routine maintenance on medium and large MSAs. This General Order requires that meters, regulators, and other components be maintained, repaired, and tested periodically to meet customers' capacity requirements and to measure gas volume accurately. To maintain measurement accuracy, meters are subject to Planned Meter Changeouts (PMC) or are periodically tested, as prescribed in Section 13 of GO 58-A. If an Electronic Pressure Corrector is used for gas measurement, it is also subject to periodic inspection. An Electronic Pressure Corrector work order includes checks on calibration, configuration, battery condition, communication, and wiring. If the MSA is housed in a vault, the vault needs to be inspected, and repaired, if necessary, to protect the MSA.

Regulator stations are critical control elements in the gas distribution system. Failure of a regulator station could result in under- or over-pressurization of the gas distribution system, resulting in reduced service to customers and/or jeopardizing public safety. Therefore, proactive maintenance of these facilities is a priority.

Furthermore, valves maintained within this workgroup have several important purposes including: fire valves at regulator stations to isolate the high and medium-pressure systems; emergency valves to isolate segments of pipelines in case of pipe damage or for operational purposes; and isolation valves to segment portions of the system in the event of a widespread emergency, such as an earthquake. Expenses for the inspection and calibration of electronic pressure monitors used to measure and record distribution system pressures are also included. The costs in this workgroup support the safety and reliability of SoCalGas's system, as well as compliance activities required by governmental regulations. Furthermore, the activities covered in this workgroup support SoCalGas's commitment to mitigate risks associated with hazards to the medium-pressure pipeline system.

i. RAMP Activities

Included in the Measurement and Regulation workgroup is the forecasted expenditures and the associated work units of the following activities: (1) M&R Station and EPM Inspection and Maintenance (SCG-Risk-3-C04), and (2) MSA Inspection and Maintenance (SCG-Risk-3-C06).

Regulator stations reduce the pressure of gas entering the distribution system from high-pressure to provide a lower pressure to be used on the distribution pipeline system. A failure of a regulator station due to mechanical failure, corrosion, contamination, or other cause could result in over-pressurization of the gas distribution system, which may compromise the integrity of medium pressure pipelines and/or jeopardize public safety resulting from potential under- or over-pressure events.

MSA inspection and maintenance activities include maintaining, inspecting, or replacing approximately ten percent of the total 102,010 medium and large M&R MSAs in the SoCalGas service territory. The MSAs reduce the pressure of natural gas and measure the volume of natural gas delivered to the customer.

TABLE MA-17 below provides the RAMP activities, their respective cost forecast, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers SCG-04-WP 2GD007.000.

TABLE MA-17
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE[22]
2GD007	SCG-Risk- 3-C04	M&R Station and EPM Inspection	$4,242	$4,242	$0	-
2GD007	SCG-Risk-3-C06	MSA Inspection and Maintenance	$1,447	$1,447	$0	130
		Sub-Total		**$ 5,689**		

b. Forecast Method

In developing the TY 2024 forecast, SoCalGas evaluated the historical expenditures for 2017 through 2021 and the cost drivers for the M&R workgroup. The expenses in this workgroup are mostly maintenance in nature and are based on the current assets in the system. For this reason, SoCalGas considers the most recent activity level to be representative of future

[22] Tranche level RSEs are available in SCG-04-WP.

spending in the work category. Therefore, a base year forecast method was used to forecast the base expenditures for this workgroup.

Added to this base forecast are incremental work elements not reflected in the base forecast to adequately fund M&R activities in TY 2024. These work elements are described below. The total incremental funding for this workgroup, including the base forecast, and incremental increases is $749,000 over the 2021 adjusted recorded base in TY 2024.

i. Control Center Modernization

The Control Center Modernization (CCM) project will enhance distribution field assets by installing control and real-time pressure monitoring capabilities. Increased operational awareness through the implementation of a centralized data management system and real time monitoring capabilities will help Gas Control personnel to quickly identify abnormal operating pressures within the system and will provide Gas Control personnel with remote control functionality to help prevent an overpressure to the system. With the introduction of these new field assets and capabilities, the CCM project will introduce additional maintenance, new job classifications, and incremental workforce. The specific details regarding the CCM project are in the Gas Transmission Operations testimony of Messrs. Chiapa, Hruby, and Bell (Ex. SCG-06).

c. Cost Drivers

Work activities within the M&R workgroup are driven by the need to safeguard the safety and integrity of the pipeline system as well as regulatory requirements, thus mitigating risks associated with the medium pressure pipeline system. Cost drivers associated with this workgroup include the inspections that must be completed at each of the facilities maintained by the M&R team (e.g., regulation stations, valves, MSAs, pressure/volumetric correctors, and electronic pressure monitors); the follow-up maintenance identified by these inspection results; the recurring routine, scheduled maintenance work; unscheduled maintenance work (e.g., unexpected malfunction of a device); emergency support (e.g., system shut down to respond to damage, pressure incident, or major event as in the case of an earthquake); and support of general operations requirements (e.g., test shut downs to determine system behavior under specific conditions). Some of these activities are driven by the age and type of equipment installed, with generally older or obsolete equipment requiring more maintenance. Other cost drivers of this workgroup include customer requests associated with measurement issues at MSAs.

4. MAIN MAINTENANCE

The main maintenance work in this workgroup is designed to meet the federal (49 CFR § 192) and state (GO 112-F) pipeline safety regulations and to extend the life of distribution main pipelines and related infrastructure. TABLE MA-18 below summarizes Gas Distribution O&M costs associated with Main Maintenance activities.

TABLE MA-18
Main Maintenance

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
4. Main Maintenance	15,362	8,957	-6,405

a. Description of Costs and Activities

Main maintenance work is generally corrective in nature and is required to keep the natural gas system operating safely and reliably. Main maintenance work is primarily comprised of the following activities:

- Franchise alterations;
- Preventative Main Maintenance; and
- Miscellaneous main maintenance.

SoCalGas holds numerous franchise agreements with the municipalities in its 24,000 square-mile service territory. These agreements, which outline the terms under which SoCalGas utilizes public rights-of-way, normally require the relocation or alteration of SoCalGas facilities if they conflict with municipality projects. Some typical projects that impact SoCalGas facilities include street resurfacing, widening, or complete reconstruction. These projects can require maintenance activity by SoCalGas ranging from raising valve lids and casings after they are paved over, to completely relocating SoCalGas pipelines to facilitate street reconstruction. Other typical municipality projects include sewer and water pipeline maintenance, replacement, or new installation. These projects can also require work by SoCalGas to avoid a conflict with the municipality's proposed construction, which can range from altering the elevation of segments of SoCalGas pipelines in their present locations to relocating segments of pipeline or related facilities completely. Franchise work is a municipality-driven requirement; therefore, the impact

to SoCalGas can vary significantly, depending on available municipality funds to complete the projects.

Main maintenance work is also preventative to reduce the risk to public safety. The preventative maintenance work is driven by public safety and compliance requirements. These main maintenance activities include:

- Patrolling high-pressure supply lines to observe surface conditions for indications of leaks, construction activity by others, and miscellaneous factors affecting safety and operation;
- Repairing and/or installing high-pressure warning signs;
- Inspecting bridge crossings and spans for any signs of damage;
- Inspecting and maintaining valves to verify that they are operational; and
- Clearing rights-of-way of brush and debris to maintain accessibility to facilities.

Miscellaneous main maintenance consists of the following activities:

- Repairing damages to SoCalGas pipelines;
- Raising or lowering SoCalGas valve casings;
- Repairing damaged protective coating on mains due to construction activity by other entities; and
- Paving and associated restoration work related to SoCalGas construction.

i. RAMP Activities

Included in the Main Maintenance workgroup is the forecasted expenditures and the associated work units of the following activities: (1) Pipeline Monitoring (SCG-Risk-3-C09/C10/C11), and (2) Valve Inspection (SCG-Risk-3-C12).[23]

SoCalGas conducts pipeline monitoring and inspection activities to proactively target risk factors before operation and safety issues arise. These monitoring activities include pipeline patrols (C09), bridge and span inspections (C10), and unstable earth inspections (C11) to observe surface conditions on and adjacent to the pipeline right-of-way for indications of leaks,

[23] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3-WP SCG-3-17.

construction activity, and other factors affecting safety and operation to comply with 49 CFR § 192.705, 192.721.

Valve maintenance is a program that validates that the valves within the system operate at optimum effectiveness, enhancing public safety by providing SoCalGas with the ability to control the pressure and flow of gas in the system.

TABLE MA-19 below provides the RAMP activities, their respective cost forecast, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers SCG-04-WP 2GD003.000.

TABLE MA-19
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE[24]
2GD003	SCG-Risk-3-C09/C10/C11	Pipeline Monitoring	$229	$229	$0	-
2GD003	SCG-Risk-3-C12	Valve Inspection	$1,084	$1,084	$0	-
		Sub-Total		**$ 1,313**		

b. Forecast Method

The forecast method for Main Maintenance is base year because the most recent activity level in 2021 is representative of future spending in this work category. In developing the TY 2024 forecast, the historical expenditures and the associated work units of 2017 through 2021 were evaluated. The primary driver for labor costs within the main maintenance workgroup is compliance maintenance activities such as Pipeline Patrol, Bridge and Span Survey, Unstable Earth Survey, and Valve Maintenance. The compliance maintenance activities are generally stable from year to year as they are based on the assets currently in the system. The primary driver for non-labor costs within the main maintenance workgroup is paving costs. While paving costs have steadily risen over the last several years, SoCalGas expects these to plateau at current

[24] Tranche level RSEs are available in SCG-04-WP.

spending levels over the forecast years. Therefore, a base year forecast was used to forecast base expenses for these workgroup components.

SoCalGas has been increasing its efforts to mitigate methane emissions through the SB1371 Emissions Strategy Program (ESP). Through ESP, SoCalGas is accelerating its leak abatement efforts, which will influence the base O&M costs in this workgroup. The paving costs associated to the ESP orders that are typically included in this workgroup have been reduced in the forecast to reflect the accelerated leak abatement efforts. Additionally, SoCalGas anticipates that efficiencies will be realized which will also lower overall costs in this workgroup.

The base forecast is adjusted by a funding reduction of $6,405,000 below the 2021 adjusted recorded base for TY 2024. Below is a description of the adjustments.

i. Main Maintenance Improvement

A net benefit of $1,250,000 is included in the TY 2024 request for Main Maintenance. SoCalGas implemented process improvements that focus on innovating and modernizing the current processes to strengthen the impact of the work. Specifically, Gas Distribution has been identifying ways to increase the efficiency of scheduling and work execution in the field for O&M activities. SoCalGas has identified ways to eliminate down time of the field employees through various innovative techniques.[25] TABLE MA-20 provides a summary of the benefit cost efficiencies.

TABLE MA-20
Main Maintenance Benefit Savings (-)

Main Maintenance (In 2021 $) - Benefit Savings (-)	Estimated 2022 (000s)	Estimated 2023 (000s)	Estimated 2024 (000s)
Main Maintenance - Benefit Savings	1,250	1,250	1,250

ii. SB 1371 Emissions Strategy Program

A net benefit of $5,155,000 is included in the TY 2024 request for Main Maintenance. SB1371 Emissions Strategy Program (ESP) has been increasing its efforts to mitigate methane emissions through accelerating the repair of leaks ahead of regulatory mandated repair schedules. The paving costs associated to the ESP orders that are typically included in this workgroup have

[25] TOB is a process improvement effort at SoCalGas, undertaken to support SoCalGas's mission to build the cleanest, safest, most innovative energy company in America.

been reduced in the forecast to reflect the accelerated leak abatement efforts. Additional details may be found in supplemental workpaper SCG-04-MAA-O&M-SUP-003, located under Main Maintenance in Ex. SCG-04-WP.

c. Cost Drivers

The work completed in this workgroup is driven by the objective to protect the integrity of the pipeline system through activities that extend its life and the requirement to meet federal and state pipeline safety regulations. These activities support SoCalGas's commitment to mitigate risks associated with hazards to public safety, infrastructure integrity, and system reliability. As outlined above, multiple factors influence the level of spending on main maintenance in a given year. These factors include:

- The level of compliance maintenance work required each year. This includes patrolling high-pressure pipelines; repairing or installing pipeline signs (markers); inspecting bridge crossings and spans; inspecting and maintaining valves; and clearing rights-of-way.
- The level of work completed by municipalities such as street resurfacing, widening, or reconstruction; and sewer and water pipeline maintenance, replacement or new installations. Per its franchise agreements, SoCalGas is required to complete associated maintenance activities, such as raising or lowering SoCalGas valve casings and lids; altering the elevation of segments of SoCalGas pipelines in their present locations; or relocating segments of pipeline or related facilities completely. The impact to SoCalGas can vary significantly, depending on available municipality funds, which may be driven by economic conditions.
- The level of construction activities performed by SoCalGas that require paving and associated restoration work related to its construction activities in private and public property.
- Other drivers include the cost for materials, permitting, and special municipality construction requirements. As these cost pressures increase, they impact the overall cost for this activity.

5. SERVICE MAINTENANCE

The work in this workgroup is designed to meet federal (49 CFR § 192) and state, (GO 112-F) pipeline safety regulations and to extend the life of the distribution service pipeline system. Service maintenance work is generally corrective in nature and is required to keep the natural gas system operating safely and reliably. TABLE MA-21 below summarizes Gas Distribution O&M costs associated with Service Maintenance activities.

TABLE MA-21
Service Maintenance

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
5. Service Maintenance	5,790	5,004	-786

a. Description of Costs and Activities

Service maintenance work is primarily comprised of the following activities:

- Meter Set Assembly (MSA) alterations;
- Meter guard replacements;
- Miscellaneous service maintenance; and
- MSA maintenance.

MSA alteration work, which consists of changes to meter location or size, is required to facilitate construction, customer gas usage changes, or other changes to customer property. This workgroup includes expenses for the associated changes to the MSA, as well as expenses to rebuild damaged MSAs, and work to change, raise, or lower service valves.

Meter Guards (barricades) are installed to protect the MSA at existing customer locations from vehicular traffic in accordance with state and federal code. The meter guards are initially installed at targeted sites where traffic is a consideration to protect MSAs susceptible to damage. Over time, these meter guards may get damaged or deteriorate and require maintenance or replacement.

Work captured in the miscellaneous service maintenance account includes the following activities:

- Repairing facilities damaged by outside sources or natural causes, such as fire or rain;
- Removing abandoned service pipe; and
- Repairing or replacing curb valves or meter boxes.

MSA maintenance work mostly consists of preventative maintenance work on the MSA dealing with surface corrosion. MSA maintenance work is often identified during the leak survey process where follow up orders are created by the Leak Survey Technician necessitating another employee to follow up and mitigate the maintenance issue.

b. Forecast Method

In developing the TY 2024 forecast, the historical expenditures and the associated work units for 2017 through 2021 were evaluated. In addition to the labor and non-labor costs, the service maintenance workgroup contains credits collected from third parties to compensate for damages caused to the gas pipeline system during excavation activities.

There are multiple service maintenance activities covered in this workgroup as well as a variety of factors that influence the level of work and associated spending for this workgroup, including an aging infrastructure, government regulations, public safety, customer requests, municipality requirements, material failure, infrastructure condition, and economic conditions. Given these continuing upward pressures from a variety of drivers, SoCalGas used a three-year (2017 through 2021) average to forecast the base level of funding needed for TY 2024. Using a linear or base year forecasting method would not be appropriate for this work category as it would not provide sufficient funding for the level of work anticipated in the future for this critical compliance and maintenance activity.

For the damage credits component of this workgroup, SoCalGas used a three-year (2019 through 2021) average to forecast future expense. This option is best suited for these activities, given the unpredictability of damages – both in terms of frequency and severity – and the timing of collecting funds from third parties. Furthermore, the collection of the damage credit can occur in a different year as the damage itself. Given this uncertainty and variability, a three-year average for damage credits is the best forecast option. The TY 2024 forecast for this workgroup results in a decrease of $786,000 from the 2021 adjusted recorded base. Additional details may

be found in supplemental workpaper SCG-04-MAA-O&M-SUP-001, located under Service Maintenance in Ex. SCG-04-WP.

c. Cost Drivers

The work completed in this workgroup is driven by the requirement to meet federal and state pipeline safety regulations and the objective to protect the integrity of the pipeline system through activities that extend its life. As outlined above, multiple factors influence the level of spending on service maintenance in a given year. These factors include:

- The level of customer requests to have their gas service lines and MSAs altered to accommodate property improvements. Such improvements to existing homes and businesses are often economy driven. This also includes removing abandon service pipe.
- The number of gas service lines and MSAs alterations to correct unsafe conditions or changes in customer load usage. This also includes the replacement of meter guards; work to change, raise, or lower service valves; and repairing or replacing curb valves or meter boxes.
- The level of repairs on facilities damaged by natural causes, such as fire or rain.
- The cost for materials, paving, permitting, and special municipality construction requirements. As these cost pressures increase, they impact the overall cost for this activity.

6. LEAKAGE

Leakage work is required to keep the natural gas system operating safely and reliably. The work in this workgroup is designed to meet federal (49 CFR § 192) and state (GO 112-F) pipeline safety regulations and to extend the life of distribution main and service pipelines. TABLE MA-22 below summarizes Gas Distribution O&M costs associated with Leakage activities.

TABLE MA-22
Leakage

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
7. Leakage	25,638	17,214	-8,424

a. Description of Costs and Activities

Leakage work is primarily comprised of the following activities:

- Main leak repairs;
- Service leak repairs;
- Leak evaluations;
- Meter Set Assembly (MSA) leak repairs; and
- Service Alterations

Main and service leak evaluation and repair work is generally completed to mitigate risks associated with the medium pressure pipeline system. Main and service leaks in the gas distribution system are often identified through SoCalGas's leak surveys, by field service personnel while completing other field work assignments, and via customer calls. In responding, SoCalGas completes a process of identification and evaluation. Leaks are prioritized for ongoing field response based on a number of factors including location, concentration of gas, and potential hazard to the public and property. Federal and state pipeline safety regulations require operators to take immediate action to contain hazardous leaks (referred to as "Code 1" within SoCalGas) and to repair them promptly. Non-hazardous leaks are prioritized based on their potential to become hazardous and are repaired within 15 months or re-evaluated until their classification changes. Main and service leak repairs generally require excavating in public and private property to determine the exact location of the leak and make repairs. This work often involves setting up traffic control, cutting pavement or concrete, excavating, and repairing main and service pipe facilities; followed by backfilling the excavation, compacting the soil, and making permanent repairs to pavement and landscaping.

MSA leak repairs are leaks identified on the meter set assembly. MSA leaks in the distribution system are often identified through SoCalGas's leak surveys, by field service personnel while completing other field work assignment, and via customer calls. Similar to the

evaluation process for main and service leaks, MSA leaks are classified based on several factors including the severity of the leak and the proximity of the leak to buildings and public places.

Service alterations result most often due to leakage or damage to a service line. SoCalGas is also required to alter its gas service lines for various reasons including to respond to customer requests or correct unsafe conditions. Examples of correcting unsafe conditions include repairs due to earth movement, and conflicts with substructures. Customers also request that their gas service lines be altered to accommodate property improvements. Such improvements to existing homes and businesses, which are often economy driven, impact the service alteration work.

Included in the Leakage workgroup are the forecasted expenditures and the associated work units of the Main & Service Leak Repair activity (SCG-Risk-3-C17). Accordingly, the majority of this workgroup aligns with a RAMP activity.

TABLE MA-23 below provides the RAMP activity, the forecast, and the RSE for this workpaper. For additional details on this RAMP activity, please refer to my workpapers SCG-04-WP 2GD006.000.

TABLE MA-23
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE[26]
2GD006	SCG-Risk-3-C17	Main & Service Leak Repair	$24,108	$16,296	-$7,812	-
		Sub-Total		**$ 16,296**		

b. Forecast Method

A base year forecast method was used for Leakage work. In developing the TY 2024 forecast, the historical expenditures and the associated work units for 2017 through 2021 were evaluated. In addition to the labor and non-labor costs, the leakage workgroup contains credits collected from third parties to compensate for damages caused to the gas pipeline system during excavation activities. There are multiple leakage activities covered in this workgroup as well as

[26] Tranche level RSEs are available in SCG-04-WP.

a variety of factors that influence the level of work and associated spending for this workgroup, including an aging infrastructure, government regulations, public safety, customer requests, material failure, and infrastructure condition. Over the last several years, SoCalGas has been accelerating the rate of leak repairs and decreasing the time frame from identifying leaks to repairing leaks. As such, the number of leaks repaired per year has been increasing. SoCalGas expects the number of leaks repaired per year to remain steady at current levels over the forecast period. Therefore, a base year forecast method was used to forecast the base level of future labor expense. Using an average forecasting method would not be appropriate for this work category as it would not fully fund future critical compliance and maintenance work and a linear forecast method would likely overstate the amount of funding needed.

For the damage credits component of this workgroup, SoCalGas used a five-year (2017 through 2021) average to forecast future expense. This option is best suited for these activities, given the unpredictability of damages – both in terms of frequency and severity – and the timing of collecting funds from third parties. Furthermore, the collection of the damage credit can occur in a different year as the damage itself. Given this uncertainty and variability, a five-year average for damage credits is the best forecast option. Additional details may be found in supplemental workpaper SCG-04-MAA-O&M-SUP-002, located under Leakage in Ex. SCG-04-WP.

The funding request for the leak repairs covered in my testimony does not include any funds that are requested through the Emissions Strategy Program's cost recovery mechanism that will be implemented pursuant to SB 1371. The main drivers of the leak repair costs included in my testimony are intertwined with safety-related work (*e.g.*, leak survey) and building upon previous GRC commitments (TY 2019 GRC and Environmental Defense Fund (EDF) Settlement) to reduce the inventory, even though these repairs will also have a secondary benefit of reducing methane emissions. In contrast, the main driver for SB 1371 is reducing methane emissions and therefore focuses on addressing emerging, non-hazardous leaks, ahead of the current repair schedule.

Additionally, the forecast for TY 2024 is reduced by $8,424,000 due to the leakage work associated with SB 1371 Emissions Strategy Program, discussed further below.

i. SB 1371 Emissions Strategy Program

A net benefit of $8,424,000 is included in the TY 2024 request for Leakage. SB 1371 Emissions Strategy Program (ESP) has been increasing its efforts to mitigate methane emissions through accelerating the repair of leaks ahead of regulatory mandated repair schedules. With this accelerated effort, SoCalGas anticipates more leaks to be repaired under the ESP and, subsequently, less leaks to be repaired within this workgroup. Therefore, the anticipated costs associated to ESP in this workgroup have been reduced in the forecast. Additional details may be found in supplemental workpaper SCG-04-MAA-O&M-SUP-004, located under Leakage in Ex. SCG-04-WP.

c. Cost Drivers

The work completed in this workgroup is driven by the requirement to meet federal and state pipeline safety regulations and the objective to protect the integrity of the pipeline system through activities that extend its life. These activities support SoCalGas's commitment to mitigate risks associated with hazards to public safety, infrastructure integrity, and system reliability. As outlined above, multiple factors influence the level of spending on Leakage in a given year. These factors include:

- The number of leaks evaluated and repaired each year. This work is completed to address risks to the medium pressure pipeline system. As discussed previously, leaks are found by employees conducting leak survey and other field activities, or by customers who call indicating a gas smell. In addition, the rate at which leaks are found can increase due to aging infrastructure or changes in work processes or technology.
- The level of repairs associated with damages to SoCalGas's pipeline facilities by third parties. This cost is driven by the number and severity of the damages. For example, damage to a service line is less costly than damage to a high-pressure line, which may require multiple days of work and a large number of personnel to address. This work category has a credit for funds collected from the third parties that caused the damage. However, collecting funds for damages can be an extensive process that includes the third-party accepting responsibility (or being compelled to accept responsibility) for the damage and the level at which costs will be refunded. Thus, collection of funds is highly variable and unpredictable.

In addition, there is damage to gas pipeline facilities that is not always traceable to a specific construction firm. Rather, it is found as part of other field activities.

- Government regulations can also impact this work category as a result of more stringent requirements. As previously discussed, SoCalGas is taking action to reduce its inventory of pending non-hazardous leaks and repair all leaks consistent with the timelines in 49 CFR § 192, GO 112-F, and SB 1371.

7. CATHODIC PROTECTION

Without proper intervention, buried steel pipelines will corrode by reverting back to their natural state as an iron oxide. Corrosion on pipelines increases the potential for leaks and can reduce the useful life of the pipelines. In addition to the application of coating and electrical isolation, cathodic protection (CP) is one method for mitigating external corrosion on steel pipelines. TABLE MA-24 below summarizes Gas Distribution O&M costs associated with CP activities.

TABLE MA-24
Cathodic Protection

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
9. Cathodic Protection	17,339	18,481	1,142

a. Description of Costs and Activities

Cathodic Protection (CP) combats corrosion by imposing an electric current flow toward the surface of the pipeline, which keeps the pipeline negatively charged (cathodic) with respect to the surrounding soil. This results in reduced corrosion on the pipeline system. CP uses both magnesium anodes and rectifier stations to impose a negative charge on the pipeline. Additionally, test stations are installed to monitor the CP system and insulators are placed on the mains to isolate CP areas. This workgroup includes monitoring and evaluation activities for maintaining an effective CP system and the resulting identified field maintenance activities.

Activities for the inspection and evaluation of the CP system on SoCalGas's steel distribution pipelines are undertaken to maintain the longevity and performance of SoCalGas's

distribution steel pipeline system and are performed by system protection specialists who are responsible for maintaining compliance with 49 CFR § 192.465 (External Corrosion Control: Monitoring). Inspection and evaluation of the pipelines' CP system can include: checking rectifiers for proper operation, identifying the location of interface bonds, evaluating "short circuits", identifying locations for installation of anodes for continued pipe protection, and taking pipe-to-soil readings to evaluate electric current levels. Based on the results of these monitoring activities, replacement, upgrade, or alteration of CP system components may be planned.

Cathodic protection maintenance work is generally completed either due to the observed condition of the system or in reaction to third-party actions. Maintenance work is necessary to replace anodes as they become depleted and no longer provide the level of protection required for the pipeline. Anode depletion is accelerated by drought conditions, as dry soil does not allow the current to travel as far and protect as much pipe. In addition, CP maintenance work is often reactive to the activities of municipalities, other utilities, and construction firms.

Examples of maintenance activities performed within this workgroup include:

- Installing anodes;
- Clearing underground shorts created by two pipelines touching each other;
- Repairing or replacing broken wires to anodes or test stations;
- Raising test station lids as a result of the re-pavement of streets;
- Adding test points on pipelines;
- Installing insulators on mains and services; and
- Clearing interference with third-party CP systems.

The cathodic protection activity is a mitigation measure supporting Incidents Related to the Medium Pressure System identified in the RAMP Report[27] and discussed in Section II above. This cost supports the safety and reliability of SoCalGas's system by performing the CP maintenance to prevent corrosion and extend the life of the distribution pipelines.

Included in the Cathodic Protection workgroup is the forecasted expenditures and the associated work units of the following activities: (1) Cathodic Protection Base Activities (SCG-Risk-3-C01), (2) Cathodic Protection – CP10 Activities (SCG-Risk-3-C02), and (3) Cathodic

[27] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3.

Protection – 100mV Requalification (SCG-Risk-3-C03) identified in the 2021 RAMP Report. Accordingly, this workgroup in its entirety, aligns with a RAMP activity.

TABLE MA-25 below provides the RAMP activities, their respective cost forecast, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers SCG-04-WP 2GD008.000.

TABLE MA-25
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE[28]
2GD008	SCG-Risk-3-C01	CP Base Activities	$15,078	$15,078	$0	-
2GD008	SCG-Risk-3-C02	CP10 Activities	$2,174	$2,174	$0	6.2
2GD008	SCG-Risk-3-C03	100mV Requalification	$74	$1,216	$1,142	29
		Sub-Total		**$ 18,468**		

b. Forecast Method

In developing the TY 2024 forecast, the historical expenditures and the associated work units of 2017 through 2021 were evaluated. As discussed above, there are several factors that will continue to place pressure on the maintenance of the CP system. Multiple CP activities are covered in this workgroup as well as several factors that influence the level of spending in a given year. These factors include increasing aging infrastructure, municipality requirements, and material degradation. RAMP controls C01 and C02 represent activities that are maintenance in nature and are based on the current assets in the system. For this reason, SoCalGas finds that the base year forecast is the most representative of future base expenses for this workgroup. Using a simple average forecasting method would not be appropriate for this work category, as it would not sufficiently fund critical compliance and maintenance work for the anticipated work

[28] Tranche level RSEs are available in SCG-04-WP.

requirements. Using a linear historical forecast would likely overstate the necessary funding needed for this workgroup.

Added to this base year forecast are incremental work elements not reflected in the base forecast to adequately fund CP activities in TY 2024. The work elements are described below. The total incremental funding for this workgroup, is $1,141,000 over the 2021 adjusted recorded base for TY 2024.

i. RAMP C03 Cathodic Protection 100mV Requalification

In addition to meeting federal and state requirements, based on feedback from the Commission's Safety and Policy Division during a 2018 safety audit, SoCalGas issued new guidelines requiring the re-evaluation of existing 100 mV polarization shift areas at least once every ten years to verify their effectiveness as a measurement for adequate Cathodic Protection of an area. A pipeline utilizing the 100 mV polarization shift criteria must achieve a minimum of 100 mV of polarization along its entirety through the application of Cathodic Protection. This activity supports the safety and integrity of the system and mitigates risks defined in the RAMP chapter Incidents Related to the Medium Pressure Gas System (Excluding Dig-in).[29] The funding to address this incremental requirement is $1,141,000 over the base forecast for TY 2024.

c. Cost Drivers

Work activities within the Cathodic Protection workgroup are driven by the need to safeguard the integrity of the pipeline system and minimize future corrosion-related leaks as well as regulatory requirements,[30] thus mitigating risks associated with the medium pressure pipeline system. The basic cost drivers for this workgroup are the compliance inspections and associated evaluations (troubleshooting), as well as planned and unplanned maintenance actions that must be completed each year for each CP area and isolated CP segment. These maintenance activities include replacing, upgrading, or altering components of the CP system such as anodes, rectifiers, anode beds, bonds, test points, electric drops, anode wells, and insulators. Many of these

[29] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3.

[30] *See, e.g.*, 49 CFR § 192.465 (External corrosion control: Monitoring).

activities are driven by the age of the system components, with generally older elements requiring more maintenance.

Furthermore, the typical life of anodes, a critical component of the CP system, can vary depending on a number of drivers, including, the weather, soil conditions, the pipeline length it is protecting, and the effectiveness of the pipe's coating. Anode depletion is accelerated by drought conditions, as dry soil does not allow the current to travel as far and protect as much pipe. In addition, some soils are more resistive than others, causing anodes to deplete at a higher rate. Cathodic protection maintenance work is often reactive to activities of municipalities, other utilities, and construction firms as they complete projects of street reconstruction, widening, or resurfacing, or sewer and water line maintenance and replacement, as these activities can lead to CP component damage. In addition, pipes can come into contact with water lines or with third-party grounding systems that can drain current from the pipeline, thus reducing the level of protection and depleting anodes. Customers placing metal objects against the MSA riser can have the same effect as shorting out the CP current.

8. FIELD SUPPORT

Recorded to the Field Services workgroup are a variety of support services to successfully complete daily Gas Distribution O&M activities. TABLE MA-26 below summarizes Gas Distribution O&M costs associated with Field Support activities.

TABLE MA-26
Field Support

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
1. Field Support	18,401	22,194	3,793

a. Description of Costs and Activities

A variety of support services to successfully complete the daily O&M activities within Gas Distribution Operations are recorded to this workgroup. The primary components are:

- Scheduling and Dispatch Operations;
- Field employee training time;

- Field employee meeting time; and
- Materials support

Scheduling and Dispatch Operations employees work in coordination with field supervision, field employees, technical planning, third-party contractors, cities, and counties. They utilize a combination of information technology systems and manual processes to distribute work to SoCalGas and contractor field personnel. This coordination with other departments and agencies is critical for the completion of field operations and maintenance work.

Employees attend training because they are new to their job, require operator qualification, receive ongoing refresher training, are promoted to a position requiring additional technical skills, or need additional training for new equipment, new technology, or changes in Company policies or external regulations. Other labor hours recorded to Field Support workgroup include participation in activities such as meetings on safety, customer satisfaction, general communications, completion of audits of base operations, and stocking trucks with tools and fittings. These off-production activities help to maintain a proficient and effective field workforce and meet regulatory requirements.

Materials support includes expenses for miscellaneous equipment and services that provide essential administrative and logistic assistance to the activities within the Field Operations and Maintenance workgroups discussed in Section III. A, above. It encompasses such items as general office supplies, business forms, cell phones, trash collection, miscellaneous contract services, and employee expenses.

The Field Support cost supports the safety and reliability of SoCalGas's system by providing field support, supervision, and required employee training and qualification.

i. RAMP Activities

Included in the Field Support workgroup is the forecasted expenditures and the associated work units of the following activities: (1) Personal Protection Equipment (PPE) (SCG-Risk-5-C06), (2) Locate and Mark Training (MP) (SCG-Risk-2-C01), (3) Locate and Mark Training (HP) (SCG-Risk-2-C02), (4) Locate and Mark Annual Refresher Training (MP) (SCG-Risk-2-C05), (5) Locate and Mark Annual Refresher Training (HP) (SCG-Risk-2-C06), (6) Company Excavator Training (MP) (SCG-Risk-2-C27), and (7) Company Excavator Training (HP) (SCG-Risk-2-C28).

The purpose of SoCalGas's PPE Program is to protect employees from the risk of injury by creating a barrier against workplace hazards. The PPE Program addresses eye, face, head, foot, and hand protection. The portion of the program covered within this workgroup is specifically related to a boot allowance used by field employees to purchase new boots each year. Other elements of the PPE program are included throughout my testimony; however, the costs could not be isolated as they are part of various orders.

Locate and mark training provides employees who perform locating tasks with the necessary knowledge and operator qualification to locate and mark underground gas facilities. In addition, all company personnel performing Locate and Mark Activities must complete an annual re-training and refresh program. This program consists of local supervisors reviewing SoCalGas Gas Standards with the locate and mark workforce. Employees are required to pass the refresher training in order to continue Locate and Mark Activities.

A formal training program provides excavation training to employees who are required to excavate as part of their job duties. The training reinforces safe excavating procedures, so employees know how to avoid damaging company pipelines as well as other utilities' buried facilities. The training includes the use of a pneumatic clay spade around buried facilities and backhoe training. The training is comprehensive in content, covering all operational aspects for the safe use of a particular piece of equipment including the required personal protective equipment, manufacturers recommendations and instructions, as well as additional procedures, guidelines and limitations developed internally by SoCalGas.

TABLE MA-27 below provides the RAMP activities, their respective cost forecast, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers SCG-04-WP 2GD000.000.

TABLE MA-27
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE
2GD000	SCG-Risk-5-C06	Personal Protection Equipment	$111	$111	$0	0*
2GD000	SCG-Risk-2-C01	Locate and Mark Training (MP)	$246	$299	$53	0*
2GD000	SCG-Risk-2-C02	Locate and Mark Training (HP)	$19	$22	$3	0*
2GD000	SCG-Risk-2-C05	L&M Annual Refresher Training (MP)	$31	$32	$1	21
2GD000	SCG-Risk-2-C06	L&M Annual Refresher Training (HP)	$2	$2	$0	53
2GD000	SCG-Risk-2-C27	Company Excavator Training (MP)	$341	$341	$0	0*
2GD000	SCG-Risk-2-C28	Company Excavator Training (HP)	$26	$26	$0	0*
		Sub-Total		**$ 833**		

* An RSE was not calculated for this activity.

b. Forecast Method

In developing the TY 2024 forecast, the historical expenditures and the associated work units for 2017 through 2021 were evaluated. There are several activities covered in this area as well as multiple factors that influence costs for this workgroup. Generally, the services provided within the Field Support workgroup are driven by the amount of field work to be completed, the need for contractor support, the complexity of jobs, the number of employees, and incremental operations, compliance, and safety requirements that impact the Gas Distribution workforce.

SoCalGas plans to increase its field workforce and dispatch office workforce to continue to provide safe, clean, and reliable service to SoCalGas's customers while working towards a more sustainable and resilient energy future. The overall size of the Gas Distribution workforce

directly influences the costs within this workgroup as this workgroup captures the off-production time associated with all of the various departments within Gas Distribution.

Given these growing influences, SoCalGas determined that a three-year (2019 through 2021) linear forecast best reflects future requirements for this workgroup. Using an average or base year forecasting method would not be appropriate for this work category as it would not provide sufficient funding for the level of work anticipated in the future. Added to this base forecast are incremental work elements not reflected in the base forecast to adequately fund Field Support activities in TY 2024. These work elements are described below. For TY 2024, the total incremental funding is $3,793,000 over the 2021 adjusted recorded base.

i. Control Center Modernization

The Control Center Modernization (CCM) project will enhance distribution field assets by installing control and real-time pressure monitoring capabilities. Increased operational awareness through the implementation of enhanced control room operations technology (OT) and real time monitoring capabilities will help Gas Control personnel to quickly identify abnormal operating pressures within the system and will provide Gas Control personnel with remote control functionality to help prevent an overpressure to the system. With the introduction of these new field assets and capabilities, the CCM project will introduce additional maintenance, training, new job classifications, and incremental workforce. The training costs associated to CCM will be recorded in the Field Support workgroup.

c. Cost Drivers

Generally, the services provided within the Field Support workgroup are driven by the level of distribution field work to be completed, the need for contractor support, complexity of jobs, and the number of employees. This cost supports the safety and reliability of SoCalGas's system by providing the field support and required training and meetings. The main cost drivers include:

- The level of general construction work. Field experience indicates that, as economic conditions improve, construction work increases, thus work levels tend to increase, resulting in the need for additional support services.
- The amount of training and off-production work needed for employees. SoCalGas expects that employee training will increase due to additional OpQual requirements. In addition, the rise in employee turnover will increase costs as

employees learn new jobs. Off-production time includes attending skills training classes; participation in activities such as meetings on safety, customer satisfaction, and general communications; completion of audits of base operations; and stocking trucks with materials, tools and fittings.

- The level of office materials, equipment and services needed to support personnel completing work described in the Field Operations and Maintenance workgroups discussed in this testimony. It encompasses such items as general office supplies, business forms, pagers, cell phones, trash collection, miscellaneous contract services, and employee expenses.

9. TOOLS, FITTINGS, AND MATERIALS

Recorded to this workgroup is the purchase of small tools, small pipe fittings, miscellaneous pipeline materials, and miscellaneous installation materials used during construction and maintenance activities and those held in inventory as vehicle truck stock. These materials are necessary to obtain complete and safe work results. TABLE MA-28 below summarizes Gas Distribution O&M costs associated with Tools, Fittings, and Materials.

TABLE MA-28
Tools, Fittings & Materials

GAS DISTRIBUTION (In 2021 $)			
A. Field Operations and Maintenance	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
6. Tools Fittings & Materials	20,555	24,728	4,173

a. Description of Costs and Activities

Included within each category of materials are items such as:

- Small tools – screw drivers, wrenches, etc.
- Small pipe fittings – couplings, ells, nipples, etc.
- Miscellaneous pipeline materials – bolts, stakes, pipe straps, traffic vests, etc.
- Miscellaneous installation materials – cold patch asphalt, premixed concrete, etc.
- Rental and laundering of uniforms.

The rate of consumption of these materials is highly influenced by construction and maintenance activity in other workgroups of this testimony. As the level of work and workforce

increases, so does the need for additional tools, fittings, materials, and uniforms. This cost supports the safety and reliability of SoCalGas's system by providing employees the tools and materials required to safely perform field functions.

b. Forecast Method

Spending on Tools, Fittings, and Materials is driven by the increase in construction and maintenance work reflected in other workgroups of this testimony, as well as the increase in workforce needed to complete this work. Given the requirement to support an overall increase in construction and maintenance activities, increased regulatory pressures, as well as the Gas Distribution workforce, and an assessment of historical expense in this workgroup, SoCalGas used a three-year (2019 through 2021) linear trend to forecast future needs for tools, fittings, and materials. This three-year linear forecast method results in a $4,173,000 increase over the 2021 adjusted recorded base in TY 2024.

c. Cost Drivers

The rate of consumption of the materials covered in this workgroup is highly driven by the construction and maintenance activity discussed in other workgroups in this testimony, as well as by the level of field workforce that requires uniforms. Another driver is the cost at which SoCalGas is able to obtain the tools, fittings and materials used by its employees and contractors. As these cost pressures increase, they impact the overall cost for this activity.

B. ASSET MANAGEMENT

Reviewed in this section of the testimony are activities and associated O&M expenses incurred in the evaluation of the condition of the distribution system. This includes maintaining many asset records, identification of corrective maintenance solutions, and coordinating with field personnel on completion and recording of operations and maintenance activities. TABLE MA-29 below summarizes Gas Distribution O&M costs associated with Asset Management activities.

TABLE MA-29
Asset Management

GAS DISTRIBUTION (In 2021 $)			
B. Asset Management	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
1. Asset Management	13,119	15,691	2,572

1. Description of Costs and Activities

SoCalGas's PMO, Project Management, Planning, and Engineering departments provide many of the technical and administrative services needed for the successful and timely completion of the O&M activities discussed in Section A above (Field Operations and Maintenance) above. This workgroup records the labor and non-labor costs for services provided by these departments. Activities performed by PMO, Project Management, Planning, and Engineering include items such as:

- Identifying construction design requirements;
- Evaluating pressure specifications;
- Conducting pipeline planning;
- Providing project drawings;
- Identifying material selection;
- Preparing work order estimates;
- Acquiring third-party contract services (*e.g.*, paving, traffic control plan, and operated equipment); and
- Obtaining permits for construction from city, county, state, and federal agencies.
- Managing project completions

The Distribution Engineering team coordinates the region's emergency response efforts by managing the Region Emergency Operations Centers. Region Emergency Operations Centers are region command centers that are activated during a significant event (e.g., fire, earthquake, pipeline damage, customer outage) to support field operations with engineering, pipeline planning, mapping, logistics, and office resources that are vital in returning SoCalGas facilities back to normal operations.

This cost supports the safety and reliability of SoCalGas's system by evaluating the condition of the distribution pipeline system. This includes maintaining many asset records, identifying corrective maintenance solutions, coordinating with field personnel to complete necessary work, and recording of operations and maintenance activities. This work also furthers SoCalGas's efforts to implement the directives of SB 705 to "…[i]dentify and minimize hazards and systemic risks in order to minimize accidents, explosion, fires, and dangerous conditions, and protect the public and the gas corporation workforce" and "[i]dentify the safety-related systems that will be deployed to minimize hazards, including adequate documentation of the commission-regulated gas pipeline facility history and capability."[31]

a. RAMP Activities

Included in the Asset Management workgroup is the forecasted expenditures and the associated work units of the Establish an Enterprise Asset Management Operating Model activity (SCG-CFF-1-7). The existing Enterprise Asset Management (EAM) organization will expand to provide the policy direction, program management, coordination management, and change management required to implement the EAM. Gas Distribution will support these efforts by dedicating resources to the effort that will focus on issues specific to Gas Distribution.

TABLE MA-30 below provides the RAMP activity, the forecast, and the RSE for this workpaper. For additional details on this RAMP activity, please refer to my workpapers SCG-04-WP 2GD009.000.

TABLE MA-30
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE
2GD009	SCG-CFF-1-7	Establish an Enterprise Asset Management Operating Model	$0	$250	$250	0*
		Sub-Total		**$ 250**		

* An RSE was not calculated for this activity.

[31] Cal. Pub. Util. Code § 961(d)(1)-(2).

2. Forecast Method

Asset Management work is driven by the level of operations and maintenance activity in other workgroups discussed in this testimony. As documented below in Cost Drivers, multiple factors impact the level of activity in these workgroups, which, in turn, affect the services provided in the Asset Management work category.

As the level of maintenance work, general construction, municipality work and customer-generated activity increases, so will the support provided by the departments that support the field operations. The increase in construction and maintenance work requires additional planning, permitting, and processing of orders. Given these incremental activities and a review of historical costs and underlying cost drivers, SoCalGas determined that a three-year (2019 through 2021) linear trend best reflects future requirements for this workgroup. Using an average or base year forecasting method would not be appropriate for this workgroup, as it would not properly fund future work demands. This forecast results in a $2,572,000 increase over the 2021 adjusted recorded base in TY 2024.

3. Cost Drivers

As discussed above, Asset Management work is driven by the level of operations and maintenance activity in other workgroups covered in this testimony. As the level of maintenance work, general construction, municipality work, and customer-generated activity increases, so will the support provided by the departments that support the field operations. Multiple factors impact activities in the Gas Distribution workgroups, which also affect the work in the Asset Management category.

- The increase in general construction and customer-generated activity requires additional planning time.
- Additional work in public rights-of-way requires the Planning Offices to perform more planning work on pipeline alterations.
- The increase in construction and maintenance work requires additional processing of paving and permitting orders.

- Improved housing starts also drive general construction work in private and public property. Therefore, as economic conditions improve, an increase in work completed within the Asset Management workgroup is also anticipated.

C. OPERATIONS AND MANAGEMENT

This section includes costs recorded to the Operations and Management workgroup. This workforce is a critical component of managing the integrity of the pipeline system to prevent and reduce risks, and to provide customers with safe and reliable service. This request advances SoCalGas's ability to maintain compliance with the requirement set forth in SB 705 to "[e]nsure an adequately sized, qualified, and properly trained gas corporation workforce".[32] TABLE MA-31 below summarizes Gas Distribution O&M costs associated with Operations and Management.

TABLE MA-31
Operations and Management

GAS DISTRIBUTION (In 2021 $)			
C. Operations and Management	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
1. Operations and Management	10,768	11,642	874

1. Description of Costs and Activities

The activities completed within this workgroup are categorized as Operations Leadership, Field Management, and Field Operations Supervisors.

Operations Leadership – Company leaders are responsible for setting the tone and direction of their organization. They provide a vision for the organization to succeed in meeting SoCalGas's objectives. Gas Distribution's goal is to continue to provide safe and reliable services for its customers at a reasonable cost. In order to succeed, this message must reach approximately 2,200 Gas Distribution employees located throughout SoCalGas's large and diverse service territory. Leadership must communicate and reinforce this goal and instill a passion for success through interactions, such as regular dialog with managers, periodic dialog

[32] Cal. Pub. Util. Code § 961(d)(10).

sessions with front-line supervisors and employees, participation in employee seminars, ongoing refresher training, and one-on-one employee meetings.

Field Management – Field management is responsible for overall management of the workforce dedicated to the planning and completion of Gas Distribution pipeline maintenance and installation activities. Field management includes such tasks as:

- Implementing programs focused on meeting customer satisfaction and employee safety.
- Facilitating the acquisition and allocation of resources to complete work on time.
- Working with supervisors on scheduling conflicts.
- Reviewing compliance work for completeness.
- Providing consultation to pipeline contractors regarding job requirements and Company procedures.
- Providing general leadership toward reaching Company goals and/or individual performance management and improvements.

These functions support the safety and reliability of SoCalGas's system by providing the proper level of operations leadership and field management.

Field Operations Supervisors – Field supervisory positions are critical to providing daily management of front-line employees, inspecting contractors that work directly on the distribution system, as well as for interacting directly with customers, public agencies, and the general public. As described in the Summary of Costs and Activities, SoCalGas's service territory is extensive, covering approximately 24,000 square miles stretching from Visalia in the north, to the Mexico border in the south and as far east as the California/Nevada border. Supervisors are responsible for providing daily work direction and inspecting contractor work at 52 operating bases throughout the service territory. These employees also have on-call responsibilities to respond to off-hour emergencies, such as gas line breaks, damaged gas facilities, and gas leak investigations. They are in a leadership role and provide training, coaching, and mentoring to SoCalGas's front-line employees and third-party contractors. These supervisors encourage and counsel employees to work safely, follow Company procedures, deliver superior customer support, and build and maintain a safe and reliable natural gas delivery system.

a. RAMP Activities

Included in the Operations and Management workgroup is the forecasted expenditures and the associated work units of the Inspection of Company and Contractor Work on Gas Pipelines activity (SCG-Risk-3-C15). Company authorized representatives shall inspect and score construction work performed by SoCalGas and contractors so that Company quality standards are met.

TABLE MA-32 below provides the RAMP activity, the forecast, and the RSE for this workpaper. For additional details on this RAMP activity, please refer to my workpapers SCG-04-WP 2GD010.000.

TABLE MA-32
RAMP Activity O&M Forecasts by Workpaper
In 2021 Dollars ($000)

Workpaper	RAMP ID	Activity	2021 Embedded-Recorded	TY 2024 Estimated	Change	GRC RSE[33]
2GD010	SCG-Risk-3-C15	Company and Contractor Inspection	$350	$350	$0	0*
		Sub-Total		**$ 350**		

* An RSE was not calculated for this activity.

2. Forecast Method

For this workgroup, SoCalGas used a four-year (2018 through 2021) linear forecast method. In projecting the future expense requirements for these functions, SoCalGas reviewed the 2017 through 2021 historical spending for this workgroup. In general, operations leadership and field management increase as levels of work and workforce increase; as new programs, processes and technologies are implemented; and as regulatory or compliance requirements change. The review of the historical costs in this work category shows a generally consistent upward trend. Therefore, SoCalGas used the four-year linear forecast method to account for the level of leadership and management necessary to maintain current operations. Using an average or base year forecast method would not be appropriate for this workgroup, as it would not

[33] Tranche level RSEs are available in SCG-04-WP.

properly fund future work demands. The four-year linear forecast method results in an $874,000 increase over the 2021 adjusted recorded base for TY 2024.

3. Cost Drivers

In general, costs in Operations and Management increase as levels of work and workforce increase; new programs, processes and technologies are implemented; and regulatory or compliance requirements change. As such, the work environment within Operations and Management is increasingly influenced by, and evolving with multiple drivers resulting in the need for additional supervision and management:

- Government regulations can impact this work category as a result of more stringent requirements. SoCalGas has experienced increased regulatory pressure, resulting in the need to establish enhanced compliance assurance practices.
- The need to support new field technologies and to facilitate the integration of these tools within the field processes.
- Increased turnover in workforce presents issues of knowledge transfer, skills development, and overall proficiency of the replacement workforce.
- Introduction of new construction and maintenance methods into office and field functions.

D. REGIONAL PUBLIC AFFAIRS

Regional Public Affairs' (RPA) primary focus is supporting field operations through its work with regional and local governments and municipal districts on issues regarding permitting, proposed regulations, franchises, and emergency preparedness and response. In preparation of this testimony, the Company has removed costs for lobbying, civic, and related activities, and other nonallowable expenses. TABLE MA-33 below summarizes O&M costs associated with RPA activities in support of Gas Distribution.

TABLE MA-33
Regional Public Affairs

GAS DISTRIBUTION (In 2021 $)			
D. Regional Public Affairs	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
1. Regional Public Affairs	3,845~~982~~	3,970~~4,107~~	125

1. Description of Costs and Activities

As noted above, RPA's primary focus is supporting field operations through its work with regional and local governments and municipal districts on issues regarding permitting, proposed regulations, franchises, and emergency preparedness and response. RPA also informs county, city officials, and special districts about SoCalGas issues that could impact customers, such as leak repair activities. To a lesser degree, RPA is also a point of contact in the communities SoCalGas serves, educating stakeholders about SoCalGas construction activities, customer programs and service offerings, responding to customer and media inquiries, and resolving customer complaints. These activities are crucial to mitigating operational costs that would otherwise put upward pressure on customer rates.

RPA is involved in these activities because its role is to specifically address operational issues and the information needs of local government elected officials and community groups. RPA has the relevant knowledge, experience, and established relationships to communicate directly and efficiently with local governments, special districts, and community groups.

SoCalGas expects that, as the level of construction, repair, and maintenance activities increases over the rate case period, the need for increased interaction with regional and local governments, as well as local communities, to facilitate these activities will also increase accordingly.

Regional Public Affairs Organization

The Regional Public Affairs Director is responsible for supervising the four Regional Affairs Managers to affirm that regional staff is consistently and effectively supporting operations, while addressing the concerns and issues of local elected officials and community organizations, as well as their respective constituents, across SoCalGas's service regions. The Regional Public Affairs Director is also an integral part of SoCalGas's incident command structure and acts as the Public Information Officer on a rotating on-call basis.

The Regional Affairs Managers oversee the Public Affairs Managers in four geographic regions. Each of these regions is managed by one Regional Affairs Manager. The Regional Affairs Managers provide leadership and policy guidance to their direct reports.

The Public Affairs Managers serve as the primary SoCalGas representatives to the 223 municipalities within 12 counties of Southern California. In addition, within a large city, there are often multiple communities with unique political, economic, and demographic characteristics. For example, within the City of Los Angeles, Hollywood, and San Pedro are distinct communities. This holds true for unincorporated communities within a given county, such as East Los Angeles and Rowland Heights in Los Angeles County. Public Affairs Managers engage with these cities and communities so that Field Operations can complete necessary work in a timely and cost-effective manner. There are also two Governmental Affairs Managers who serve as the primary liaison between SoCalGas and the County and City of Los Angeles on operational issues.

RPA possesses in-depth and unique knowledge about the local governments, special districts, and communities for which it is responsible. Working closely with Distribution Operations and other business units at SoCalGas, RPA develops solutions to a broad range of issues experienced in the service territory. Following is an overview of key RPA activities:

Supporting Operations by Working with Governments

In order to achieve SoCalGas's goal of being the cleanest, safest, and most innovative utility, RPA works with local governments on issues including fees, permitting, distribution and transmission construction, maintenance and relocation activities, emergency preparedness, and proposed regulations related to these items. This most often involves not only SoCalGas bringing information to those officials' attention, but also conveying local concerns of those officials back to SoCalGas.

RPA promotes local regulatory uniformity throughout SoCalGas's service territory on matters affecting distribution operations by engaging in education, conflict resolution, and issue clarification with governments where existing or proposed local ordinances or regulations may conflict with state laws, regulations, or franchise agreements, or impose unnecessary costs on SoCalGas operations and customers. This is a major focus for RPA as cash-strapped local governments are increasingly proposing new ordinances; enacting new fees or raising existing

ones; modifying general plans or zoning rules; and modifying traffic control requirements which associated costs would eventually be borne by SoCalGas customers.

RPA also coordinates and resolves local government permitting requirements by helping to obtain unique and difficult-to-negotiate locally mandated permits that enable operations to construct, maintain, replace, or relocate facilities in a timely, cost-efficient manner, thereby maintaining SoCalGas's high level of safety and reliability.

In addition to supporting operations by working with governments, RPA coordinates SoCalGas's operational activities with other utilities by participating in inter-utility coordinating committees. Meeting regularly with electric, water, cable, and telephone utilities to coordinate activities in public rights-of-way, RPA helps minimize street-cut activities, which decreases the inconvenience of street closures, increases public safety, and reduces operational costs.

In addition, RPA plays a critical role in coordinating emergency planning and response activities between SoCalGas and cities and counties in SoCalGas's service territory. RPA serves as a member of the Los Angeles, Orange, and San Bernardino County Emergency Operations Centers, as well as the Los Angeles City Emergency Operations Center. RPA participates in Emergency Operations Center drills and is required to report to the centers during an emergency. RPA is on call for this duty 24 hours a day, seven days a week. RPA similarly performs a vital function in SoCalGas's internal Emergency Operations Centers. In the event of an emergency that could impact the pipeline system or other SoCalGas facilities, designated RPA personnel are deployed to SoCalGas's central Emergency Operations Center and Regional Emergency Operations Centers to provide support to operations and to city and county Emergency Operations Centers. In addition, RPA hosts a number of first responder workshops each year, bringing together fire and police personnel for briefings on SoCalGas's pipeline system, system safety, and system security issues. These activities support SoCalGas's compliance with SB 44, which states that "[o]wners or operators of intrastate transmission and distribution lines shall establish and maintain liaison with appropriate fire, police, and other public officials…"[34]

RPA also provides elected officials with information – both proactively and in response to inquiries – about pending operational and regulatory matters that could impact customers, planned or proposed rate changes, utility safety, and utility programs, and services. By

[34] *See* SB 44 (Corbett, 2011) Article 2: Natural Gas Pipeline Safety Act of 2011, codified at Cal. Pub. Util. Code § 956(c)(3).

informing elected officials, RPA enables them to share critical information with their constituents, thereby allowing those constituents to realize the full benefits of SoCalGas's service.

Supporting Operations by Working with Communities

RPA works with the communities it serves by providing information about pending SoCalGas operational matters, rates, and program offerings, responding to customer and local media inquiries, and resolving customer complaints.

RPA advises community groups, chambers of commerce and businesses organizations about pending operational and regulatory matters that could affect customers, including planned or proposed rate changes, utility safety, energy efficiency and conservation, and customer assistance programs. When stakeholders are well-informed about SoCalGas's activities, services, and programs, they can realize the full benefit of utility services. Furthermore, these stakeholders can share this critical information with their constituents, so they too are prepared and informed.

Although SoCalGas's Media and Employee Communications department has primary responsibility for interacting with news media, RPA's presence in the field and knowledge of local issues sometimes puts RPA personnel on the front-line as the Company's spokesperson when a media representative is not immediately available and newsworthy events occur, this may also include deployment to the scene of an incident. In this capacity, RPA presents Company positions, answers media inquiries, and provides important information to customers and customer groups.

RPA is further responsible for responding to customer concerns that have escalated to public officials or that involve community groups. Each year, RPA resolves billing and service complaints, big and small.

This cost supports the Company's goals of maintaining a safe and reliable system. As previously stated, RPA's primary focus is supporting field operations through its work with regional and local governments and special districts on issues regarding proposed regulations, permitting, franchises, and emergency planning and response. In the absence of RPA's work with local governments, Field Operations could experience increased operating costs and work delays that may put upward pressure on customer rates and impact SoCalGas's ability to provide safe and reliable service.

2. Forecast Method

SoCalGas evaluated the historical expenditures for 2017 through 2021 for the Regional Public Affairs (RPA) workgroup. The level of spending for this workgroup is primarily based on the salaries and the non-labor expenses of the current RPA workgroup. Therefore, a base year forecast method was used to forecast the base level of future expense for this workgroup.

Added to this base are incremental work elements not reflected in the base forecast to adequately fund Regional Public Affairs activities in TY 2024 as discussed below. The total incremental funding for this workgroup is $125,000 over the 2021 adjusted recorded base in TY 2024.

a. Regional Public Affairs Manager

Regional Public Affairs has added one Public Affairs Manager in 2022. This Public Affairs Manager coordinates SoCalGas relations with regulatory agencies, city councils, and other elected and appointed officials and key influential community and business leaders for assigned areas of local/regional governmental bodies and develops and promotes local community relations. They execute strategic public affairs activities within an assigned portion of the SoCalGas service territory, to execute on stakeholder interests specific to the region to which they are assigned, program implementation and infrastructure development. They are also responsible for supporting and enforcing terms and conditions of franchises throughout the SoCalGas service territory. This role may require periodic 24/7 support during emergencies or crisis situations.

3. Cost Drivers

The number of Public Affairs Managers within the department drives costs for this workgroup. The number of Public Affairs Managers necessary to meet demands is driven by the level of construction, repair, and maintenance activities within Gas Distribution. RPA's focus is facilitating these activities in a timely and cost-effective manner so SoCalGas can maintain safe and reliable service for its customers. As the level of these activities increase over the rate case period, the need for increased interaction with regional and local governments to facilitate these activities will increase accordingly.

Further driving costs for this workgroup are the actions of local governments as they propose new and often more stringent and costly operating conditions, such as engineered traffic

control plans, additional paving requirements, increasing requests to remove instead of abandon pipelines, increasing requests to eliminate or minimize above-ground facilities, and restricted working hours. Local governments are also drawing out franchise negotiations, hoping to secure concessions from SoCalGas. When local governments attempt to impose conditions that increase operating costs, RPA must increasingly engage with local governments to help mitigate these costs.

V. SHARED COSTS

As described in the Shared Services testimony of Messrs. Le and. Malin (Ex. SCG-30), Shared Services are activities performed by a utility shared services department (*i.e.*, functional area) for the benefit of: (i) SDG&E or SoCalGas, (ii) Sempra Energy Corporate Center, and/or (iii) any affiliate subsidiaries. The utility providing Shared Services allocates and bills incurred costs to the entity or entities receiving those services.

The majority of expense requirements in direct support of SoCalGas's Gas Distribution operations are discussed within the Non-Shared Services portion of this testimony. However, there is an activity in which expenditures are incurred on behalf of both SoCalGas and SDG&E, and therefore, this expense is considered Shared Services. This falls under the workgroup Field Services Leadership & Support. This activity is necessary for the Company to provide customers with clean, safe, and reliable service. TABLE MA-34 summarizes the total shared O&M forecasts for the listed cost categories.

TABLE MA-34
Shared O&M Summary of Costs

GAS DISTRIBUTION (In 2021 $)			
(In 2021 $) Incurred Costs (100% Level)			
Categories of Management	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
A. Field Services Leadership & Assessment	410	410	0
Total Shared Services (Incurred)	**410**	**410**	**0**

I am sponsoring the forecasts on a total-incurred basis, as well as the shared services allocation percentages related to those costs. Those percentages are presented in my shared services workpaper (Ex. SCG-04-WP), along with a description explaining the activities being

allocated. The dollar amounts allocated to affiliates are presented by Messrs. Le and Malin (Ex. SCG-30).

A. FIELD SERVICES LEADERSHIP AND OPERATIONS ASSESSMENT

1. Description of Costs and Activities

This section includes costs recorded to the category Field Services Leadership and Assessment. Similar to the O&M Non-Shared Services workgroup, Operations and Management (Section IV.C), the activities completed within this category are related to operations leadership and support for SDG&E's and SoCalGas's ability to provide customers with clean, safe, and reliable service. TABLE MA-35 summarizes the costs for the Operations Leadership and Support category.

TABLE MA-35
Field Services Leadership & Assessment

GAS DISTRIBUTION (In 2021 $)			
(In 2021 $) Incurred Costs (100% Level)			
A. Field Services Leadership & Assessment	**2021 Adjusted-Recorded (000s)**	**TY2024 Estimated (000s)**	**Change (000s)**
1. Field Services Leadership & Assessment	410	410	0
Incurred Costs Total	**410**	**410**	**0**

Field Services Leadership

Recorded to this cost center are the salary and employee non-labor expenses for the Vice President of the Gas Distribution Organization. Also charged are one-time expenses that benefit the entire organization.

2. Forecast Method

The level of spending for this workgroup is primarily based on the salary of the current Vice President of Gas Distribution. The most recent spending levels represent the most accurate estimate of costs for the forecast years. Therefore, a base year forecast method was used to forecast the base level of future labor expense. Using an average forecasting method would not be appropriate for this work category as it would not fully fund the workgroup. Using a linear trend would overstate costs beyond anticipated levels.

The allocation methodology and calculation for this cost center can be found in the supplemental workpaper SCG-04-MAA-USS-SUP-001, located under Field Services Leadership & Operations Assessment workpaper, Ex. SCG-04-WP.

The total funding for this workgroup is equal to the 2021 adjusted recorded base for TY 2024.

3. Cost Drivers

The cost driver behind this forecast includes leadership support. As discussed above, Company leaders are responsible for setting the tone and direction of their organization. Gas Distribution's goal is to continue to provide clean, safe, and reliable service for its customers at reasonable rates. In order to succeed, this message must reach approximately 2,800 Gas Distribution employees located throughout SoCalGas's and SDG&E's service territory. Leadership must communicate and reinforce this goal through interactions, such as regular dialogue sessions with managers, front-line supervisors, and employees.

VI. CAPITAL

The driver behind SoCalGas's capital investments is its mission to provide clean, safe, and reliable delivery of natural gas to customers at reasonable rates. This commitment requires that SoCalGas invest in its infrastructure and support services to mitigate risks associated with the safety of the public/customers and employees/contractors, service reliability, and gas system integrity. SoCalGas installs new pipeline mains, service lines, and MSAs to meet the needs of the growing population in the service territory. To maintain system reliability and safety, SoCalGas makes a variety of other capital improvements, including pressure betterment projects to improve areas of low pressure, pipeline renewals to replace deteriorated pipelines or obsolete equipment, anode and rectifier installations and replacements of cathodic protection systems, and electronic monitoring device purchases for pressure tracking and monitoring. Other improvements include pipeline relocations to accommodate public infrastructure improvements, such as street and highway widening, and relocations caused by the construction of new water, sewer, and electric facilities. To accomplish these activities, SoCalGas continuously monitors the condition of approximately 101,603 miles of main and service pipelines. By using technology and the professional judgment of experienced, skilled, and well-trained employees, SoCalGas utilizes capital in a prudent, responsible manner, consistent with local, state, and federal codes and regulations. For example, SoCalGas plans to install and integrate data from

field assets on the distribution pipeline system to remotely control distribution regulator stations and provide Gas Control (GC) expanded continuous monitoring of the system through enhanced control room operations technology. By installing new monitoring and control assets on the distribution regulator stations, the Control Center Modernization (CCM) project will enhance the ability to prevent, identify, and/or manage the consequences of events which pose risk to the pipeline system. Additional details can be found in the Control Center Modernization in the Gas Transmission Operations testimony of Messrs. Chiapa, Hruby, and Bell (Ex. SCG-06).

In preparing the forecast for capital expenditures, SoCalGas Gas Distribution Operations reviewed the historical spending levels, including the associated work units, and developed an assessment of future requirements and associated risks. This analysis entailed a review of the historical 2017 through 2021 spending and consideration of the underlying cost drivers to determine if a historical pattern of spending should be expected to continue into the future, considering the mitigation of associated risks. Gas Distribution also evaluated future work requirements that are incremental to the levels of historical spending and necessary to maintain the safe and reliable operations of the distribution system while mitigating risks. Thus, the forecasting methodologies varied depending on the type of activity and the expectations of future system needs. These methods included forecasts of future spending based on: historical averages; historical growth and estimated future growth; identified projects or materials; and a combination of project-specific justification and analysis of historical spending. Thus, SoCalGas's Gas Distribution capital expenditure forecasts are rooted in a historical review of spending and adjustments, where appropriate, for elements of new work or changes in operating conditions and risk mitigation, which would not have been reflected in the past spending patterns. As such, this forecast addresses actions that must be taken to manage risks associated with the safety of the public and employees/contractors, service reliability, and gas system integrity. Gas Distribution requests the Commission adopt its forecast for capital expenditures of $388,786,000, $413,355,000, and $391,525,000 in 2022, 2023, and 2024, respectively. TABLE MA-36 provides a summary of the total capital costs for 2022, 2023, and 2024.

TABLE MA-36
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
Categories of Management	**2021 Adjusted-Recorded**	**Estimated 2022 (000s)**	**Estimated 2023 (000s)**	**Estimated 2024 (000s)**
A. New Business	53,273	54,308	60,300	62,164
B. Pressure Betterments	18,845	18,846	18,846	18,846
C. Main Replacements	24,767	19,839	17,626	17,626
D. Service Replacements	49,472	45,229	42,597	42,597
E. Main and Service Abandonments	11,898	14,135	14,135	14,135
F. Regulator Stations	8,292	10,014	10,014	10,014
G. Control Center Modernization (CCM) Distribution Projects	15,046	23,506	26,403	21,534
H. Cathodic Protection Capital	5,096	6,993	6,527	6,527
I. Pipeline Relocations – Freeway	3,376	1,904	1,904	1,904
J. Pipeline Relocations – Franchise	18,050	20,289	20,289	20,289
K. Meter Protection	7,045	8,250	9,900	11,550
L. Other Distribution Capital Projects	10,419	13,367	26,313	9,045
M. Measurement and Regulation Devices	27,479	42,224	42,891	46,426
N. Capital Tools	24,971	14,635	14,635	14,635
O. Field Capital Support	100,336	93,370	99,723	92,981
P. Remote Meter Reading	2,159	1,877	1,252	1,252
Total	**380,524**	**388,786**	**413,355**	**391,525**

The following sections provide, by activity, a description of the specific work to be completed, the benefits of such work, the forecast methodology, the expected expenditures, and the cost drivers. These expenditures are necessary to maintain regulatory compliance and the continued safe, clean, and reliable delivery of natural gas. In addition to this testimony, also refer to my capital workpapers (Ex. SCG-04-CWP) for additional information on the projects described herein.

In addition, SoCalGas requests approval of a Litigated Project Costs Memorandum Account (LPCMA) to record capital-related costs associated with projects that are intended to

qualify as a collectible project to be recovered from third-party customers (*e.g.*, Contributions in Aid of Construction from a local governmental entity) instead of ratepayers, but later are deemed by a court to be non-collectible from third-party customers. Collectible costs are costs that SoCalGas expects to collect from third parties (*i.e.*, not to be collected from ratepayers). For example, in some situations, a local governmental entity (*e.g.*, a city (third party)) may be responsible for certain costs associated with relocating utility infrastructure as part of a development project. In this example, such costs are considered collectible because they are to be collected from the city. Non-collectible costs are costs that are not expected to be collected from a third-party and instead are treated as costs to be collected from ratepayers. A situation may arise in the context of utility disputes with public entities over who should pay for the relocation of utility facilities necessitated by municipal or other public entity projects, such as water, sewer, or transit projects. For instance, while the utility may argue in a litigated proceeding that the public entity should bear the relocation costs, courts may rule otherwise. As an example, SoCalGas encountered this type of situation when relocations associated with the Riverside County Transportation Commission were treated by SoCalGas as collectible projects but were later deemed to be non-collectible as a result of litigation.

As a part of this request, SoCalGas would not record revenue requirement prior to any ruling for tracking purposes and would treat as a collectible project consistent with its understanding. If thereafter a project is deemed non-collectible, SoCalGas proposes to record any historical revenue requirement associated with the project based on the timing of when the project went into service, no earlier than January 1, 2024. Any costs recorded to the memo account would be subject to a reasonableness review prior to inclusion in rates and ratebase. Additionally, costs recorded in the LPCMA may be addressed in a GRC or other applicable proceeding. SoCalGas seeks authorization for the LPCMA in this GRC to avoid the prohibition against retro-active ratemaking, and therefore, requests Commission approval of a Collective Memo Account. Memorandum account treatment for these costs is reasonable and just as it will allow SoCalGas the opportunity to litigate, where appropriate, whether the third-party customer should bear the costs at issue, while preserving the ability to later seek recovery of the incremental capital-related costs from ratepayers associated with projects that can no longer be collected from a third-party customer, if the litigation proves unsuccessful. Please refer to Ms. Yu's Regulatory Accounts testimony (Ex. SCG-38).

A. NEW BUSINESS CONSTRUCTION

This work category provides for changes and additions to the existing gas distribution system to connect new residential, commercial, and industrial customers. These costs for New Business are summarized below in TABLE MA-37.

TABLE MA-37
Capital Expenditures Summary of Costs
New Business Construction

GAS DISTRIBUTION (In 2021 $)				
A. New Business	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
1. New Business (NC)	53,273	63,171	69,163	71,057
1. New Business (CO)		(8,863)	(8,863)	(8,863)
Total	**53,273**	**54,308**	**60,300**	**62,164**

1. Description

The New Business forecasted capital expenditures support the Company's goals of providing a safe and reliable distribution system and in response to its obligation to serve the projected growing customer base, thus mitigating the risk of reduced service reliability. This includes the installations of gas mains, services, and MSAs to provide service to the customer. The materials cost of meters and regulators are addressed under the M&R Devices category in Section M discussed later in this testimony.

The forecast for New Business Construction for 2022, 2023, and 2024 are $54,308,000, $60,300,000, and $62,164,000, respectively. The specific details regarding the New Business Construction are found in capital workpapers. For this cost category, SoCalGas's proposed LPCMA, discussed above, would apply because it has capital collectible costs.

a. RAMP Activities

Included in the New Business Construction is the forecasted expenditures and the associated work units of the Safety Related Field Orders (SCG-Risk-3 C32).[35] Field service technicians respond to customer orders, some of which are safety related, such as checking

[35] A.21-05-014 – SoCalGas 2021 Risk Assessment and Mitigation Phase (RAMP), May 17, 2021. Please refer to Ch. SCG-Risk-3 SCG-3-31.

appliances upon move in. Before new MSAs are installed and turned on, the field technicians check that all appliances are properly connected and that there is no indication of leaks on the houseline. TABLE MA-38 below provides the RAMP activities, their respective cost forecasts, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers.

TABLE MA-38
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[36]
001510	SCG-Risk-3	C32	Safety Related Field Orders	$ 4,115	$ 5,123	$ 5,261	0.75

2. Forecast Method

a. New Business Construction

The forecast method developed for New Business expenditures is zero-based. This method is most appropriate because this activity is best calculated by estimating the labor and the non-labor cost based on the projected new meter sets. This was developed using the projected new meter sets added to the distribution system multiplied by the historical cost per meter set, which reflects the mix of work that is anticipated to construct new main extensions and associated service laterals. These activities account for the use of contractor services, third-party services, municipal permit fees, and the proportionate use of plastic and steel materials. SoCalGas chose the latest 2021 year recorded history to forecast the cost per meter set.

The resulting base forecast for 2022, 2023, and 2024 are $63,171,000, $69,163,000, and $71,027,000, respectively. Refer to supplemental workpaper SCG-04-MAA-CAP-SUP-001 in Exhibit SCG-04-CWP for additional details. TABLE MA-39 below shows the quantity of new meter sets SoCalGas installed in the period 2017 through 2021 and the new meter installation forecast for the years 2022 to 2024.

[36] Tranche level RSEs are available in SCG-04-CWP.

TABLE MA-39
New Business Meter Installation History and Forecast

Year	2017	2018	2019	2020	2021	2022	2023	2024
Number of New Meter Set Installations	39,915	40,715	40,151	38,732	34,259	41,259	45,261	46,506
Average Housing Completion[37]	47,871	51,739	50,545	52,956	47,374	51,891	56,924	58,490

Other forecast methods considered included the 2021 base year and the five-year (2017 through 2021) historical average. SoCalGas's assessment was that using either of these methods would not provide sufficient funding to address the anticipated new meter sets for this work category, as presented in TABLE MA-39.

b. New Business Trench Reimbursement

In accordance with CPUC Rules 20 and 21,[38] new customers who provide their own trench receive reimbursement for this contribution. The estimate of expenditures in this budget category includes reimbursement costs based on the five-year (2017 through 2021) average historical cost. The forecast includes reimbursement cost of $1,405,000 for each of the years 2022 through 2024. SoCalGas chose a five-year average methodology due to the generally unpredictable nature of customers' decisions to provide their own trenches. Although new business is projected to continue on an upward growth rate, the recorded cost for this work category does not reveal a historical pattern that can suggest the use of an alternative methodology.

c. New Business Forfeitures

New Business forfeitures reimburse SoCalGas for the cost of unused and/or underutilized facilities constructed at the request of a new business customer. They represent residual portions of Customer Advances for Construction as described under Rule 20 – Gas Main Extensions and Rule 21 – Gas Service Extensions. Forfeiture amounts are dependent on customer gas throughput levels incurred over a three- to ten-year period after commencement of service. Due

[37] SoCalGas's 12-County area total housing completions from IHS/Global Insight's November 2021 Regional Forecast for the aggregated 12 counties of Fresno, Imperial, Kern, Kings, Los Angeles, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Tulare, and Ventura.

[38] *See* SoCalGas Rules, *available at*: https://tariff.socalgas.com/regulatory/tariffs/tariffs-rules.shtml.

to the high volume of activity and the inherent complexity of tracking each customer's construction job and the associated throughput over a period of time, SoCalGas forecasted forfeitures using a five-year average methodology. This methodology allows SoCalGas to capture years of high, as well as years of low, forfeiture activity from 2017 through 2021. SoCalGas is forecasting forfeiture credits of $8,863,000 for each of the years 2022, 2023, and 2024. See supplemental workpaper SCG-04-MAA-CAP-SUP-002 in Exhibit SCG-04-CWP for calculation details.

3. Cost Drivers

Underlying cost drivers for this capital category relate to the volume and the type of new construction required to provide service to new residential, commercial, and industrial customers, thus mitigating the risk of reduced service reliability and complying with the Company's obligation to serve. As described above, this includes the installation of new mains, services, and MSAs as well as header pipe (larger-diameter, medium-pressure pipe that can carry gas longer distances) to bring gas to new developments and installations of the new advanced metering system infrastructure.

It is SoCalGas's experience that new construction increases as the economy improves. Since SoCalGas is forecasting new business growth due to an expected increase in housing starts in the next several years, it is reasonably anticipated that the demand for construction resources and material will increase. The underlying cost drivers for this capital category relate to Company labor, contractor services, third-party services, paving services, and materials such as pipe and fittings.[39] All or a combination of these construction elements are necessary for performing New Business facility installations.

In support of California's goal of carbon neutrality, SoCalGas established a goal to achieve net-zero carbon emissions by 2045 for scope 1, 2, and 3 emissions,[40] which is aligned with the state's climate goals, as discussed in more detail in the Sustainability and Climate Policy

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[39] On November 16, 2021, Energy Division staff issued a proposal recommending the elimination of gas line extension allowances, refunds, and discounts for new customers and all customer classes effective July 1, 2023 (sunset date) in the Order Instituting Rulemaking Regarding Building Decarbonization (Rulemaking 19-01-011) (Building Decarb OIR). If necessary, SoCalGas will submit revised testimony in accordance with the outcome of this proposal.

[40] SoCalGas, *ASPIRE 2045 - Climate Commitment* (March 2021), *available at*: https://www.socalgas.com/sites/default/files/2021-03/SoCalGas_Climate_Commitment.pdf.

testimony of Ms. Sim and Mr. Peress (Ex. SCG-02). While SoCalGas's strategies include the transportation of clean energy to the customers within its service territory, the new meter set forecast for the purposes of calculating the New Business Construction expenditures has been calculated by accounting for only 79.5% of the anticipated housing completions, which is the historical ratio of new meter sets to the housing starts. This ratio accounts for the decrease in new meter sets and New Business Construction due to residential and commercial communities without gas service for any reason. See TABLE MA-39 above for the number of new meter set installations and the housing completion within the service territory.

B. PRESSURE BETTERMENTS

This work category records expenditure for Gas Distribution pressure betterment projects performed on a continuing basis to maintain system reliability and service to all customers. TABLE MA-40 below provides a summary of the total capital costs for the forecast years.

TABLE MA-40
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
B. Pressure Betterments	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
2. Pressure Betterments	18,845	18,846	18,846	18,846

1. Description

Pressure Betterment projects are performed in areas where there is an anticipated insufficient capacity or pressure to meet the growth in load. Pressure Betterment projects maintain reliable service to existing customers as new load is added to the gas distribution system. Once a pipeline system is designed and installed, the available capacity remains relatively fixed. However, as load increases due to population expansion and increased population density, as well as businesses coming online with added load, the existing pipeline pressure decreases, which reduces the available gas flow capacity. If the diminishing pressure is not addressed, gas service to the customers could be interrupted.

To determine the areas that require pressure betterments, information is gathered from the customers, builders, city, county, and state agencies. In addition, SoCalGas collects data from electronic pressure recorders. This information is used to model the system flow and identify

any capacity constraints. Based on the analysis of these constraints, local distribution engineers identify specific pressure betterment projects and the estimated timing in which the projects will need to be constructed. These projects typically involve replacing or installing new mains, and when necessary, uprating existing mains to higher pressures.

Pressure Betterment capital expenditures support the Company's goals of providing safe, reliable service to customers, thus mitigating the risk of adverse impacts to system reliability. This work category addresses the critical areas of the distribution pipeline network that are most susceptible to pressure drops to alleviate the potential risk of loss of service to customers.

The forecast for Pressure Betterments for 2022, 2023, and 2024 are $18,846,000, $18,846,000, and $18,846,000, respectively. The specific details regarding the Pressure Betterments are found in my capital workpapers.

2. Forecast Method

The forecast method developed for Pressure Betterments expenditures is base year. This method is most appropriate because the most recent years' accomplishments and recorded cost best indicate the anticipated activities based on the identified projects. Pressure Betterment requirements are identified during the year, as part of the regular course of maintenance activities and system testing and evaluation. It is challenging to identify and estimate the specific routine pressure betterment projects more than a year into the future. Hence, the latest load and growth information are used. While the timing to complete each project can be unpredictable due to the need for detailed planning requirements, required permits, and coordination and scheduling of resources, base year forecast best represents the cost requirement based on the identified projects. Other forecast methods considered for this workpaper were three-year and five-year averages of recorded expenditures to account for the complexities in identifying specific pressure betterment projects and their scopes. However, these methods resulted in expenditure forecasts that overstate the anticipated cost due to uncommon and non-routine high-cost project that affect the forecast methodologies.

3. Cost Drivers

The main drivers for pressure betterment projects are the growth in load as a result of new customers and the increased usage of existing customers. SoCalGas's distribution infrastructure is a large, dynamic system of pipelines exposed to continual changes in customer load demand. While pressure betterment requirements are identified during the year as part of

the regular course of maintenance activities and system testing and evaluation, it is challenging to identify and estimate the specific routine pressure betterment projects more than a year into the future. Hence, the latest load and growth information are used. This work supports the Company's need to mitigate system reliability risk and to comply with the Company's obligation to serve. After years of customer growth, many systems operate close to their maximum capacity, and additional load will create system constraints, increasing risks to system reliability and potential customer outage. The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials cost. All or a combination of these construction elements are necessary for performing facility installations for pressure betterment.

C. MAIN REPLACEMENTS

This work category records expenditure for routine capital pipeline replacements critical to sustained operational reliability and to mitigate risks associated with public safety. TABLE MA-41 summarizes the total capital forecast 2022, 2023, and 2024.

TABLE MA-41
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
C. Main Replacements	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
3. Main Replacements	24,767	19,839	17,626	17,626

1. Description

SoCalGas's distribution pipeline system consists of approximately 51,670 miles of steel and plastic main supporting the delivery of gas to more than 5.9 million customers. Activities in the Main Replacements work category include:

- The installation of new mains to replace existing mains;
- Service line replacements associated with main replacements;
- Existing service line "tie-overs" to newly-installed replacement main;
- Meter set re-builds associated with newly-installed replacement main; and
- Main replacements completed in advance of public infrastructure improvement projects.

These replacements are often due to leakage that impacts the integrity of the pipe, an anticipated increase in leakage maintenance expenses, the relative cost to install and/or maintain cathodic protection, or the deterioration of pipe material, pipe wrap, or coating. Other criteria taken into consideration are whether the steel pipe meets cathodic protection mandates, or the main is found to have active corrosion. In addition, the pipeline may be deemed unfit for service due to manufacturing or other defects. Based on information collected during various O&M activities and field observations, technical staff identifies and prioritizes pipeline segments that require replacement.

The Main Replacement activity mitigates safety risks identified in the 2021 RAMP Report: Main Replacements – Leakage, Abnormal Operating Conditions, CP Related (SCG-Risk-3 C19).[41] Accordingly, this work group in its entirety, aligns with a RAMP activity.

For Main Replacement, TABLE MA-42 below shows the TY 2024 forecast dollars and RSE associated with the activities in the 2021 RAMP Report.

TABLE MA-42
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[42]
002520	SCG-Risk-3	C19	Main Replacements – Leakage, Abnormal Op. Conditions, CP Related	$ 19,839	$ 17,626	$ 17,626	-

Additional main replacement funding required in response to the federal DIMP regulations governing distribution pipeline integrity, is addressed by Ms. Kitson and Mr. Sera (Ex. SCG-09).

[41] A.21-05-014 – SoCalGas 2021 Risk Assessment and Mitigation Phase (RAMP) (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-23.

[42] Tranche level RSEs are available in SCG-04-CWP.

2. Forecast Method

The forecast method developed for Main Replacements expenditures is a three-year average. This method is most appropriate because the projects range in scope and volume, individually consisting of different labor and non-labor rates. SoCalGas replaced an average of 13 miles of pipe per year under this work category during the period 2019 through 2021. SoCalGas forecasts continuing main replacements at the three-year (2019 through 2021) historical average to mitigate potential risks associated with pipeline integrity, system reliability, and public safety. This approach also allows SoCalGas to capture historical spending under a variety of conditions that reflect fluctuations in labor and non-labor expenditures associated with this work category, accounting for several factors, including the need for review of operating conditions, detailed planning requirements, acquisition of required permits, and coordination and scheduling of resources. In addition, the three-year average best considers the historical cost of SB 1371 within this work category because it accounts for a reduction in replacement costs related to Code 3 – Steel leaks in 2019, 2020, and 2021. Concurrently, this forecast methodology accounts for the reduced cost of this work category due to SB 1371 in the forecast years. Thus, this forecast methodology is most appropriate because it represents the cyclical volume of work qualified on an annual basis, depending on the condition of the pipe as observed during maintenance activities, and captures the various challenges encountered during the construction of main replacements. The resulting forecast is $19,839,000, $17,626,000, and $17,626,000 in 2022, 2023, and 2024, respectively.

3. Cost Drivers

In general, older pipelines and pipe without cathodic protection tend to have higher levels of leakage, the primary driver for main replacement that can impact the integrity of the pipe. Other drivers include: compliance with cathodic protection requirements; the deterioration of pipe material, pipe wrap, or coating; if the main is found to have active corrosion; if the pipeline is deemed unfit for service due to manufacturing or other defects; construction methods originally used; and location relative to places of gathering. As of the end of 2021, SoCalGas had approximately 2,614 miles of pre-1940 main and approximately 3,397 miles of bare cathodically-unprotected main. Although these pipe categories are not the only pipelines where replacements occur, they highlight the need to continue to focus on pipeline replacements. This

work supports the Company's commitment to mitigate the risks associated with public safety, system reliability, and infrastructure integrity.

Another cost driver for this work category is the ongoing efforts of SoCalGas's SB 1371 Compliance Plan, submitted on March 15, 2022, for CPUC approval in compliance with the R. 15-01-008 proceeding. As a part of the 2022 SB 1371 Compliance Plan, SoCalGas aims to continue reducing its leak inventory, including Code 2 and Code 3 – Plastic leaks. Considering this Compliance Plan, pending approval, SoCalGas removed the historical cost of main replacement related to these leak categories from the forecasted years in 2023 and 2024 to avoid any duplicative funding request for main replacements due to Code 2 and Code 3 leaks. However, if the 2022 SB 1371 Compliance Plan is not approved, SoCalGas anticipates increased expenditure in this work category to mitigate leaks in a timely manner for public safety.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials cost. All or a combination of these construction elements are necessary for performing pipeline installations for main replacement work.

D. SERVICE REPLACEMENTS

The work represented in the Service Replacements category includes expenditures associated with routine replacement of isolated distribution service pipelines to maintain system reliability and to safely deliver gas to the customer, thus mitigating the risks associated with loss of service and public safety. The capital costs associated with this work category are summarized in TABLE MA-43.

TABLE MA-43
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
D. Service Replacements	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
1. Service Replacements (NC)	49,472	42,770	40,138	40,138
1. Service Replacements (CO)		2,459	2,459	2,459
Total	**49,472**	**45,229**	**42,597**	**42,597**

1. Description

Complementary to SoCalGas's main replacement activities are capital improvements associated with service replacements. Service replacement costs completed as part of main pipeline projects are captured in the Main Replacements budget category.

SoCalGas has approximately 49,933 miles of service pipe. This figure consists of approximately 16,645 miles of steel, and approximately 33,288 miles of plastic service lines. Forty eight percent of steel services are protected by cathodic protection. Most service replacement projects are driven by leakage and pipe corrosion. Furthermore, of the leaks found in steel services, a significant number is found on pipe that is not under cathodic protection. To correct these leaks, it is sometimes more prudent to replace the entire service rather than repair the leak and install and maintain cathodic protection on the existing service.

The Service Replacement activity is a mitigation measure supporting a safety risk identified in the RAMP Report and discussed in Section II above. This forecast supports the Company's commitment to mitigate the risks associated with public safety, system reliability, and infrastructure integrity.

The forecast for Service Replacements for 2022, 2023, and 2024 are $45,229,000, $42,597,000, and $42,597,000, respectively. The specific details regarding the Service Replacements are found in my capital workpapers. *See* SCG-CWP-04, WP 002560. For this cost category, SoCalGas's proposed LPCMA, discussed above, would apply because it has capital collectible costs.

a. RAMP Activities

Included in the Service Replacements are the forecasted expenditures and the associated work units of the Service Replacements – Leakage, Abnormal Operating Conditions, CP Related (SCG-Risk-3 C16).[43] Service replacements are primarily due to leakage and anticipated leakages, defects, corrosion, deterioration of pipes and cathodic protection requirements. In addition, SoCalGas monitors over 320,000 steel services that are surveyed on a sampling basis where at least ten percent of the system inventory is sampled each year. Due to underground (UG) shorts, ineffective coating, or any other factors that contribute to the corrosion of the

[43] A.21-05-014 – SoCalGas 2021 Risk Assessment and Mitigation Phase (RAMP) (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-21.

service line, a minimum pipe-to-soil (P/S) potential may not be achieved. These services may lead to leaks in the future and should be proactively replaced to reduce the risk of any incidents.

These replacements are critical to sustain operational reliability and public safety. TABLE MA-44 below provides the RAMP activities, their respective cost forecasts, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers.

TABLE MA-44
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[44]
002520	SCG-Risk-3	C16	Service Replacements – Leakage, Abnormal Op. Conditions, CP Related	$ 25,846	$ 23,213	$ 23,213	-

2. Forecast Method

The forecast method developed for Service Replacements expenditures is a three-year average. This method is most appropriate because it allows SoCalGas to capture historical spending under a variety of conditions that reflect fluctuations in labor and non-labor expenditures associated with this work category. SoCalGas replaced an average of 5,552 service lines per year under this work category during the period 2019 through 2021. SoCalGas forecasts continuing service replacements at the three-year (2019 through 2021) historical average to mitigate potential risks associated with pipeline integrity, system reliability, and public safety. This forecast methodology best captures the various challenges encountered during the construction activity and considers the historical cost of SB 1371 within this work category, including a reduction in replacement costs related to Code 3 – Steel leaks in 2019, 2020, and 2021. Concurrently, this forecast methodology accounts for the reduced cost of this

[44] Tranche level RSEs are available in SCG-04-CWP.

work category due to SB 1371 in the forecast years. Furthermore, the timing of individual projects is based on several factors, including the need for review of operating conditions, detailed planning requirements, acquisition of required permits, and coordination and scheduling of resources. Consideration is also given to customer needs, as a service replacement will often require a temporary shut-off of gas service, which could have a negative effect on certain customers if service is interrupted. Equally important, it is sometimes necessary to excavate on private property in order to install the new service line, and thus, permission needs to be secured from the landowner before work commences.

The resulting forecast is $45,229,000, $42,597,000, and $42,597,000 in 2022, 2023, and 2024, respectively.

3. Cost Drivers

The common drivers for service replacement include: leakage and pipe corrosion that can impact the integrity of the pipeline system; compliance with cathodic protection requirements; the deterioration of pipe material, pipe wrap, or coating; if the service pipe is found to have active corrosion; and if the pipeline is deemed unfit for service due to manufacturing or other defects. At the end of 2021, SoCalGas had approximately 18,897 pre-1940 service lines and approximately 777,794 service lines without cathodic protection. Although these service line categories are not the only pipelines where replacements occur, they highlight the need to continue to focus on service replacements.

In addition to service replacements associated with compliance, SoCalGas performs service replacements that are driven by customer requests. When customers request an alteration to the existing service due to personal construction activities, such as remodeling, SoCalGas verifies the age and the material of the existing service pipe. If the existing service is deemed as non-state-of-the-art, including steel pipe without cathodic protection or Aldyl-A pipe installed before 1986, SoCalGas replaces the entire service to enhance public safety and reduce the risk of leakage.

Another cost driver for this work category is the ongoing efforts of SoCalGas's SB 1371 Compliance Plan. As discussed above in Main Replacements, SoCalGas aims to continue reducing its leak inventory, including Code 2 and Code 3 – Plastic leaks as a part of the 2022 SB 1371 Compliance Plan, submitted on March 15, 2022, for CPUC approval in compliance with the R. 15-01-008 proceeding. Considering this Compliance Plan, pending approval, SoCalGas

removed the historical cost of service replacement related to these leak categories from the forecasted years in 2023 and 2024 to avoid any duplicative funding request for service replacements due to Code 2 and Code 3 leaks. However, if the 2022 SB 1371 Compliance Plan is not approved, SoCalGas anticipates increased expenditure in this work category to mitigate leaks in a timely manner for public safety.

This work supports the Company's commitment to mitigate the risks associated with public safety, system reliability, and infrastructure integrity. The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials such as pipe and fittings. All or a combination of these construction elements are necessary for performing pipeline installations for service line replacement work.

E. MAIN AND SERVICE ABANDONMENTS

This work category includes expenditures associated with the abandonment of distribution pipeline mains and services, without the installation of a replacement pipeline. TABLE MA-45 below provides a summary of the total capital costs for the forecast years.

TABLE MA-45
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
E. Main and Service Abandonments	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
5. Main and Service Abandonments	11,898	14,135	14,135	14,135

1. Description

Abandonment of mains and services occur primarily when pipeline is no longer needed for current system operations and is not expected to be needed in the future. The activities contained in Main and Service Abandonments are especially necessary to eliminate the risk that may result from a hazardous condition due to the potential for third-party damage, and to eliminate unnecessary continued maintenance activities, thus mitigating a public safety risk. Main abandonments are typically driven by requests from a city and or the state that involve the vacating and demolition of public property, at which point, there is no opportunity for replacement. Service lines are deactivated upon cancellation of gas service due to building

demolition, or when temporary service is terminated. When a service line becomes inactive, it is evaluated to determine if it will be left in place or abandoned. If it is not abandoned, it is re-evaluated at least every five years to verify that a safe condition remains. A service line is left in place when it appears the service may be used again without alteration.

Service lines are normally abandoned when:

- There is likelihood of leakage or damage;
- The last or only structure on the property has been, or will be, removed or demolished and the service will not serve a new structure;
- A service branch extends into private property served by another service, and it does not appear it will be reused;
- The source of supply is being replaced, relocated, or abandoned and no immediate reuse is foreseen; or
- A temporary service becomes inactive.

These forecasted capital expenditures help mitigate risks associated with public safety and infrastructure integrity, and thus support the Company's goals of maintaining the safety, integrity, and reliability of the pipeline system. The forecast for Main and Service Abandonments for 2022, 2023, and 2024 are $14,135,000, $14,135,000, and $14,135,000, respectively. The specific details regarding the Main and Service Abandonments are found in my capital workpapers.

2. Forecast Method

The forecast method developed for Main and Service Abandonments expenditures is a five-year average. This method is most appropriate because the level of spending in this routine abandonment category is highly dependent on the demand for demolition and grading on private and public property. Furthermore, the timing of individual projects is based on several factors, including the need for review of operating conditions, detailed planning requirements, acquisition of required permits, and coordination and scheduling of resources. Due to the unscheduled and unpredictable nature of this work, this forecast approach allows SoCalGas to capture the historical spending under a variety of conditions that reflect the historical fluctuation in expenditures associated with this work category. The resulting base forecast for 2022, 2023, and 2024 are $14,135,000, $14,135,000, and $14,135,000, respectively.

3. Cost Drivers

Main abandonments are typically driven by requests from a city and or state involving the vacating and demolition of public property, at which point there is no opportunity for replacement, as well as by customers through the cancellation of gas service due to building demolition, or when temporary service is terminated. It has been SoCalGas's observation that the level of work that the public and private parties complete is often driven by economic conditions and as the economy continues to improve over the forecast period, so will the need for main and service abandonments.

Pipelines are abandoned for several reasons, including when they are no longer needed for current system operations and are not expected to be needed in the future, or to eliminate the risk that may result from a hazardous condition due to the potential for third-party damage. This work supports the Company's commitment to mitigate the risks associated with public safety and infrastructure integrity.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials, such as pipe and fittings. All or a combination of these construction elements are necessary for performing pipeline retirements for mains and services.

F. REGULATOR STATIONS

Represented in this work category are expenditures for the installation, relocation, replacement, and abandonment of regulator stations. TABLE MA-46 below provides a summary of the total capital costs for the forecast years.

TABLE MA-46
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
F. Regulator Stations	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
6. Regulator Stations	8,292	10,014	10,014	10,014

1. Description

Regulator Stations are installed to reduce the pressure of gas entering the distribution system from high-pressure pipelines to provide the lower pressures used on the distribution

pipeline network, which provides steady and reliable operating conditions to the customers. As such, regulator stations are key pieces of control equipment on the SoCalGas pipeline network that support the mitigation of risks associated with public safety, system reliability, and infrastructure integrity. Regulator stations not only control the gas pressure but also serve as a line of defense against over-pressurization. Many modern stations are designed with dual-run feeds to maintain continued operation of the station in the event of a failure within either of the two runs.

Regulator stations consist of pipes, electronics, valves, and regulators, which are installed in either below-ground vaults or above-ground fenced facilities, and in some instances, inside specially built housing.

As a part of the maintenance activities, the field workforce inspects and records the condition of each station. These inspection evaluation elements are used to prioritize station replacement work. For example, single-vault regulator stations may contain equipment that is no longer available in the industry. In such circumstance, replacement becomes necessary due to equipment obsolescence. Additionally, more modern two-vault stations may require replacement due to system reinforcement or growth. SoCalGas operates and maintains approximately 1,951 regulator stations, of which, on average, 14 stations are replaced or added to the system each year. The average life expectancy of a regulator station is approximately 47 years, as discussed in the testimony of Mr. Watson (Ex. SCG-32). While SoCalGas's operating and maintenance practices allow stations to exceed their useful lives, it is prudent to continue to replace these aged facilities prior to failure. Failure of a regulator station could result in under- or over-pressurization of the distribution system, which may compromise the integrity of medium-pressure pipelines and/or jeopardize public safety.

Stations identified for replacements contain one or more of the following risk factors and are prioritized accordingly: design obsolescence, active corrosion, deteriorating vaults or equipment, exposure to flooding, hazardous traffic conditions, or ergonomically unsafe. SoCalGas proactively targets these stations for replacement before operation and safety issues arise.

These forecasted capital expenditures align with the Company's goals to mitigate risks associated with public safety, system reliability, and infrastructure integrity. The forecast for

Regulator Stations for 2022, 2023, and 2024 are $10,014,000, $10,014,000, and $10,014,000, respectively.

a. RAMP Activities

Included in the Regulator Stations are the forecasted expenditures and the associated work units of the Regulator Station Replacements/Installation (SCG-Risk-3 C5).[45] As mentioned above, regulator stations are replaced for variety of reasons, including, but not limited to, the asset condition, system demand and growth, equipment obsolescence, and hazardous traffic conditions. SoCalGas has developed a district regulator station (DRS) risk assessment tool to assess prioritizing enhancements and replacements of stations. The new risk model includes the likelihood of failure and the consequence of failure for all regulator stations. Based on this prioritization model, SoCalGas plans to replace at least eight stations within the top one percent of the risk assessment scores. These replacements will proactively replace regulator stations prior to the end of their useful life to reduce the overall system risk, critical to sustain operational reliability and public safety. By performing this work, SoCalGas is taking steps towards reducing the number of outdated designs and reducing its safety risk. These costs for Regulator Stations are summarized below.

TABLE MA-47
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[46]
002650	SCG-Risk-3	C05	Regulator Station Installation & Replacement	$ 3,087	$ 3,087	$ 3,087	-

[45] A.21-05-014 – SoCalGas 2021 Risk Assessment and Mitigation Phase (RAMP), May 17, 2021. Please refer to Ch. SCG-Risk-3 SCG-3-14.

[46] Tranche level RSEs are available in SCG-04-CWP.

2. Forecast Method

The forecast method developed for Regulator Stations expenditures is base year. This method is most appropriate because the most recent years' accomplishments and recorded cost best indicate the anticipated activities that SoCalGas can achieve during the forecasted years. The historical cost per project ranges significantly based on the scope of the project, including, but not limited to, the location, the design, and the pressure range. Furthermore, due to the complexity of the projects, the number of stations installed or replaced is insufficient to represent the historical costs. Therefore, the historical averages and historical trends were considered but not representative of the forecast.

In addition to the base forecast, SoCalGas is requesting incremental funding to proactively replace regulator stations based on the DRS risk assessment, as discussed in the Description of RAMP Mitigations above. To calculate the incremental funding required, SoCalGas evaluated the DRS risk assessment to identify the regulator stations that have been replaced in 2021 as a part of RAMP and utilized the historical cost. With SoCalGas's goal to replace at least eight stations related to RAMP, the resulting incremental forecast is $1,722,000 in each of the years 2022, 2023, and 2024.

Given the need to continue the replacement of regulator stations, SoCalGas used the 2021 base forecast to capture the expenditures for this work category. The selected forecast approach allows SoCalGas to capture the spending needed to address the aging infrastructure and associated safety and reliability concerns. The resulting forecast is $10,014,000 in each of the years 2022, 2023, and 2024.

3. Cost Drivers

As indicated previously, SoCalGas has approximately 1,951 regulator stations system-wide, with an average age of 29 years. While SoCalGas has approximately fifteen percent of its regulator stations with components that exceed 47 years due to the operating and maintenance practices that have allowed these stations to remain in service, given that these facilities continue to age, have a finite service life, and are critical pieces of control equipment, it is prudent to continue the replacement of this infrastructure at an increasing rate prior to failure.

Work activities within the Regulator Stations work category are driven by the need to safeguard the safety and integrity of the pipeline system and mitigate risks associated with customer/public and employee/contractor safety, system reliability, and infrastructure integrity as

well as regulatory requirements. Regulator station replacements are driven by several factors including: the condition of the station, such as equipment obsolesce; the need to support system reinforcement or growth; and the need to address aging infrastructure, such as stations that have known maintenance, reliability, or design obsolescence issues. Adding to the design complexity of the regulator station construction is the challenge of finding a suitable installation location in a public or private right-of-way for the installation of the two six-foot by six-foot underground vaults that are normally required for a standard design. SoCalGas is committed to the safety of its employees, and for this reason, the Company has steered away from placing these stations in the streets where technicians are exposed to traffic hazards. SoCalGas's prefers to place new stations on sidewalks and/or parkways, where annual maintenance and inspections can be conducted under safer conditions. Furthermore, the timing of individual projects is based on various factors, including the need for review of operating conditions, detailed planning requirements, acquisition of required permits, and coordination and scheduling of resources.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials such as controls, electronics, valves, pipe, and fittings. All or a combination of these construction elements are necessary for performing regulator station replacements.

G. CONTROL CENTER MODERNIZATION PROJECT DISTRIBUTION REGULATOR STATION AND OTHER PROJECTS

Represented in this work category are expenditures for the Control Center Modernization (CCM) Projects of Gas Distribution Regulator Stations and other projects. TABLE MA-48 below provides a summary of the total capital costs for the forecast years.

TABLE MA-48
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
G. Control Center Modernization (CCM) Distribution Project	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
7. Control Center Modernization (CCM) Distribution Project	15,046	23,506	26,403	21,534

1. Description

As part of the CCM Project, SoCalGas plans to enable Gas Control (GC) to remotely monitor and control the gas distribution system through two key functions; the installation and integration of data from field assets on the distribution pipeline system to remotely control distribution regulator stations and provide GC expanded continuous monitoring of the system through enhanced control room operations technology. This is a continuation of the "Distribution Operations Control Center" (DOCC) and the "Pipeline Infrastructure Monitoring System" (PIMS) funding requested by witness Michael Bermel in the TY 2019 GRC, which was fully authorized in D.19-09-051.[47] Gas Distribution plans to continue activities for the CCM Project, and the project updated its deployment plan due to the team's identification of the need for further evaluation, testing, and analysis of assets and technology being used to accomplish the Company's goal of enhancing the safety and reliability of the gas distribution system before a larger scale deployment was initiated. The specific details regarding the CCM project are in the Gas Transmission Operations & Construction testimony of Messrs. Chiapa, Hruby, and Bell (Ex. SCG-06).

The CCM Project mitigates safety risks identified in the 2021 RAMP Report: CCM SCG Distribution Field Asset Real-Time Monitoring and Control Site Installations / Upgrades and New Control Room Technologies (SCG-Risk-3 C24).[48] Accordingly, this work group in its entirety aligns with a RAMP activity.

For the Control Center Modernization (CCM) – Distribution, TABLE MA-49 below shows the TY 2024 forecast costs associated with the activities in the 2021 RAMP Report.

[47] D.19-09-051 – Decision Addressing the Test Year 2019 General Rate Cases of SDG&E and SoCalGas, (September 26, 2019).

[48] A.21-05-014 – SoCalGas 2021 Risk Assessment and Mitigation Phase (RAMP) (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-27.

TABLE MA-49
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[49]
002500	SCG-Risk-3	C24	CCM SCG Distribution Field Asset Real-Time Monitoring and Control Site Installations / Upgrades and New Control Room Technologies	$ 23,506	$ 26,403	$ 21,534	0*

* An RSE was not calculated for this activity.

2. Forecast Method

The forecast method developed for this cost category is zero-based methodology as the CCM project is a newly formed group with no historical spending. This method is most appropriate because control and monitoring assets along gas distribution pipelines is an emerging activity for which no benchmark or historical costs are available. Additionally, the operations technology enhancements being implemented by the CCM project are currently being developed. Subject matter experts and initial contractor estimates have been used to create forecasts through TY 2024. *See* Supplemental Workpaper SCG-04-MAA-CAP-SUP-005 in SCG-CWP-04, WP 002500.

3. Cost Drivers

The underlying cost driver(s) for this capital project are from the project management, planning, designing, engineering, permitting, construction and close-out activities related to the enhancement of distribution regulator stations, meter replacement and reconfiguration, and control room OT systems.

[49] Tranche level RSEs are available in SCG-04-CWP.

H. CATHODIC PROTECTION CAPITAL

The Cathodic Protection Capital work category includes expenditures associated with new installation and replacement of CP systems and equipment. TABLE MA-50 below provides a summary of the total capital costs for the forecast years.

TABLE MA-50
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
H. Cathodic Protection Capital	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
8. Cathodic Protection Capital	5,096	6,993	6,527	6,527

1. Description

Buried steel pipelines will revert to their natural state as an iron oxide (corrode) without proper intervention. Corrosion on pipelines increases the risk for leaks and may reduce the useful life of the pipelines. In addition to the application of coating and electrical isolation, CP is a method for mitigating external corrosion on steel pipelines. CP combats corrosion by imposing an electric current flow toward the surface of the pipeline, which means keeping the pipeline negatively charged (cathodic) with respect to the surrounding soil. This results in reduced corrosion on the pipeline system. Examples include impressed current stations, deep well anode beds, magnesium anode systems, and CP instrumentation and monitoring equipment.

Title 49 CFR § 192, Subpart I, and GO 112-F set forth the regulatory standards that govern pipeline corrosion control. SoCalGas utilizes both impressed current and magnesium anode (galvanic) systems to provide CP to existing pipelines. Impressed current systems utilize a rectifier for the generation of the direct current. Both systems utilize sacrificial anodes as a primary component in the system. Anodes are installed in wells drilled into the surrounding soil by third-party drilling contractors. Each protected pipe segment requires multiple anodes, collectively referred to as an "anode bed." The number of anodes needed to achieve the desired level of protection and the average life of the anode bed can vary based on pipeline length, coating effectiveness, soil conditions, and interference that may occur on the system. As the average life of the anode bed can vary based on the pipeline length, the coating effectiveness, the soil conditions, and the interference that may occur on the system, the anode beds must be

installed and replaced to maintain the required protection of buried steel pipelines. By performing this work, SoCalGas is taking steps towards reducing the risk for leaks and its safety risk.

The Cathodic Protection Capital activity mitigates safety risks identified in the 2021 RAMP Report: Cathodic Protection – Install / Replace Impressed Current Systems (SCG-Risk-3 C14).[50] Accordingly, this work group in its entirety aligns with a RAMP activity.

For Cathodic Protection – Capital, TABLE MA-51 below shows the TY 2024 forecast dollars and RSE associated with the activities in the 2021 RAMP Report.

TABLE MA-51
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[51]
001730	SCG-Risk-3	C14	Cathodic Protection – Install / Replace Impressed Current Systems	$ 6,993	$ 6,527	$ 6,527	-

2. Forecast Method

The forecast method developed for Cathodic Protection Capital expenditures is a five-year average. This method is most appropriate because the expenditures for this capital work category vary from year to year due to a variety of risk factors that impact the effectiveness and productivity of a cathodic protection system, such as infrastructure age, rate of anode depletion, soil moisture and type, electric current interference system damages, customer actions, and pipe coating effectiveness. In order to maintain a cathodically-protected area, it is often necessary to convert magnesium anode-protected areas into impressed-current areas, which are better able to

[50] A.21-05-014 – SoCalGas 2021 Risk Assessment and Mitigation Phase (RAMP) (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-19.

[51] Tranche level RSEs are available in SCG-04-CWP.

deliver more current to the pipeline system. This is normally done for magnesium anode areas with chronic maintenance issues. SoCalGas plans to continue this approach by increasing the number of areas converted from magnesium anodes to impressed current to provide CP to areas that require additional protection. This allows the Company to capture the activity to respond to an aging CP system requiring increased rates of infrastructure renewal while accounting for the routine activities and the associated cost.

SoCalGas selected a five-year (2017 through 2021) historical average with incremental for its forecast. The resulting base forecast and incremental for 2022, 2023, and 2024 are $6,993,000, $6,527,000, and $6,527,000, respectively.

3. Cost Drivers

SoCalGas has approximately 18,280 miles of steel main and approximately 711,832 steel services that are cathodically protected. The primary driver for cathodic protection work is compliance with Department of Transportation (DOT) regulation 49 CFR § 192, Subpart I, and GO 112-F, which set forth the standards for corrosion control as well as the need to safeguard the integrity of the pipeline system and mitigation of risks associated with public safety, system reliability, and infrastructure integrity. Expenditures in this work category are associated with new installation and replacement of major CP components and equipment to maintain the integrity of the CP system on these mains and services.

The age of the CP system component is also an important cost driver for this work category. As system components age, their effectiveness decreases, driving the need for additional replacement work. Another work driver is the rate at which anodes deplete, which is impacted by several factors, including soil moisture and type, electric current interference, customer actions, and pipe coating effectiveness. An additional driver is the rate at which magnesium anode-protected areas are converted into impressed current areas, which are better able to deliver more current to the pipeline system.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials. This includes: the additions of new rectifier (impressed current) sites along with associated anode installations, including the necessary CP instrumentation and remote monitoring equipment; anode bed well replacements for existing rectifier systems; as well as installation and replacement of larger

surface bed magnesium anode systems. All or a combination of these construction elements are necessary for cathodic protection projects.

a. Remote Monitoring Units (RMU)

SoCalGas utilizes RMUs to monitor the level of cathodic protection provided by rectifier units to steel pipelines. These units allow employees to complete mandated bi-monthly inspections to verify that the level of current from the rectifiers is adequately protecting steel pipelines. Similar to electronic pressure monitoring units, RMUs send out alarm notifications to the department monitoring these devices when the current levels are below or above a pre-set tolerance. This allows SoCalGas to send personnel to determine what triggered the alarm and address the issue. Current RMUs rely on cellular connections to communicate with software and was built with a 3G technology. SoCalGas will replace these units at 1,553 sites with new 4G technology to maintain communication with these devices and continue monitoring rectifiers. In order to replace and install new units throughout its service territory, SoCalGas is requesting incremental funding in 2022 of $466,000 over the base forecast.

I. PIPELINE RELOCATIONS – FREEWAY

The work in the Pipeline Relocations – Freeway category includes expenditures associated with relocating or altering SoCalGas facilities in response to external requests, as specified under the provisions of utility agreements with state and local agencies. TABLE MA-52 below provides a summary of the total capital costs for the forecast years.

TABLE MA-52
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
I. Pipeline Relocations – Freeway	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
1. Pipeline Relocations – Freeway (NC)	3,376	598	598	598
1. Pipeline Relocations – Freeway (CO)		1,306	1,306	1,306
Total	**3,376**	**1,904**	**1,904**	**1,904**

1. Description

Freeway work in SoCalGas is driven by requests from governing agencies, such as the California Department of Transportation (CalTrans). These agencies submit requests for SoCalGas to relocate pipe and related facilities that, if maintained in their current location, would interfere with planned construction or reconstruction of freeways. The work in this category includes expenditures associated with relocating or altering SoCalGas facilities in response to these external requests, as specified under the provisions of utility agreements with these agencies.

Gas facility projects and work initiated to accommodate freeway enhancements include altering pipeline crossing over and under a freeway bridge span, any gas facility interfering with construction within the agency's right-of-way, or any gas facility in the general vicinity that interferes with the freeway project construction. Freeway relocation projects include all sizes of distribution pipeline work, supply line alterations, service alterations, and MSA alterations. The exact timing and number of freeway pipeline projects is driven by the schedules and budgets of outside agencies. Therefore, expenditures in this category are dependent on the number, extent, and timing of these requests, which are largely outside of SoCalGas's control. When projects do occur, however, SoCalGas must promptly complete its portion of the work to minimize schedule delays for the agency.

The forecast for Pipeline Relocations – Freeway for 2022, 2023, and 2024 are $1,904,000, $1,904,000, and $1,904,000, respectively. These forecasted capital expenditures support compliance with the provisions of third-party agreements. For this cost category, SoCalGas's proposed LPCMA, discussed above, would apply because it has capital collectible costs.

2. Forecast Method

The expenditures for this work category were forecasted using the five-year average (2017 through 2021). This average is most representative of future work requirements and expected expenditures, as it captures typical fluctuations in project costs from year to year and provides for special projects taking place during the forecast period. Freeway pipeline projects are driven by the level of funds available to transportation agencies, primarily to CalTrans. In developing the forecast for this work category, SoCalGas reviewed the historical expenditures as well as available data on future projects and expects future levels of expenditures to continue

based on the five-year average. Furthermore, SoCalGas recognizes that the timing to complete each project is difficult to predict, due to the need for review of operating conditions, detailed planning requirements, acquisition of required permits, risk assessment, and coordination and scheduling of resources.

3. Cost Drivers

Pipeline Relocations – Freeway work is driven by the volume and type of construction required in response to requests of external agencies, such as Caltrans. These agencies submit requests for SoCalGas to relocate pipe that would, if maintained in its current location, interfere with planned construction or reconstruction of freeways. The work in this category includes expenditures associated with SoCalGas's requirement to comply with the provisions of its agreements with third parties, including CalTrans. The degree of complexity of each relocation request varies and the outside agency's construction schedules often change, directly impacting SoCalGas's cost.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials, such as pipe and fittings. All or a combination of these construction elements are necessary for performing freeway relocation projects for mains, services, and associated facilities.

J. PIPELINE RELOCATIONS – FRANCHISE

The work in the Pipeline Relocations – Franchise category includes expenditures associated with relocating or altering SoCalGas facilities in response to external requests, as specified under the provisions of SoCalGas's franchise agreements with city and county agencies. TABLE MA-53 below provides a summary of the total capital costs for the forecast years.

TABLE MA-53
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
J. Pipeline Relocations – Franchise	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
1. Pipeline Relocations – Franchise (NC)	18,050	11,508	11,508	11,508
1. Pipeline Relocations – Franchise (CO)		8,781	8,781	8,781
Total	**18,050**	**20,289**	**20,289**	**20,289**

1. Description

Pipeline Relocations – Franchise work is driven by external agencies, such as cities, counties, or the state. These agencies submit requests for SoCalGas to relocate pipe that would, if maintained in its current location, interfere with the construction or reconstruction of roads or railway systems. The work in this category includes expenditures associated with relocating or altering SoCalGas facilities in response to these external requests, as specified under the provisions of SoCalGas's franchise agreements with city and county agencies. Some examples of the type of municipality work that drives SoCalGas franchise pipe relocations include street widening, resurfacing, or repairs, storm drain work, and municipality water and sewer work.

It is difficult to predict an accurate timeline for when franchise projects will be executed, since SoCalGas does not have control over the construction schedules. When project requests are received, however, SoCalGas must promptly complete its portion of the work to minimize schedule delays for the municipality or agency.

The forecast for Pipeline Relocations – Franchise for 2022, 2023, and 2024 are $20,289,000, $20,289,000, and $20,289,000, respectively. These forecasted capital expenditures support the Company's requirement to comply with the provisions of its franchise agreements. For this cost category, SoCalGas's proposed LPCMA, discussed above, would apply because it has capital collectible costs.

2. Forecast Method

The expenditures for this work category were forecasted using the five-year average. This average is most representative of future work requirements and expected expenditures, as it captures typical fluctuations in project costs from year to year and provides for special projects taking place during the forecast period. Franchise pipeline replacements are driven by the level of construction activity from municipalities, who are generally responding to a need to upgrade an aging infrastructure or expansion requirements. This work is normally driven by the availability of funds for municipalities. Long-term forecasting of franchise work is difficult, given the changes in governmental project funding, the large number of governmental jurisdictions involved and limited long-term information on upcoming specific projects. Thus, to reflect the anticipated rate of pipeline replacements related to franchise work and to account for the historical fluctuations in project costs from year to year, SoCalGas projects expenses for this workgroup were forecasted based on the five-year average. The resulting forecast for 2022, 2023, and 2024 are $20,289,000, $20,289,000, and $20,289,000, respectively.

3. Cost Drivers

As discussed above, franchise work is driven by the volume and type of construction work required in response to requests from external agencies, such as cities and counties. These agencies submit requests for SoCalGas to relocate pipe that would, if maintained in its current location, interfere with the construction or reconstruction of roads or railway systems. Some examples of the type of municipality work that drives SoCalGas franchise pipe relocations include street widening, resurfacing, or repairs, storm drain work, and municipality water and sewer work.

Population growth and density also drive municipality work. As an area's population grows or expands, there is a need for street widening, increased street maintenance, and increased capacity of the water and sewer systems. Another driver is the age of the municipality's infrastructure. Generally, as infrastructure ages, there is an increase in the level of replacement activity. This activity generates additional requests for SoCalGas pipe relocations and alterations.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials such as pipe and fittings.

All or a combination of these construction elements are necessary for performing franchise relocation projects for mains, services, and associated facilities.

K. METER PROTECTION

Represented in this work category are expenditures for the installation and replacement of meter protection devices and barriers to mitigate damage in case of a potential collision. TABLE MA-54 below provides a summary of the total capital costs for the forecast years.

TABLE MA-54
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
K. Meter Protection	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
11. Meter Protection	7,045	8,250	9,900	11,550

1. Description

Meter Protections are routinely installed to protect the MSAs at existing customer locations from vehicular traffic, in accordance with GO 112-F and with 49 CFR § 192.353(a). The meter protections are installed at targeted sites where the MSA location and/or design warrant consideration of traffic patterns and exposure to other potential sources of impact damage. The installation of meter protections creates a more secure environment at the MSA location, which, in addition to increasing public safety, results in increased longevity and performance of the MSA equipment. SoCalGas has specific engineered standard designs to protect its MSAs: a light duty meter guard designed to protect MSAs at single residential properties; a medium duty meter guard designed to protect MSAs at multi-residential, light commercial, and light industrial properties; a heavy-duty meter guard designed to protect MSAs exposed to heavy commercial and industrial traffic, or where poor soil conditions exist, or involve other situations requiring additional protection. Furthermore, increased building density creates additional conflicts with vehicular traffic impeding on MSA locations. Current trends in architecture, to maximize saleable square footage, has resulted in less room for MSAs, increasing the demand forecast for meter guards to protect these less-amenable MSA locations. They serve as a first line of defense against vehicular impact in a service territory where, in many areas, parking is a premium and space for MSA installations is limited.

The Meter Protection activity mitigates safety risks identified in the 2021 RAMP Report: Residential Meter Protection Project (SCG-Risk-3 C18).[52] Accordingly, this work group in its entirety, aligns with a RAMP activity.

For the Meter Protection, TABLE MA-55 below shows the TY 2024 forecast dollars and RSE associated with the activities in the 2021 RAMP Report.

TABLE MA-55
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE [53]
002640	SCG-Risk-3	C18	Residential Meter Protection Program	$ 8,250	$ 9,900	$ 11,550	30

The meter protection work discussed in Section IV.A.5, Service Maintenance, is for the replacement or repair of existing infrastructure, while this capital category covers meter guards installed at a facility for the first time.

2. Forecast Method

The forecast method developed for Meter Protection expenditures is zero-based. This method is most appropriate because SoCalGas is addressing the installation of meter protection by the number of sites that require it. SoCalGas forecasts installing meter protection at approximately 10,000, 12,000, and 14,000 MSA locations in 2022, 2023, and 2024, respectively. As SoCalGas anticipates increasing the sites each year, an approximate cost per site that includes both the labor and non-labor rates is most appropriate to forecast the expenditure. Other forecast methods considered were three-year linear trend and base year, as the project began installation

[52] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-22.

[53] Tranche level RSEs are available in SCG-04-CWP.

in and continuously increased in units since 2019.[54] However, the linear growth rate is not aligned with the plans in the forecasted years, and the project plans to continue mitigating more sites than that of 2021. Therefore, SoCalGas forecasted this work category using a zero-based approach. The resulting forecast for 2022, 2023, and 2024 are $8,250,000, $9,900,000, and $11,550,000, respectively. *See* Supplemental Workpaper SCG-04-MAA-CAP-SUP-008 in SCG-CWP-04, WP 002640.

3. Cost Drivers

SoCalGas installs meter guards in response to the need to protect its gas distribution assets and to promote public safety as well as to comply with state and federal regulations. Meter protection work is driven by conditions surrounding the location of an existing meter set assembly. Meter guards are installed to protect the MSA when it is apparent that any activity on the property creates or encourages a potentially hazardous environment to the MSA. This work supports the Company's commitment to mitigate the risks associated with public safety, system reliability, and infrastructure integrity.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials. All or a combination of these construction elements are necessary for performing meter guard installations.

L. OTHER DISTRIBUTION CAPITAL PROJECTS

The Other Distribution Capital Projects work category covers the expenditures for capital adjustments to SoCalGas facilities that are not specifically included in other categories of work as further explained below. TABLE MA-56 below provides a summary of the total capital costs for the forecast years.

[54] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3-WP SCG-Risk-3-WP-6.

TABLE MA-56
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
L. Other Distribution Capital Projects	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
1. Other Distribution Capital Projects (NC)	10,419	7,161	4,423	4,423
1. Other Distribution Capital Projects (CO)		6,206	21,890	4,622
Total	**10,419**	**13,367**	**26,313**	**9,045**

1. Description

The Other Distribution Capital Projects work category covers construction projects not covered under franchise agreements, not related to freeway work, and not covered in other capital budget categories. Examples of these projects include, but are not limited to:

- Replacement, alteration, or abandonment of appurtenances to mains, such as valves and vaults, drips, traps, roads, and fences, due to condition, in order to maintain the reliable operation of the distribution system;
- Raising, lowering, or relocating mains due to interference with external party construction;
- Changes to SoCalGas facilities at customer request. This could include items such as alteration or relocation of mains or MSAs, installation of a customer's exclusively-used main; and
- Changes to SoCalGas facilities in accordance with right-of-way agreements, encroachment permits, and railroad crossing lease agreements.

This activity is generally unpredictable, due to its nature, as the vast majority of the costs are driven by property owners requesting SoCalGas to move its facilities from their property. When projects do occur, SoCalGas must promptly complete its portion of the work to minimize schedule delays for the landowner or agency.

The forecast for Other Distribution Capital Projects for 2022, 2023, and 2024 are $13,367,000, $26,313,000, and $9,045,000, respectively. These forecasted capital expenditures support the Company's efforts to meet the obligation to clear gas facilities from obstructing

external party construction improvements and/or expansions. For this cost category, SoCalGas's proposed LPCMA, discussed above, would apply because it has capital collectible costs.

a. RAMP Activities

Included in the Other Distribution Capital Projects are the forecasted expenditures and the associated work units of the Valve Installations and Replacements (SCG-Risk-3 C13).[55] Each "critical" valve, as defined in the RAMP report, which may be necessary for the safe operation of a distribution system, must be inspected, serviced, lubricated and/or flushed (when required) and partially operated at intervals not exceeding 15 months, but at least once each calendar year.[56] After the inspections, if the conditions of the valves that are identified as hard to operate, inaccessible, inoperable, or sanded-in are not resolved, an alternate shutdown procedure is created while the valve is planned for a replacement, or a new valve is planned for installation at another site to serve the same purpose. These installations and replacements are critical to sustain operational reliability. TABLE MA-57 below provides the RAMP activities, their respective cost forecasts, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers

TABLE MA-57
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[57]
002700	SCG-Risk-3	C13	Valve Installs and Replacement	$ 1,540	$ 1,540	$ 1,540	-

[55] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3-WP SCG-3-19.

[56] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3-WP SCG-3-19, citing to 49 CFR § 192.747

[57] Tranche level RSEs are available in SCG-04-CWP.

2. Forecast Method

The forecast method developed for Other Distribution Capital Projects expenditures is a five-year average. This method is most appropriate because the level of spending in this work category is highly driven by the volume of external construction activity. Given the generally unpredictable nature of this activity, this forecast methodology best represents the cyclical volume of work completed on an annual basis and captures the various challenges encountered during construction, which tend to require a higher level of coordination with external parties. Projects in this work category are heavily dependent on the schedules and permitting constraints of third parties. The parties that generate this type of work for SoCalGas range in size from small clients to large corporations, which trigger a varying degree of scope of work for each construction job.

In addition to the five-year average, SoCalGas is requesting an incremental funding in 2022 and 2023, but a reduction in 2024 in anticipation for the California High-Speed Railroad (CHSR) projects, as discussed below. The resulting forecast for 2022, 2023, and 2024 are $13,367,000, $26,313,000, and $9,045,000, respectively.

3. Cost Drivers

As the California High-Speed Railroad Authority (CHSRA) continues the project to install the high-speed rail from Fresno to Los Angeles, SoCalGas has been relocating any of its existing pipelines that are in conflict with the CHSRA's planned infrastructure. To account for the cost of known projects during the forecasted years, the incremental funding for 2022 and 2023 has been added to the base forecast. For 2024, there is a reduction in the forecasted cost below the five-year average base forecast due to the anticipated decrease in the activity.

Additionally, costs in the Other Distribution Capital Projects work category are primarily driven by the volume and type of construction required to address the needs of agencies not under any franchise agreement and property owners requesting SoCalGas to move facilities from their property. The degree of complexity of each relocation request varies, and often, the customers' construction schedules are unpredictable, with direct impacts SoCalGas's costs.

Another cost driver in this work category is construction work performed to protect the integrity of the pipeline when it is not feasible to relocate it. An example of this work is the installation of protective casing where an existing pipeline is found to be at a shallow depth and therefore more susceptible to third-party damage.

The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, paving services, and materials such as pipe and fittings. All or a combination of these construction elements are necessary for performing relocation projects for mains, services, and associated facilities in the Other Distribution Capital Projects work category.

M. MEASUREMENT AND REGULATION DEVICES

The Measurement and Regulation (M&R) Devices work category includes expenditures for the purchase of gas meters, regulators, electronic gas pressure and temperature correction equipment, and electronic pressure monitors. TABLE MA-58 below provides a summary of the total capital costs for the forecast years.

TABLE MA-58
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
M. Measurement and Regulation Devices	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
1. Meters	20,705	33,503	33,775	36,184
2. Regulators	5,834	6,923	7,314	8,218
3. Electronic Pressure Monitors (EPM)	272	678	678	678
4. Gas Energy Measurement Systems (GEMS)	668	1,120	1,124	1,346
Total	27,479	42,224	42,891	46,426

These expenditures are necessary to safeguard public safety, comply with applicable rules and regulations governing gas metering (GO 58-A and 112-F), and meet SoCalGas's obligation to accurately measure gas consumption and to serve new customers.

1. METERS

The expenditures included in the Meters work category are for materials, warehouse handling, technical evaluations, and quality assurance for the purchase of small meters, typical of residential and small business applications, and larger meters, typical of non-residential applications. TABLE MA-59 below provides a summary of the total capital costs for the forecast years.

TABLE MA-59
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
M. Measurement and Regulation Devices	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
13. Meters	20,705	33,503	33,775	36,184

a. Description

Meters are purchased for two primary purposes: new business installations and meter replacements. These purchases and the subsequent installations enable accurate billing, reliability, and continued safe and reliable service to customers. Meter types purchased within this budget code include diaphragm, rotary, turbine, and ultrasonic. The associated installation expenses are covered in other applicable work categories (*e.g.*, New Business, M&R).

New business meters are purchased for installation at new customer premises. Meter purchases in this category are consistent with installations discussed in Section VI.A. Meters are also purchased for replacements resulting from Company or customer-identified problems due to meter accuracy, age, operation, or on a pre-determined replacement cycle, based on meter capacity, size, and meter class performance. Commercial and industrial meter sets are replaced by the Distribution M&R Department, whereas the replacements of small meter sets, typically installed at residential and small commercial sites, are performed by the Distribution Field Operations and Customer Services Field Departments. Customer Services Field labor costs associated with SoCalGas's planned small meter replacement program are covered by Mr. Rendler (Ex. SCG-14).

These forecasted capital expenditures support new customer demand and meter replacements due to obsolescence, damages or reaching of life expectancy. Since the meter is the device that measures the customer's gas consumption, it is critical that meters are functioning to specification and recording accurate information.

The forecasted capital expenditures for Meters support the Company's obligation to serve and the commitment to effectively respond to new customer demand and to provide safe and reliable service at reasonable cost.

b. Forecast Method

A zero-based forecasting methodology with incremental funding was used to forecast the expenditures of this capital work category. This methodology was based on the projected number of new meter sets and the forecasted replacement meter sets. The details of the number of forecasted replacement meter sets can be found in the accompanying supplemental workpaper SCG-04-MAA-CAP-SUP-010 in Exhibit SCG-04-CWP. This unit forecast was multiplied by the estimated cost per meter type from the manufacturers and the historical labor rate. The zero-based calculation yields the most accurate forecast for this capital category, as it incorporates the projected customer growth and forecasted meter replacements, while utilizing the proportional cost per meter type. See supplemental workpaper SCG-04-MAA-CAP-SUP-010 for the unit forecast and calculation details.

In addition, SoCalGas forecasted incremental funding for the Ultrasonic Meter Program. Additional information regarding the program can be found in the Gas Engineering testimony of Ms. Martinez (Ex. SCG-07).

The capital funding for meter purchases in years 2022, 2023, and 2024 is $33,503,000, $33,775,000, and $36,184,000, respectively.

c. Cost Drivers

The underlying cost drivers for this capital work category relate to the purchase of sufficient meters to meet the projected new business meter requirements and the meter replacement forecast. Although contractual unit prices have remained relatively fixed over the contract period leading to 2021, SoCalGas anticipates an increase in cost from the vendors in the latest contract, and thus, the historical average cost of the meters is not representative of the forecasted expenditures. Alternatively, the weighted average of the costs per meter from the vendors have been utilized to forecast this expenditure. New business meters are purchased for installation at new customer premises, including residential, commercial, and industrial sites. Meter purchases in this category are consistent with installations discussed in Section VI.A. Meters purchased for replacements are in response to Company or customer-identified problems due to meter accuracy, age, or operation, or on a pre-determined replacement cycle based on meter capacity, size, and meter class performance.

i. Ultrasonic Meter Program

SoCalGas plans to deploy ultrasonic meters into the residential customer sites. This program seeks to enhance customer safety, increase measurement accuracy, and reduce emission through the meters' solid-state technology. Additional information regarding the program can be found in the Gas Engineering testimony of Ms. Martinez (Ex. SCG-07).

2. REGULATORS

The expenditures included in the Regulators capital work category are for the purchase of new installation and replacement regulator materials and technical evaluations. Associated installation expenses are covered in other applicable work categories (*e.g.*, New Business, M&R). TABLE MA-60 below provides a summary of the total capital costs for the forecast years.

TABLE MA-60
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
M. Measurement and Regulation Devices	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
13. Regulators	5,834	6,923	7,314	8,218

a. Description

Gas regulators are used by SoCalGas to reduce the pressure of gas entering the distribution system from high-pressure pipelines to provide the lower pressures used on the distribution pipeline network and further reduce pressure at the customer's meter set. As such, they are the principal protective devices to secure employee and public safety and to protect physical assets in alignment with CPUC and DOT regulations. They also support accurate billing for most customers, where delivery pressure is employed to compute corrected gas volumes delivered to customers.

While new installations are driven by new meter set activities and new regulator stations; replacements are driven by customer or Company-identified problems, condition, and obsolescence of this equipment. The installation of regulators at commercial and industrial sites is normally performed by the Distribution M&R Department, whereas the installation of

regulators at residential and small commercial sites is normally performed by the Distribution Field Operations and Customer Service Departments.

The forecasted capital expenditures for Regulators support the Company's goal to provide safe and reliable service at reasonable cost.

b. Forecast Method

The methodology used to calculate the required funding for regulator purchases was zero-based and uses a weighted average of the regulator contract prices multiplied by the new business installation and replacement requirements. To determine the number of regulators needed, SoCalGas used as a basis the historical five-year ratio between purchased meters to purchased regulators (2017 through 2021). The determined five-year ratio represented the regulator factor used to forecast the number of regulators to be purchased. SoCalGas used the ratio from the historical period (2017 through 2021) as it best represents the true ratio between meters to purchased regulators (76%). By multiplying the regulator to meter ratio from the historical period (2017 through 2021) with the projected number of forecasted meter set purchases, it yielded the projected number of regulators for each of the forecast years. The labor expenditure was then calculated by taking the projected number of regulators multiplied by the historical 2021 average labor cost per regulator. See supplemental workpaper SCG-04-MAA-CAP-SUP-011 in Exhibit SCG-04-CWP for calculation details.

In summary, the capital funding required for the Regulators work category is forecasted to be $6,923,000, $7,314,000, and $8,218,000 in the years 2022, 2023, and 2024, respectively.

c. Cost Drivers

The underlying cost drivers for this capital work category relate to the purchase of sufficient regulators to meet projected new business installations and regulator replacements at existing MSAs. Although contractual unit prices have remained relatively fixed over the contract period leading to 2021, SoCalGas anticipates an increase in cost from the vendors in the latest contract, and thus, the historical average cost of the regulators is not representative of the forecasted expenditures. Alternatively, the weighted average of the costs per regulator from the vendors have been utilized to forecast this expenditure. Regulators purchased for new business meters sets are in response to installation at new customer premises, including residential, commercial, and industrial sites. Regulator purchased for replacements are in response to Company or customer-identified problems, such as technical defects, condition, age, or

obsolescence, or on a pre-determined replacement cycle based on regulator capacity, type, or regulator class performance.

3. ELECTRONIC PRESSURE MONITORS (EPM)

Costs included in the Electric Pressure Monitors category are for the purchase of electronic pressure monitors and associated labor cost for equipment configuration and initial installation. TABLE MA-61 below provides a summary of the total capital costs for the forecast years.

TABLE MA-61
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
M. Measurement and Regulation Devices	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
13. Electronic Pressure Monitors (EPM)	272	678	678	678

a. Description

Electronic pressure monitors are used by SoCalGas to remotely monitor distribution pipeline pressures in support of gas system capacity analysis, and for alarming of over or under-pressure events. The primary purposes of the electronic pressure monitor network are system safety and compliance.

These devices continuously monitor operating gas pressures, and their alarming capabilities support public safety throughout the service territory. These devices also support compliance with 49 CFR § 192.741 (Pressure limiting and regulating stations: Telemetering or recording gauges). The EPM installations and replacements are required to indicate gas pressure in the distribution system, maintain appropriate operating pressures, and respond to any over-pressure or under-pressure events. These installations and replacements are critical to sustain operational reliability and public safety.

The Electronic Pressure Monitors activity mitigates safety risks identified in the 2021 RAMP Report: Electronic Pressure Monitor (EPM) Replacement and Installations (SCG-Risk-3 C7).[58] Accordingly, this work group in its entirety, aligns with a RAMP activity.

For the Electronic Pressure Monitors, TABLE MA-62 below shows the TY 2024 forecast dollars and RSE associated with the activities in the 2021 RAMP Report.

TABLE MA-62
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE[59]
001810	SCG-Risk-3	C07	EPM Installations & Replacements	$ 678	$ 678	$ 678	-

b. Forecast Method

The forecast method developed for EPMs expenditures is a five-year average to mitigate potential risks associated with pipeline integrity, system reliability, and public safety. This method is most appropriate because the historical costs and the associated EPM units installed and replaced have been relatively fixed. Furthermore, the five-year average of the units installed and replaced represents the anticipated activities during the forecasted years. The number of new electronic pressure monitor (EPM) installations includes the installation and replacement of approximately 200 units. SoCalGas will continue to install new electronic pressure monitors in zones where system pressure is under-monitored. The capital funding required for the EPM work category is forecasted to be $678,000, $678,000, and $678,000 in the years 2022, 2023, and 2024, respectively.

[58] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-15.

[59] Tranche level RSEs are available in SCG-04-CWP.

c. Cost Drivers

The cost drivers for this capital category include the replacement of existing EPMs due to electronic component malfunctions and the installation of EPMs in areas without pressure monitors or that are currently under-monitored.

The underlying cost drivers for this capital work category relate to the purchase of EPM devices to meet the projected number of new installations and replacements as well as the associated installation labor and non-labor costs.

4. GAS ENERGY MEASUREMENT SYSTEMS (GEMS)

The capital expenditures included in the Gas Energy Measurement Systems (GEMS) work category are for the purchase of GEMS devices, other associated material, warehouse handling, technical evaluations, quality assurance, and costs for the initial installation of the GEMS devices. TABLE MA-63 below provides a summary of the total capital costs for the forecast years.

TABLE MA-63
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
M. Measurement and Regulation Devices	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
13. Gas Energy Measurement Systems (GEMS)	668	1,120	1,124	1,346

a. Description

In accordance with GO 58-A, and to enable accurate accounting and billing, GEMS instruments are used by SoCalGas as electronic pressure and temperature correctors to compute and accumulate the corrected volume from the mechanical output of positive displacement and turbine gas meters. They also have the ability to provide gas volume corrections based on real-time temperature measurement, provide audit trail capabilities, and some models provide remote communication capabilities. These devices are configured to fit the requirements of each GEMS field site.

These devices contain proper pressure and temperature transducers, as well as casing size and mounting configuration. The types of GEMS included in this category are: Electronic

Correctors, little GEMS, and big GEMS. SoCalGas purchases these devices to support new business installations and to provide for required instrument replacements. These units are necessary for larger, industrial customers that require non-standard delivery pressures and require compensation for varying gas temperature effect on measurement.

The forecasted capital expenditures for GEMS support the Company's goals of providing accurate measurement and billing to customers and protecting the integrity of the natural gas infrastructure.

b. Forecast Method

The methodology used to calculate the required funding for GEMS purchases was zero-based. This methodology is most appropriate because the number of GEMS required depends on the number of meters installed. In preparing the forecast for the new installations and the replacement units discussed above, the annual costs were based on the 2021 average cost per unit for each device type, multiplied by the number of units required based on the new business forecast growth and replacement requirements from the 2021 recorded installations and replacements. See supplemental workpaper SCG-04-MAA-CAP-SUP-012 in Ex. SCG-04-CWP for calculation details. The capital funding required for the GEMS work category is forecasted to be $1,120,000, $1,124,000, and $1,346,000 in the years 2022, 2023, and 2024, respectively.

c. Cost Drivers

Gas Energy Measurement Systems work is driven by the volume of new and existing industrial customers that require higher than standard delivery gas pressure. Customers that operate with non-standard delivery pressures are required to have a GEMS volumetric corrector that accounts for temperature effects on gas measurement. In general, gas measurement instruments are routinely replaced due to age, failed components, or damaged devices. It is necessary to replace these devices before they fail to avoid customer measurement errors and related increases in O&M expenses. These GEMS devices are essential to obtaining accurate gas consumption measurement for billing purposes, and thus are installed at the time a new qualifying industrial customer's service is initiated and replaced when a malfunction is detected on an existing GEMS device.

The underlying cost drivers for this capital work category relate to the purchase of GEMS devices to meet the projected number of new installations and the projected replacement count. Although contractual unit prices for the GEMS devices stay relatively fixed, there are small

fluctuations in price due to varying shipping and handling costs. It is SoCalGas's experience that new customer-driven installations increase as the economy improves. Units purchased for replacements are in response to Company or customer-identified problems, such as technical defects, operation, condition, age, or obsolescence.

N. CAPITAL TOOLS

The Capital Tools work category includes capital expenditures associated with the purchase of tools and equipment used by Gas Distribution field personnel for the inspection, maintenance, and repair of gas pipeline systems. TABLE MA-64 below provides a summary of the total capital costs for the forecast years.

TABLE MA-64
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
N. Capital Tools	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
14. Capital Tools	24,972	14,635	14,635	14,635

1. Description

The main drivers of this category include the need to replace existing tools that are damaged, broken, outdated technologically, or have outlived their useful lives, and the need to stock crew vehicles with new tools and equipment. In addition, SoCalGas invests in new tools that provide innovative ways of completing the maintenance and repair of its facilities in order to lessen customer disruptions, improve pipeline facility documentation, improve gas system safety, and improve employee safety.

The forecasted capital expenditures for Capital Tools support the Company's goals of protecting the safety of the customers and the employees through the use of equipment in good condition to avoid injuries or malfunction during safety-related operations.

a. RAMP Activities

Included in the Capital Tools are the forecasted expenditures and the associated work units of the Locating Equipment (SCG-Risk-2 C13, C14).[60] SoCalGas purchases and renews hardware that is appropriate for the outdoor environment that is updated with the latest software to provide the correct information to accurately locate the underground pipelines. Updated hardware and software increase the effectiveness of performing locate and mark activities and reduce the potential for damage to the pipelines that is caused by excavation activities. TABLE MA-65 below provides the RAMP activities, their respective cost forecasts, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers

TABLE MA-65
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE
007250	SCG-Risk-2	C13	Locating Equipment (MP)	$ 1,211	$ 565	$ 646	0.24
007250	SCG-Risk-2	C14	Locating Equipment (HP)	$ 289	$ 135	$ 154	73

2. Forecast Method

A five-year average (2017 through 2021) was used to forecast the expenditures of routine tool purchases. Routine tool purchase requirements are identified during the year, as part of the regular course of maintenance and construction activities. SoCalGas expects routine tool purchases to continue as existing tools and equipment reach their useful life expectancies and the level of construction and maintenance activities increases, adding to the number of new employees that must be equipped with tools and equipment. Some tools are exposed to rigorous use. Due to safety risks, such tools must be replaced before breaking. Otherwise, these tools could potentially cause injury to an employee. The increases of other work activities as stated

[60] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-2-18.

throughout my testimony add to the number of new employees that must be equipped with tools and equipment. SoCalGas evaluates field tools and equipment based on safety, functionality, cost, and quality. Costs are minimized by encouraging sharing between employees and crews, and by repairing tools when it is safe to do so.

As SoCalGas plans to increase the number of field employees for capital projects, additional tools are required. The capital funding for capital tool purchases in years 2022, 2023, and 2024 is $14,635,000, $14,635,000, and $14,635,000, respectively.

3. Cost Drivers

The main driver for capital tools and equipment purchases is the need to continuously equip SoCalGas's employees with safe and reliable tools and equipment. As previously discussed, SoCalGas's tools and equipment are exposed to rigorous environments that impact their useful lives. Because many of the tools and equipment being utilized in the field contain sensitive components that are subject to shock, vibration, rain, and dusty conditions, which are factors that contribute to the deterioration of the equipment, SoCalGas regularly replaces the tools to maintain a safe working environment. Furthermore, work increases in other capital and O&M work categories increase the need for personnel and therefore, the tools they use to perform their job.

In addition, SoCalGas invests in new tools that provide innovative ways of completing field work in order to lessen customer disruptions, improve pipeline facility documentation, and improve gas system and employee safety, including new Detecto Pak-Infrared (DP-IR), potential detection equipment for hydrogen, optical methane detectors (OMDs), plastic pipe scanning technology, and other miscellaneous tools and equipment. The underlying cost drivers for this capital work category include expenditures associated with the purchase of capital tools and equipment used by Gas Distribution field personnel for the maintenance and construction of gas pipeline systems.

O. FIELD CAPITAL SUPPORT

This work category provides the labor and non-labor funding for a broad range of services to support Gas Distribution field capital asset construction. TABLE MA-66 below provides a summary of the total capital costs for the forecast years.

TABLE MA-66
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
O. Field Capital Support	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
15. Field Capital Support	100,336	93,370	99,723	92,981

1. Description

Traditional work categories in this budget include project planning, local engineering, clerical support and field dispatch, field management and supervision, updating of mapping products, and off-production time for support personnel and field crews that install Gas Distribution capital assets.

Support activities recorded to this budget code include:

Distribution Planning

Distribution planning refers to all activities that take place in the region and district offices in support of capital projects. These support work activities include, but are not limited to, the following:

- Planning the Project – Conduct field visits to assess job site requirements; retrieve available sub-structure drawings from multiple sources for the proposed site to determine construction options; select materials; specify job details, including the method of installation and gas control instructions; develop traffic control procedures; and obtain permits.
- Producing Project Drawings – Drawings that are required to obtain construction permits, used by SoCalGas and contractor field crews for asset installation, and documentation of the project in SoCalGas's records. This includes updating the SoCalGas Geographic Information System (GIS) with graphical and facility information. These personnel are responsible for detailed design and updating all distribution infrastructure maps whenever facilities in the field are constructed, modified, or replaced. The timely maintenance of these gas distribution system records is a critical risk mitigation measure in preventing hazards to public and employee safety, infrastructure integrity, and to the reliable delivery of natural gas to SoCalGas's customers.

- Acquiring and Managing Third-Party Services – Acquire third-party contract services such as paving, steel plates, equipment, and new business joint trenching. Verify that third-party services provided meet SoCalGas's standards and that the joint trench provided by the applicant is to specifications.
- Estimating Work Order Cost – Provide work order cost estimates for each capital project.

Distribution Engineering

The work performed by Distribution engineering personnel includes gas network analysis, hydraulic modeling, development of construction design requirements, pressure control specifications, administration of the regional emergency response centers, distribution emergency response, and assessments of construction impacts on the reliability and integrity of the gas distribution system.

Clerical

Clerical support includes a number of functions that assist capital projects including: obtaining permits; requesting third-party services such as paving; reconciling all project documentation; reviewing accuracy of information; and entering work order data into SoCalGas's system of records. In addition, Clerical supports the accurate records retention of construction permits, work orders, and customer requests for archival.

Scheduling and Dispatch

Dispatch support coordinates all aspects of the construction job, including availability of supplies, materials, and contract support personnel; and schedules work for completion in the field.

Field Management and Supervision

Field management and supervision of SoCalGas and contractor field crews is covered by this area. This includes the safety and quality of Company and contractor work to verify that construction follows job specifications, construction and safety standards, employee safety procedures, and compliance with OpQual requirements. This also includes the management of front-line supervisors and technical planning office supervisors.

Project Management

Project Management refers to activities supporting major projects and programs through their lifecycle to promote successful and effective execution through all phases of the project. This can include development and implementation of structured processes, project development

and cost measures as well as forecasting and schedule development. Project management may also take on special request or ad hoc projects with scopes that may exist outside of the normal purview of other distribution departments.

Off-Production Time

Off-production time refers to hours that are paid to employees who are assigned capital construction projects, but spend time away from the job site. Examples of off-production time include attending skills training classes and participating in required safety and other meetings to accomplish the job. This is applicable to both field and technical personnel.

Personnel in the Field Capital Support work category are critical to the success of capital projects as they execute critical activities throughout the life cycle of a construction job. To prepare a project for field construction, personnel within this work category initiate, plan, design, and schedule for field dispatch. Once the job is in field construction, field management oversees the field crews and is responsible for making field decisions that are compliant with standards and policies. After the project has been completed in the field, there is the remaining activity of reconciling the construction as-built information, which also involves the personnel in this work category.

The forecasted capital expenditures for Field Capital Support promote the Company's commitment to mitigate risks to public safety, reliability, and the integrity of the natural gas system.

a. RAMP Activities

Included in the Field Capital Support are the forecasted expenditures and the associated work units of the Inspection of Company and Contractor Work on Gas Pipelines (SCG-Risk-3 C15).[61] As mentioned above, capital work performed by qualified SoCalGas and contractor personnel are inspected by field management to check that the construction has been completed safely and according to the applicable standards. Qualified Company personnel performs these inspections and document them on the Construction Inspection Report (CIR), which are made available electronically from Company databases. Observations of the work and the associated tools, equipment, and materials used, employee qualifications, and procedural adherence provide

[61] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-3 SCG-3-20.

the opportunity to identify, assess, and resolve potential hazards. These inspections are critical to sustain operational reliability and public safety.

Also included in the Field Capital Support are the forecasted expenditures and the associated work units of the Locate and Mark Training (SCG-Risk-2 C01 and C02)[62] and the Locate and Mark Annual Refresher Training and Competency Program (SCG-Risk-2 C05 and C06).[63] As previously discussed in Section IV.A.2, Locate and mark training provides employees who perform locating tasks with the necessary knowledge and operator qualification to locate and mark underground gas facilities. In addition, all company personnel performing Locate and Mark Activities must complete an annual re-training and refresh program. This program consists of local supervisors reviewing SoCalGas Gas Standards with the locate and mark workforce. Employees are required to pass the refresher training in order to continue Locate and Mark Activities.

In addition, the Field Capital Support includes the forecasted expenditures and the associated work units of the Company Excavator Training (SCG-Risk-2 C27 and C28).[64] This training program provides excavation training to employees who are required to excavate as part of their job duties. Additional details are discussed in Section IV.A.2.

TABLE MA-67 below provides the RAMP activities, their respective cost forecasts, and the RSEs for this workpaper. For additional details on these RAMP activities, please refer to my workpapers.

[62] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-2 SCG-2-14.

[63] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-2 SCG-2-15.

[64] A.21-05-014 – SoCalGas 2021 RAMP Report (May 17, 2021). Please refer to Ch. SCG-Risk-2 SCG-2-27.

TABLE MA-67
RAMP Activity Capital Forecasts by Workpaper
In 2021 Dollars ($000s)

Workpaper	Risk Chapter	ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE [65]
009030	SCG-Risk-3	C15	Company Crew & Contractor Inspections on O&M & Capital Pipeline Jobs	$ 1,696	$ 1,696	$ 1,696	0*
009030	SCG-Risk-2	C27	Company Excavator Training (MP)	$ 192	$ 192	$ 192	0*
009030	SCG-Risk-2	C28	Company Excavator Training (HP)	$ 14	$ 14	$ 14	0*
009030	SCG-Risk-2	C01	Locate & Mark Training (MP)	$ 138	$ 149	$ 160	0*
009030	SCG-Risk-2	C02	Locate & Mark Training (HP)	$ 10	$ 11	$ 12	0*
009030	SCG-Risk-2	C05	Locate & Mark Annual Refresher Training and Competency Program (MP)	$ 17	$ 17	$ 17	22
009030	SCG-Risk-2	C06	Locate & Mark Annual Refresher Training and Competency Program (HP)	$ 1	$ 1	$ 1	53

* An RSE was not calculated for this activity.

[65] Tranche level RSEs are available in SCG-04-CWP.

2. Forecast Method

A zero-based forecast for the labor cost and a five-year historical average was used to forecast the expenditures of Field Capital Support. This approach was most appropriate because the cost for field support is related to the anticipated capital construction activities. Collectively, the level of support activities, as outlined above, can fluctuate with the level of capital construction activity. Generally, the greater the volume of construction activity, the larger the support costs. Due to this relationship, the forecast expenditures for the budget category of Field Capital Support is based on the level of historical costs as a percentage of construction costs incurred.

Over the past five years (2017 through 2021), the percentage has ranged from 32% to 40%, with 2021 experiencing the highest ratio and 2020 the lowest. This variation is due in part to the mix of projects in each year as some capital work requires more labor support as a percentage of the project's cost. Given this variation in work and associated labor support costs, SoCalGas chose the five-year (2017 through 2021) historical average support ratio of 36.2% to determine the base forecast for the Field Capital Support work category. SoCalGas applied this labor ratio to the overall projected capital construction cost to determine the future needs of this workgroup. The non-labor forecast for this workgroup was determined using the historical (2017 through 2021) five-year average.

The resulting forecast for Field Capital Support for 2022, 2023, and 2024 is $93,370,000, $99,723,000, and $92,981,000, respectively. See supplemental workpaper SCG-04-MAA-CAP-SUP-013 in Ex. SCG-04-CWP for calculation details.

3. Cost Drivers

As discussed above, collectively, the level of support activities for Field Capital Support can fluctuate with the level of capital construction activity. Generally, the greater the volume of construction activity, the larger the support costs. Specifically, the construction drivers that most closely impact the Field Capital Support work category are found in the capital work categories: New Business, Pressure Betterment, Main Replacements, Service Replacements, Main and Service Abandonments, Regulator Stations, Cathodic Protection Capital, Pipeline Relocations – Freeway, Pipeline Relocations – Franchise, Other Distribution Capital Projects, Meter Protection, Control Center Modernization, and Remote Meter Reading. Given this relationship,

the cost drivers impacting construction related work categories, as described in the Capital section in this testimony, will also impact the Field Capital Support work category.

In addition, this forecast must support the large amount of mapping products requiring updating as construction work continues to increase. As previously described, the timely maintenance of mapping records is a critical risk mitigation measure to safeguard public and employee safety, maintain system reliability, and protect infrastructure integrity. SoCalGas recognizes that additional resources must be hired and trained to respond to this critical work pressure. This cost is included within the forecast ratio described above.

P. REMOTE METER READING

This cost category consists of Customer Services Field (CSF) labor and non-labor capital expenses for Data Collector Unit and pole installations and replacements associated with the Advanced Metering Infrastructure (AMI). TABLE MA-68 below provides a summary of the total capital costs for the forecast years.

TABLE MA-68
Capital Expenditures Summary of Costs

GAS DISTRIBUTION (In 2021 $)				
P. Remote Meter Reading	**2021 Adjusted-Recorded**	**Estimated 2022(000s)**	**Estimated 2023(000s)**	**Estimated 2024(000s)**
16. Remote Meter Reading	2,159	1,877	1,252	1,252

1. Description

As new homes and communities are constructed, the Data Collector Unit (DCU) footprint required to collect and transmit meter reading data will continue to expand. SoCalGas currently has approximately 4,600 DCUs across the service territory to provide advanced metering infrastructure (AMI) network coverage for the Company's nearly six-million meters. The installation of DCUs includes performing land acquisition, processing, and submitting ministerial and coastal commission permits in public right-of-way, utility easements, new pole and co-location construction, and commissioning DCUs. During the AMI deployment, SoCalGas learned that multi-family dwellings, constructed with subterranean meter rooms, may require indoor DCUs, which increases the overall requirement for DCUs in a community.

SoCalGas is projecting an increase of approximately 74, 40, and 40 DCUs in 2022, 2023, and 2024, respectively, for the installation and replacement of existing units. The forecast for Remote Meter Reading for 2022, 2023, and 2024 are $1,877,000, $1,252,000, and $1,252,000, respectively. These forecasted capital expenditures support the Company's activities needed for AMI growth and reliability. See supplemental workpaper SCG-04-MAA-CAP-SUP-014 in Exhibit SCG-04-CWP for calculation details.

2. Forecast Method

A zero-based forecasting methodology was used to forecast the expenditures for this capital work category. This method is most appropriate because the costs are primarily driven by work order volumes. The forecast is based on the number of poles and DCUs that SoCalGas anticipates installing as part of AMI implementation. This unit forecast was multiplied by the weighted average cost per equipment, based on historical purchases. Refer to supplemental workpaper SCG-04-MAA-CAP-SUP-014 in Ex. SCG-04-CWP for calculation details.

3. Cost Drivers

Costs are driven by network reliability as well as system growth. Many systems operate close to their maximum capacity over time, and additional meters will create network constraints, increasing reliability and connectivity risk for accurate reading. The underlying cost drivers for this capital work category relate to Company labor, contractor services, third-party services, and materials cost. All or a combination of these construction elements are necessary for performing facility installations for DCU installation.

VII. MOBILEHOME PARK UTILITY UPGRADE PROGRAM – REASONABLENESS REVIEW

SUMMARY

TABLE MA-69
Capital and O&M Mobilehome Park Utility Upgrade (MHP) Program through 2021

Year	Costs Incurred for MHP Projects Completed through 2021
2016	$1,434,616
2017	$34,950,958
2018	$47,573,305
2019	$28,677,962
2020	$52,154,169
2021	$20,180,138

The purpose of this section of my testimony is to establish the reasonableness of $185.0 million, ($180.4 million in capital expenditures and $4.6 million in O&M expenditures) incurred in executing the ongoing Mobilehome Park Utility Upgrade Program (MHP Program). These costs were incurred for activities related to the conversion of MHP Projects through 2021 pursuant to the MHP Program Decision (D.) 14-03-021 ("MHP Decision").[66] In accordance with the directive in D.14-03-021, these costs are being presented here in SoCalGas's GRC. These costs are reasonable and justified in that:

- The activities are consistent with the Commission's approved MHP Program Decision and tariffs, applicable codes and standards established by local, state, and federal authorities and SoCalGas standards;
- The activities enhance the safety and reliability of Mobilehome Park Communities;
- The activities are conducted by qualified employees and contractors; and
- The activities support SoCalGas's commitment to enhance public safety and system reliability.

A. INTRODUCTION

1. Summary of the Mobilehome Park Utility Upgrade Program

My testimony (1) describes the activities and reasonableness of costs recorded by SoCalGas in executing the MHP Pilot Program as directed by the Commission in D.14-03-021 (MHP Decision), and (2) in accordance with Ordering Paragraph (OP) 8 of the MHP Decision, submits as reasonable the costs reported in SoCalGas's 2022 Mobile Home Park Utility Upgrade Program Report.[67] Reasonableness review of costs is limited to recorded costs and excludes any program cost forecasts.

As of December 31, 2021, SoCalGas converted 287 mobilehome parks (20,014 permitted spaces), which is approximately 15% of eligible mobilehome spaces in SoCalGas's territory.

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[66] D.14-03-021.

[67] *See* SoCalGas Mobilehome Utility Upgrade Program (February 1, 2022) appended as Appendix C

B. PROCEDURAL BACKGROUND

R.11-02-018 was commenced to "examine what the Commission can and should do to encourage the replacement by direct utility service of the master-meter / submeter systems that supply electricity, natural gas, or both to mobile home parks and manufactured housing communities located within the franchise areas of electric and/or gas corporations."[68] The rulemaking "grapple[d] with issues that have proven intractable for decades"[69] and, "[a]fter three years of review,"[70] the Commission ordered SoCalGas and other utilities to execute the MHP Program.

The MHP Program was ordered to be a three-year pilot program (2015-2017) ("Pilot Program") to convert master-metered/sub-metered natural gas and/or electric services to direct utility services for approximately ten percent (10%) of spaces in mobilehome parks and manufactured housing communities (collectively, MHPs) in SoCalGas's service territory. The focus of the conversions is primarily on safety and secondarily on system reliability/capacity.[71] On September 28, 2017, Resolution E-4878 authorized the investor-owned utilities ("IOUs") to continue their MHP Pilot Programs through December 31, 2019 ("Pilot Program Extension).[72] SoCalGas was authorized to complete the initial 10% scope of eligible spaces and convert up to an additional 5% of eligible spaces, bringing the total scope of the three-year Pilot Program and Pilot Program Extension to 15% of eligible MHP spaces.

On March 18, 2019, the Commission issued Resolution E-4958, authorizing SoCalGas to continue its Program for eligible MHPs until the earlier of either December 31, 2021, or the issuance of a Commission Decision for the continuation, expansion, or modification of the

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[68] R.11-02-018, Decision Granting Petition in Part and Instituting Rulemaking into Issues Concerning Transfer of Electric and Natural Gas Master-Metered Service at Mobilehome Parks and Manufactured Housing Communities to Direct Service by Electric and/or Natural Gas Corporations (February 25, 2011), at 1.

[69] D.14-03-021 at 3-6. The Commission also discussed efforts commenced in the 1990s to encourage California MHPs with master-metered service to convert to direct utility service, noting that over a period of 17 years little more than two dozen conversions occurred.

[70] *Id.* at 2

[71] *Id.* at 3.

[72] Resolution E-4878 at 19 (OP 7).

program beyond December 31, 2021, in Rulemaking (R.) 18-04-018.[73] Eligible MHPs were defined as those where SoCalGas and/or MHP owners had incurred "financial obligations" on or before November 1, 2018. Resolution E-4958 further determined the number of spaces converted in each of years 2020 and 2021 may not exceed 3.33% of the total master-metered spaces in a utility's service territory, excluding MHPs that are already under conversion or scheduled for conversion. It further clarified that if a single MHP upgrade would result in the utility exceeding the 3.33% maximum requirement, the utility is authorized to proceed with that upgrade.

On April 16, 2020, the Commission issued D.20-04-004, approving a ten-year Mobilehome Park Utility Conversion Program beginning in 2021 through 2030. Following a new application period established by the Commission during the 1st quarter of 2020, Safety and Enforcement Division (SED) is to provide SoCalGas, on an annual basis, with a list of MHPs comprising approximately 3.33% of eligible master-metered spaces within its service territory for a target 50% conversion by the end of 2030. This Decision also recommends a second evaluation of the MHP utility conversion program in 2025 following the first four-year application cycle (2021-2024) to decide whether to continue or modify the program.

On December 23, 2020, the Commission issued a Phase 2 Scoping Memo to further examine ways to protect residents of participating MHPs from unreasonable rent increase or eviction and determine whether the development of an electrification ready service standard for participating MHPs was feasible. On August 20, 2021, the Commission issued D.21-08-025, which adopted consumer protection requirements to keep residents of MHPs that participate in the Commission's MHP Program from experiencing unreasonable rent increases or evictions based on infrastructure improvements funded through the Program. Pursuant to D.21-08-025, SoCalGas submitted Advice Letter (AL) 5877 on October 4, 2021, to: 1) update its Sample Forms – Contracts, Mobilehome Park (MHP) Utility Conversion Program (MHP Program or Program) Agreement (Form 8210) to include consumer protection measures for residents of MHPs participating in the Program: and 2) provide a description of the specific information that participating MHP owners are to provide to residents, as well as a discussion of methods the

[73] Resolution E-4958 at 7-8 (OP 1).

MHP owners may use to communicate these protections to their residents. AL 5877 was approved by the Commission as of October 25, 2021.[74]

The MHP Decision ordered that conversions must be completed on a "to the meter" (TTM) and "beyond the meter" (BTM) basis.[75]

Regarding cost recovery for this Commission-mandated safety and reliability program, the Commission stated:

> Utilities will be authorized to fully recover the reasonably incurred, actual costs of the conversion program in distribution rates. Reasonable incremental expenses for program development and administration, not otherwise recovered in rates, should be entered as incurred for annual recovery in the utility's pilot program balancing account. Reasonable expenditures for actual construction costs should be entered as incurred and recovered in the year following cut over to direct utility service. "To the meter" construction costs will be capitalized at the utility's then-current authorized rate of return on rate base, based on actual (not forecast) expenditures. "Beyond the meter" construction costs also will be capitalized based on actual (not forecast) expenditures but, consistent with their status as a regulatory asset, will be amortized over ten years at the utility's then-current authorized return on rate base.[76]

The Commission made provisions for program oversight: annual reports that include specific information are required to be filed in the first quarter of every year, and the reasonableness of program costs are to be reviewed by the Commission in an after-the-fact reasonableness review. Specifically, the Commission ordered:

> Each electric and/or gas corporation is authorized to fully recover in distribution rates the costs of the conversion program approved in Ordering Paragraph 2, subject to reasonableness review. The following ratemaking is approved: actual, prudently incurred program costs shall be entered in a balancing account for recovery in the first year following cut over of service; "to the meter" construction costs must be capitalized based on actual (not forecast) expenditures at the utility's then-current authorized return on rate base; "beyond the meter" construction costs must be capitalized based on actual (not forecast) expenditures and consistent with their status as a regulatory asset, these costs must be amortized over ten years at a rate equivalent to the utility's then-current authorized return on rate base. Review for reasonableness of "to the meter" costs will occur in the general rate case where those costs are put into rate base.

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[74] SoCalGas Advice Letter 5877 (Oct. 4, 2021) *available at:* https://tariff.socalgas.com/regulatory/tariffs/tm2/pdf/5877.pdf.

[75] D.14-03-021 at 75 (OP 2).

[76] *Id*. at 3.

> Review for reasonableness of "beyond the meter" costs will occur in the first general rate case after service cut over.[77]

C. SAFETY CULTURE

In D.14-03-021, the Commission states:

> This rulemaking grapples with issues that have proven intractable for decades. Central to them all is how to ensure the safe, reliable and fairly-priced delivery of electricity, natural gas, or both, to the residents of mobilehome parks and manufactured housing communities (collectively, MHPs) located within the franchise areas of electric and/or natural gas corporations, those Commission-regulated entities commonly referred to as public utilities.[78]

As stated in Section III, SoCalGas's longstanding commitment to safety focuses on three primary areas – (1) employee/contractor safety, (2) customer/public safety, and (3) the safety of the gas delivery system. Based on the results of the MHP Program to date, the Commission-approved MHP Program has been successful in enhancing the safety and reliability of the delivery of gas to the residents of mobilehome parks and manufactured housing communities that have participated in the MHP Program. The MHP Program has been an effective means for significantly increasing the number of conversions to direct utility service.

The program team has established a safety policy that achieves the Program's safety objectives and is consistent with SoCalGas's safety-first foundation. From 2014 through 2020, SoCalGas maintained a high safety standard with four reportable incidents over approximately 1,710,460 hours of labor logged between contractors and MHP program employees combined. In 2021, SoCalGas continued to maintain a high safety standard with zero reportable incidents over approximately 180,083 hours. Additionally, 287 MHPs with systems older than 40 years have received – or are in the process of receiving – new utility-owned and maintained distribution systems that meet current SoCalGas standards. SoCalGas's MHP Program annual safety statistics are summarized further in my testimony.

D. STANDARD OF REVIEW AND OTHER COMMISSION GUIDANCE

This section of my testimony summarizes the applicable standard of review and other applicable Commission guidance.

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[77] *Id*. at 77 (OP 8).

[78] *Id*. at 3-4.

1. Preponderance of the Evidence Standard

The standard of proof to be applied by the Commission in an after-the-fact reasonableness review is preponderance of the evidence.[79] Preponderance of the evidence is defined "in terms of probability of truth, *e.g.*, 'such evidence as, when weighed with that opposed to it, has more convincing force and the greater probability of truth.'"[80] In other words, SoCalGas "must present more evidence that supports the requested result than would support an alternative outcome."[81]

2. Reasonable Manager Standard

To assess the reasonableness of incurred costs, the Commission applies the reasonable manager standard.[82] To meet this standard, "[t]he act of the utility should comport with what a reasonable manager of sufficient education, training, experience and skills using the tools and knowledge at his disposal would do when faced with a need to make a decision and act."[83] As explained by the Commission, "reasonable and prudent acts do not require perfect foresight or optimum outcomes, but may fall within a spectrum of possible acts consistent with utility needs, ratepayer interests, and regulatory requirements."[84] Under this standard, the Commission holds utilities to "a standard of reasonableness based upon the facts that are known or should be known at the time."[85] In so doing, the Commission looks to the decision-making process and information available to the manager to assess whether the course of action was within the "bounds of reasonableness, even if it turns out not to have led to the best possible outcome."[86]

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[79] A.14-12-016, Assigned Commissioner and Administrative Law Judges' Scoping Memo and Ruling (April 1, 2015), at 5; *see also* D.14-06-007 at 13.

[80] D.14-06-007 at 13 (citing Witkin, Calif. Evidence, 4th Edition, Vol. 1, 184).

[81] *Id.*

[82] A.14-12-016, Assigned Commissioner and Administrative Law Judges' Scoping Memo and Ruling (April 1, 2015) at 5-6.

[83] D.90-09-088 at 23.

[84] D.97-08-055 at 109.

[85] D.90-09-088 at 22 (citing D.88-03-036 at 5).

[86] D.89-02-074 at 267 (Conclusion of Law 3).

As explained by the Commission, this is to "avoid the application of hindsight in reviewing the reasonableness of a utility decision."[87]

In the case of the MHP Program, the Commission recognized that "the physical conditions at MHP master-meter/submeter systems will vary greatly, depending upon age, type of materials used in prior construction, existing MHP design, terrain and other factors,"[88] and thus "numerous uncertainties"[89] existed before the MHP Program commenced and will remain true for the duration of the MHP Program.

E. PROGRAM ORGANIZATION AND GOVERNANCE CONTROLS

1. Master Meter Balancing Account and Nature of Recorded Costs

The Master Meter Balancing Account (MMBA) was authorized by Advice Letter 4643-G on June 25, 2014.

SoCalGas records to the MMBA to-the-meter costs, which include costs for utility and contracted labor, purchased services and materials, and trenching and paving. Utility labor costs include civil construction, setting meters, gas service turn-on, purging of legacy systems, removal of master meters, as well as the procurement and warehousing of materials. To-the-meter costs also include MHP Program management costs, which are inclusive of: Program Outreach, such as primary customer contact and coordination before, during, and after construction activities in accordance with the Commission-reviewed statewide Outreach Plan; Program Construction Management, which includes construction management and planning; and Program Management Office (PMO) activities which include program strategy, project controls during the project life cycle, regulatory reporting, and the MHP Program's finance, budgeting, and accounting functions. PMO activities also include communicating progress to various stakeholders.

SoCalGas also recorded beyond-the-meter costs, which include work related to the connection of new utility services from the utility meter to the mobilehome. Beyond-the-meter work is performed by contractors selected by the MHP owners/operators.[90] As such, beyond-

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87 D.90-09-088 at 22.

88 D.14-03-021 at 49.

89 *Id.*

90 *Id*. at 47 (Construction).

the-meter costs are not directly managed or under the control of SoCalGas. The regulatory accounting treatment of costs recorded to the MMBA is discussed in the Regulatory Accounts testimony of Ms. Yu (Ex. SCG-38).

2. Program Management

SoCalGas's MHP Program management team implemented a series of tools and controls to enable identification of risks and issues which could negatively impact scope, schedule, or cost. These practices include the following:

a. Experienced Management Staff

To implement the MHP Program, SoCalGas formed an organization led by management personnel experienced in each of the core competencies required by the MHP Program (*i.e.*, Program Outreach, Planning and Construction, PMO Governance, and Finance). Initially, in support of a lean organization that shares both costs and lessons learned, certain roles, including the Program Director, PMO Manager, Governance Manager, and Finance Manager, were shared across SoCalGas and SDG&E's MHP Programs.

The responsibilities of each workstream in the MHP Program organization are briefly described as follows:

- Customer Outreach and MHP Account Management – The SoCalGas Outreach team is responsible for outreach and education to the impacted communities, the mobilehome parks, and the residents before, during, and after the execution of the program and individual projects. To promote efficient and streamlined project execution, the Outreach team works closely with the Planning and Construction Management team to assess and resolve project risks and issues. Additionally, the Account Management executives work closely with MHP Owners/Operators to implement project-driven outreach and education plans compliant with the statewide MHP Utility Upgrade Program Outreach and Education Plan.
- Planning and Construction Management – The SoCalGas Planning and Construction team manages the design through construction components of the MHP utility upgrades.
    - Planning – The Planning team assesses each individual project and designs the new gas distribution system per SoCalGas's standards.

- Construction Management – The Construction Management team consists of project managers and inspectors responsible for reviewing and assessing to-the-meter work performed in the mobilehome parks. The construction management team manages the schedule, scope, and budget of each individual project. While the construction management team does not manage the beyond-the-meter construction work performed by MHP owner/operator-selected contractors, it reviews the scope and costs of beyond-the-meter bids and coordinates with the beyond-the-meter contractor regarding meter locations and procedures for interconnection and turn-on at each mobilehome.

- Program Management Office (PMO) – The PMO defines and maintains standards of project management and compliance within the MHP Program.
  - Governance – As part of the PMO, the Governance team is responsible for establishing and implementing program controls and processes needed to execute the MHP Program. This includes risk management, issue management, schedule management, change management, monitoring of key performance indicators (KPIs), project reporting, and business process design.
  - Finance – The Finance team, also part of the PMO, is responsible for establishing and implementing cost and budget controls to confirm accurate cost tracking. Activities include cost accounting and invoice processing, change management, budgeting, and financial reporting.

Since approval of the ten-year program, the organizational structure has been separated between SoCalGas and SDG&E, and the costs are therefore no longer shared.

b. MHP Program's Ongoing Efforts To Minimize Project Execution Costs

The procurement of services (construction contractors, design, etc.) is the largest individual category of MHP Program expenditures. Approximately 50% of MHP Program costs are for purchased services and materials. As such, an important aspect of the prudent execution of the MHP Program is sourcing and retaining capable contractors and vendors at reasonable rates. In an effort to control program costs through pre-negotiated rates, SoCalGas and Southern

California Edison Company (SCE) jointly conducted a competitive solicitation for to-the-meter construction activities within their service territories to identify and select qualified and licensed construction contractors. Contractors known to perform the type of work needed for MHP projects were selected by an experienced team of construction management and sourcing employees from both SoCalGas and SCE. Using a competitive bid process, SoCalGas and SCE awarded Program Master Service Agreements to seven contractors.

- Partnerships/Cost Saving/Trench Splitting – When appropriate due to service territory overlap, SoCalGas works in close cooperation with other utilities and shares the cost for relevant MHP conversion costs such as trenching costs. This approach has resulted in 89% (254 of 287) of mobilehome parks being jointly converted through December 31, 2021, which enabled customers of both utilities to share the civil construction costs. SoCalGas estimates this joint conversion rate will increase as the MHP Program continues.
- Project Monitoring – SoCalGas's MHP Construction Management team oversees to-the-meter construction activities to confirm that work is safely performed in accordance with project scope, schedule, and budget. Each project is assigned a project manager and inspector responsible for reviewing and assessing the activities of the to-the-meter contractor. At the onset of each project, the project managers and inspectors hold a pre-construction meeting with the selected contractor to review project details, reporting, safety, and other deliverables. Frequent monitoring is performed by the inspector and changes, issues, or questions that arise are timely addressed by the project inspector and/or project manager.
- Estimation – SoCalGas tracks the costs of construction for each project through internal Work Order Authorizations (WOAs), which are used to track actual costs against the original estimate of total project costs. Costs in excess of estimates require further review and approval through reauthorizations.
- Invoice Validation – Each invoice for to-the-meter or beyond-the-meter work is reviewed by the program's Finance group and Construction Project Managers to validate that work has been completed in accordance with contractual agreements at the negotiated rates and within authorized limits.

- Project Close-Out/Quality Assurance – SoCalGas performs reconciliation and quality assurance following completion of every project to affirm that: (1) records in support of both program and project compliance are reviewed; (2) oversight was provided for project decisions and/or associated changes that occurred; (3) documents are stored in centralized repositories for proper records management; and (4) when final costs have been recorded, total project financial records are reviewed for validity and compared against estimates.
- Diverse Business Enterprises (DBE) – The MHP Program supports SoCalGas's commitments consistent with GO 156 through inclusion of DBE participation as a KPI of the program. During the to-the-meter construction contractor competitive solicitation process, expanding opportunities to DBE contractors was a consideration in the evaluation of contractors. The project is performing at approximately a 38% DBE level.
- Program Monitoring – SoCalGas produces periodic financial and schedule reporting for its management teams to allow continuous oversight over the program, to monitor project progress, and enable early identification of risks and issues impacting schedule and costs.
- Policies and Procedures – SoCalGas established a Program Governance Plan (PGP) to document the MHP Program's guidelines and core processes and to facilitate uniformity of repeatable processes. The PGP and its supporting documentation are periodically modified and updated to reflect lessons learned through MHP Program activities. In addition, the PGP documents major decisions, including alternatives contemplated, that affect program activities.
- Clarity of Engagement Scope – SoCalGas strives to maintain clearly-defined program goals with contributing and impacted program stakeholders by working closely with MHP owners/operators through focused outreach efforts to clarify MHP Program components and the commitments required to reduce the risk of ambiguity in covered and non-covered costs. Through outreach efforts, SoCalGas works with MHP owners/operators to seek multiple bids for beyond-the-meter activities, thereby promoting cost awareness and competition. SoCalGas also provides workshops to beyond-the-meter contractors to promote awareness of the

program, including its components and goals, and engages beyond-the-meter contractors throughout the planning processes, including inviting participation in MHP site walks to more accurately estimate the scope, the schedule, and the budget.

- Communication and Guidance – SoCalGas fosters open channels of communication with external program stakeholders, including the Commission's Safety and Enforcement Division (SED), the California Department of Housing and Community Development (HCD), and other local and state entities to promote awareness of the program, share observations and findings, seek guidance, and provide information to better coordinate activities such as inspections.
- Safety Record – Safety is a primary driver of the SoCalGas MHP Program and one of its KPIs. The program team consulted with SoCalGas's Safety and Wellness department, as well as other Major Projects teams, to establish a safety policy that achieves the program's safety objectives and is consistent with SoCalGas's safety-first foundation. Additionally, SoCalGas continues to work with SED to review projects, as requested. SoCalGas's MHP Program annual safety statistics are summarized in TABLE MA-70 below.

TABLE MA-70
SoCalGas MHP Utility Upgrade Program Safety Statistics

Incident Type	2017	2018	2019	2020	2021	2022 (YTD)
Lost Time Injury (LTI)	0	0	0	0	0	0
OSHA Recordable	0	0	2	0	0	0
First Aid	1	0	0	0	0	0
Controllable Motor Vehicle Incident (CMVI)	0	0	1	0	0	1

- Continuous Improvement – Consistent with SoCalGas's ongoing commitment to continuous improvement, SoCalGas continually evaluates and implements

improvements to its MHP Program processes. Though not exhaustive, the following are examples of continuous improvements applied through program implementation:

- Organizational changes to improve planning and estimation at the onset of individual projects;
- Organizational changes to support sufficient regional coverage and address workload and geographical spread;
- Improving cost controls through adoption and improvement of unit-based tasking with to-the-meter contractors and bid and bid-review templates for beyond-the-meter contractors;
- Introduction and adaptation of change management and close-out processes;
- Working closely with each MHP owner/operator to adapt the Outreach and Education Plan to best suit their needs and minimize project issues;
- Regularly cadenced joint meetings with partner utilities to discuss project schedules, risks, and issues; and
- Development of multiple MHP owner/operator funding options for beyond-the-meter costs (i.e., payment assignment) to further encourage participation.

Through continuous efforts to improve existing processes and the implementation of each of these changes, the efficiency and cost effectiveness of future MHP Program projects are also improved

3. Preliminary Cost Summary

As directed by the MHP Decision, on February 1, 2022, SoCalGas filed its second Annual MHP Utility Upgrade Program Report, which summarizes the MHP Program's preliminary findings and includes: (1) a program timeline and progress towards that timeline; and (2) a preliminary quantification of construction costs recorded per space, with to-the-meter

and beyond-the-meter costs of conversions incurred through December 31, 2021, identified separately.[91] These costs are summarized in TABLE MA-71.

TABLE MA-71
MHP Conversion Preliminary Costs through 12/31/2021

SoCalGas MHP Utility Upgrade Program	
To-the-Meter	
Contractor Costs	
Civil / Trenching	$57,890,028
Gas System	
Labor	$21,851,926
Materials / Structures	$6,234,579
Program Management Costs	
Program Management Office (PMO)	$7,104,667
Outreach	$573,261
Construction Management (CM)	$32,098,589
Other To-the-Meter Costs	
Labor	$1,388,975
Non-Labor	$6,423,419
Property Taxes	$115,719
AFUDC	$804,196
Subtotal To-the-Meter Costs	**$134,485,359**
Beyond-the-Meter Contractor Costs	
Gas System	
Labor	$33,244,746
Materials / Structures	$12,241,185
Other[92]	$4,999,857
Subtotal Beyond-the-Meter Costs	**$50,485,788**
Total (Preliminary Costs)	**$184,971,147**

TABLE MA-71 details preliminary costs for each of the following categories:

[91] *See* SoCalGas MHP Utility Upgrade Program Report (February 1, 2022) included herein as Appendix C; also *see* D.14-03-021 at 78 (OP 10).

[92] Includes City, Local Enforcement Agency and/or HCD fees.

- To-the-Meter Contractor Costs, which include contractor costs for to-the-meter activities, such as trenching and paving, which are often shared with other participating electric utilities where service territories overlap.[93]
- Other To-the-Meter Costs: This includes the costs of company labor in support of the program, including to-the-meter work for selected MHPs, setting meters and turning on gas service, purging the legacy system, removal of the master meter, as well as the procurement and warehousing of materials.
- Beyond-the-Meter Contractor Costs, which are costs reimbursed to the MHP owner/operator to perform beyond-the-meter construction work. Beyond-the-meter contractors are selected by the MHP owner/operator; and
- Program Management Costs, which comprise:
    - PMO Costs, which include overall Program Management (e.g., Program strategy, risk management, change management, schedule management) and the Program's Finance functions;
    - Construction Management Costs, which include: construction project management; preliminary planning and full design activities; planners and designers who perform work for multiple parks; Project Managers, Construction Contractor Administration staff, and other support personnel who also perform work at multiple construction sites; and
    - Outreach activities, which include primary customer and stakeholder contact and coordination before, during and after construction, consistent with the Commission-approved statewide Outreach Plan.

Program Management Costs are tracked separately from to-the-meter costs and beyond-the-meter contractor costs and allocated to each MHP as part of the project close-out process, based on the number of spaces converted.

The above costs are fully loaded and include Company overheads consisting of Payroll Tax, Incentive Compensation Plan, Pension and Benefits, Worker's Compensation, Vacation and Sick, Personal Liability and Property Damage Overhead, Purchasing, Warehouse, Shop

[93] *I.e.*, Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company.

Overhead, Small Tools, and Administrative and General capital. The overheads applied to the program are driven by incremental costs incurred as the result of implementing the MHP Program.

Please see Appendix C for the Mobilehome Park Utility Conversion Program Annual Report, dated February 1, 2022, which includes additional information regarding recorded MHP Program costs.

The observed preliminary average per-space cost for the period ending December 31, 2021, are summarized in TABLE MA-72.

TABLE MA-72
MHP Utility Upgrade Preliminary Average
Per-Space Cost as of December 31, 2021

SoCalGas	Average Cost Per Space	Spaces Converted
To-the-Meter	$4,861	17,624
Beyond-the-Meter	$2,739	16,292
Total Average Cost Per Space	$7,600	

VIII. CONCLUSION

SoCalGas requests the Commission adopt its TY 2024 forecast of $168,290~~427~~,000 for Gas Distribution O&M expenses, which is comprised~~compromised~~ of $167,880~~8,017~~,000 for non-shared service activities and $410,000 for shared service activities. This increase is driven by agency regulations and requirements, economic conditions, system expansion, infrastructure renewal, risk mitigation activities, and integration and support for new tools.

SoCalGas further request the Commission adopt its capital forecast of $388,786,000, $413,355,000, and $391,525,000 in 2022, 2023, and 2024, respectively. The primary factors influencing the capital forecast are anticipated increases in new construction, pipeline system infrastructure renewal work, and implementation of new technology.

These forecast expenditures support SoCalGas's overarching objective to maintain operational excellence while providing safe, reliable delivery of natural gas at a reasonable cost to customers. The Commission should find this request reasonable in that:

- The activities are necessary to maintain the delivery of safe and reliable service that SoCalGas has been providing customers for many years;
- The activities are consistent with operational codes and standards established by local, state, and federal agencies;

- The activities respond to operations, maintenance, and construction needs associated with projected customer and system growth and demands of city, county, and state agencies under the Company's franchise agreements; and
- The forecast amounts are reasonable in light of historical spending and anticipated work increases.

In addition, my testimony demonstrates that the $185.0 million in costs recorded to the MMBA through December 31, 2021, in the ongoing execution of the MHP Program have been reasonably incurred. These costs directly support achievement of the Commission's stated objective to convert higher risk master-meter/submeter systems to mobilehome parks or manufactured housing communities to enhance the safety and reliability of MHP communities.[94] In accordance with the reasonable manager standard, SoCalGas designed and executed the MHP Program to enhance the safety and reliability of utility service to the many MHP communities that have participated in the Program while maintaining reasonable conversion costs through prudent planning and oversight.

SoCalGas's TY 2024 forecast is a reasonable estimate of future requirements and should be adopted by the Commission.

This concludes my prepared direct testimony.

[94] D.14-03-021 at 75 (OP 3).

IX. WITNESS QUALIFICATIONS

My Name is Mario Aguirre. My business address is 555 West Fifth Street, Los Angeles, California, 90013-1011. I am employed by SoCalGas as Director – PMO and Resource Management within Gas Distribution. I have been employed by SoCalGas since 1988. I have 33 years of experience in the utility industry. While at SoCalGas, I have held various positions in staff and line functions in Distribution, Transmission, Information Technology, Project Management, and Engineering.

My present responsibilities include providing leadership in distribution program and project management, engineering, resource and work scheduling, and continuous improvement in addition to the preparation and overall management of the O&M and capital budgets.

I earned a Bachelor of Science Degree in Chemical Engineering from California State Polytechnic University, Pomona and I am a registered Professional Mechanical Engineer in the State of California.

I sponsor the TY 2024 GRC testimony for SoCalGas's Gas Distribution O&M expenses and capital spending plan and the reasonableness review for the Mobile Home Park utility upgrade program.

I have not previously testified before the Commission.

APPENDIX A

Glossary of Terms

APPENDIX A
Glossary of Terms

Acronym	Definition
AMI	Advanced Metering Infrastructure
API	American Petroleum Institute
CalTrans	California Department of Transportation
CCM	Control Center Modernization
CFF	Cross-Functional Factor
CFR	Code of Federal Regulations
CHSR	California High-Speed Railroad
CHSRA	California High-Speed Railroad Authority
CP	Cathodic Protection
CPUC	California Public Utilities Commission
CSF	Customer Service Field
DCU	Data collection unit
DIMP	Distribution Integrity Management Program
DOT	Department of Transportation
EAM	Enterprise Asset Management
EDF	Environmental Defense Fund
EPM	Electronic pressure monitor
GEMS	Gas Energy Measurement Systems
GIS	Geographic Information System
GC	Gas Control
GO	General Order
GRC	General Rate Case
ISO	International Standards Organization
LMBA	Locate and Mark Balancing Account
LPCMA	Litigated Project Costs Memorandum Account
MAOP	Maximum Allowable Operating Pressure
MAVF	Multi-Attribute Value Framework
M&R	Measurement and Regulation
MDT	Mobile Data Terminal
MHP	Mobilehome Park
MSA	Meter Set Assembly
mV	Millivolt
O&M	Operations & Maintenance
OMD	Optical Methane Detectors
OP	Ordering Paragraph
OT	Operations Technology
OpQual	Operator Qualification
PHMSA	Pipeline Safety and Hazardous Materials Administration
PMC	Planned Meter Changeouts
PPE	Personal Protective Equipment
psi	Pounds per square inch

Acronym	Definition
RAMP	Risk Assessment Mitigation Phase
RMU	Remote Monitoring Unit
RPA	Regional Public Affairs
RSE	Risk Spend Efficiency
SAP	Systems, Applications, and Products in Data Processing
SB	Senate Bill
SDG&E	San Diego Gas & Electric Company
SED	Safety and Enforcement Division
SMS	Safety Management Systems
SMYS	Specified Minimum Yield Strength
SoCalGas	Southern California Gas Company
SPD	Safety Policy Division
TY	Test Year
USA	Underground Service Alert

APPENDIX B

RAMP Activities Sorted By Workpaper

APPENDIX B
RAMP Activities Sorted By Workpaper

TABLE MA-73
RAMP Risk Chapter and Activity to O&M Workpaper Matrix

GAS DISTRIBUTION RAMP Activity O&M Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**BY2021 Embedded Base Costs (000s)**	**TY2024 Estimated Total (000s)**	**TY2024 Estimated Incremental (000s)**	**GRC RSE**
2GD000.000	SCG-Risk-2 - C01	Locate & Mark Training (MP)	246	299	53	0*
2GD000.000	SCG-Risk-2 - C02	Locate & Mark Training (HP)	19	22	3	0*
2GD000.000	SCG-Risk-2 - C05	Locate and Mark Annual Refresher Training and Competency Program (MP)	31	32	1	21
2GD000.000	SCG-Risk-2 - C06	Locate and Mark Annual Refresher Training and Competency Program (HP)	2	2	0	53
2GD000.000	SCG-Risk-2 - C27	Company Excavator Training (MP)	341	341	0	0*

GAS DISTRIBUTION RAMP Activity O&M Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**BY2021 Embedded Base Costs (000s)**	**TY2024 Estimated Total (000s)**	**TY2024 Estimated Incremental (000s)**	**GRC RSE**
2GD000.000	SCG-Risk-2 - C28	Company Excavator Training (HP)	26	26	0	0*
2GD000.000	SCG-Risk-5 - C06	Personal Protection Equipment (PPE)	111	111	0	0*
2GD001.000	SCG-Risk-3 - C08	Leak Survey	10,447	7,547	-2,900	-**
2GD002.000	SCG-Risk-2 - C03	Locate and Mark Activities (MP)	17,756	19,810	2,054	14
2GD002.000	SCG-Risk-2 - C04	Locate and Mark Activities (HP)	1,336	1,491	155	98
2GD003.000	SCG-Risk-3 - C09/C10/C11	Pipeline Monitoring (Pipeline Patrol, Bridge & Span Inspections, Unstable Earth Inspection)	229	229	0	-**
2GD003.000	SCG-Risk-3 - C12	Valve Inspection & Maintenance	1,084	1,084	0	-**
2GD006.000	SCG-Risk-3 - C17	Main & Service Leak Repair	24,108	16,296	-7,812	-**

GAS DISTRIBUTION RAMP Activity O&M Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**BY2021 Embedded Base Costs (000s)**	**TY2024 Estimated Total (000s)**	**TY2024 Estimated Incremental (000s)**	**GRC RSE**
2GD007.000	SCG-Risk-3 - C04	Meter & Regulator (M&R) Station and Electronic Pressure Monitors (EPM) Inspection and Maintenance	4,242	4,242	0	-**
2GD007.000	SCG-Risk-3 - C06	Meter Set Assembly (MSA) Inspection and Maintenance	1,447	1,447	0	130
2GD008.000	SCG-Risk-3 - C01	Cathodic Protection Base Activities	15,078	15,078	0	-**
2GD008.000	SCG-Risk-3 - C02	Cathodic Protection - CP10 Activities	2,174	2,174	0	6.2
2GD008.000	SCG-Risk-3 - C03	Cathodic Protection - 100 mV Requalification Calculations	74	1,216	1,142	29
2GD009.000	SCG-CFF-1 - 7	Establish an Enterprise Asset	0	250	250	0*

GAS DISTRIBUTION RAMP Activity O&M Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**BY2021 Embedded Base Costs (000s)**	**TY2024 Estimated Total (000s)**	**TY2024 Estimated Incremental (000s)**	**GRC RSE**
		Management Operating Model				
2GD010.000	SCG-Risk-3 - C15	Company and Contractor Inspection on Gas Pipelines	350	350	0	0*
Total			**79,101**	**72,047**	**-7,054**	

* An RSE was not calculated for this activity.

** Tranche level RSEs are available in SCG-04-WP.

TABLE MA-74
RAMP Risk Chapter and Activity to Capital Workpaper Matrix

GAS DISTRIBUTION RAMP Activity Capital Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**2022 Estimated RAMP Total (000s)**	**2023 Estimated RAMP Total (000s)**	**2024 Estimated RAMP Total (000s)**	**GRC RSE**
001510.001	SCG-Risk-3 - C32	Safety Related Field Orders	4,115	5,123	5,261	0.75
001730.001	SCG-Risk-3 - C14	Cathodic Protection-Install / Replace Impressed Current Systems	6,527	6,527	6,527	-**
001730.002	SCG-Risk-3 - C14	Cathodic Protection-Install / Replace Impressed Current Systems	466	0	0	-**
001810.001	SCG-Risk-3 - C07	EPM Installations & Replacements	678	678	678	-**
002500.001	SCG-Risk-3 - C24	CCM SCG Distribution Field Asset Real Time Monitoring and Control Site Installations /Upgrades and New Control	16,881	17,938	16,769	0*

GAS DISTRIBUTION RAMP Activity Capital Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**2022 Estimated RAMP Total (000s)**	**2023 Estimated RAMP Total (000s)**	**2024 Estimated RAMP Total (000s)**	**GRC RSE**
		Room Technologies				
002500.002	SCG-Risk-3 - C24	CCM SCG Distribution Field Asset Real Time Monitoring and Control Site Installations /Upgrades and New Control Room Technologies	6,475	8,365	4,765	0*
002500.003	SCG-Risk-3 - C24	CCM SCG Distribution Field Asset Real Time Monitoring and Control Site Installations /Upgrades and New Control Room Technologies	150	100	0	0*
002520.001	SCG-Risk-3 - C19	Main Replacements - Leakage, Abnormal	19,839	17,626	17,626	-**

GAS DISTRIBUTION RAMP Activity Capital Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**2022 Estimated RAMP Total (000s)**	**2023 Estimated RAMP Total (000s)**	**2024 Estimated RAMP Total (000s)**	**GRC RSE**
		Op. Conditions, CP Related				
002560.001	SCG-Risk-3 - C16	Service Replacements - Leakage, Abnormal Op. Conditions, CP Related	25,846	23,213	23,213	-**
002640.001	SCG-Risk-3 - C18	Residential Meter Protection Program	8,250	9,900	11,550	30.000
002650.002	SCG-Risk-3 - C05	Regulator Station Installation & Replacement	504	504	504	-**
002650.003	SCG-Risk-3 - C05	Regulator Station Installation & Replacement	2,583	2,583	2,583	-**
002700.001	SCG-Risk-3 - C13	Valve Installs and Replacements	1,540	1,540	1,540	-**
007250.001	SCG-Risk-2 - C13	Locating Equipment (MP)	1,211	565	646	0.24

GAS DISTRIBUTION RAMP Activity Capital Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**2022 Estimated RAMP Total (000s)**	**2023 Estimated RAMP Total (000s)**	**2024 Estimated RAMP Total (000s)**	**GRC RSE**
007250.002	SCG-Risk-2 - C14	Locating Equipment (HP)	289	135	154	73
009030.001	SCG-Risk-3 - C15	Company Crew & Contractor Inspections on O&M & Capital Pipeline Jobs	1,696	1,696	1,696	0*
009030.002	SCG-Risk-2 - C27	Company Excavator Training (MP)	192	192	192	0*
009030.003	SCG-Risk-2 - C28	Company Excavator Training (HP)	14	14	14	0*
009030.004	SCG-Risk-2 - C01	Locate & Mark Training (MP)	138	149	160	0*
009030.005	SCG-Risk-2 - C02	Locate & Mark Training (HP)	10	11	12	0*
009030.006	SCG-Risk-2 - C05	Locate & Mark Annual Refresher Training and Competency Program (MP)	17	17	17	22

GAS DISTRIBUTION RAMP Activity Capital Forecasts by Workpaper (In 2021 $)						
Workpaper	**RAMP ID**	**Description**	**2022 Estimated RAMP Total (000s)**	**2023 Estimated RAMP Total (000s)**	**2024 Estimated RAMP Total (000s)**	**GRC RSE**
009030.007	SCG-Risk-2 - C06	Locate & Mark Annual Refresher Training and Competency Program (HP)	1	1	1	53
Total			**97,422**	**96,877**	**93,908**	

* An RSE was not calculated for this activity.

** Tranche level RSEs are available in SCG-04-CWP.

APPENDIX C

2021 Mobilehome Park Utility Upgrade Program Report

APPENDIX C
2021 Mobilehome Park Utility Upgrade Program Report

On February 1, 2022, in accordance with Ordering Paragraph 10 of the Decision, SoCalGas filed its Annual Report, which summarizes the MHP Program's preliminary quantification of construction costs incurred per space identified separated by To-the-Meter (TTM) and Beyond-the-Meter (BTM) costs for mobilehome park (MHP) conversions through December 31, 2021.[95]

[95] The SoCalGas Mobilehome Park Utility Conversion Program Annual Report, dated February 1, 2022, and served in accordance with D. 14-03-021 Ordering Paragraph 10, is a public redacted version. Redacted confidential information is not related to costs in this GRC request.

Mobilehome Park Utility Conversion Program

Annual Report

PUBLIC VERSION

February 1, 2022

SOCALGAS MOBILEHOME PARK UTILITY CONVERSION PROGRAM

FEBRUARY 1, 2022 ANNUAL REPORT

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SOCALGAS MOBILEHOME PARK UTILITY CONVERSION PROGRAM

FEBRUARY 1, 2022 ANNUAL REPORT

1. Executive Summary

As detailed in this Report, Southern California Gas Company ("SoCalGas") continues to successfully implement the Mobilehome Park ("MHP") Conversion Program ("Program"). As of December 31, 2021, SoCalGas has converted 287 mobilehome parks (20,014 permitted spaces), which is approximately 15% of eligible mobilehome spaces in SoCalGas' service territory.

2. Procedural History

On March 13, 2014, the California Public Utilities Commission ("Commission") approved and authorized SoCalGas to execute the Program through Decision (D.) 14-03-021. The Program was initiated as a three-year pilot (2015-2017) ("Pilot Program") to convert master-metered/sub-metered natural gas and/or electric services to direct utility services for qualified mobilehome parks and manufactured housing communities (collectively "MHPs"). On September 28, 2017, Resolution E-4878 authorized the investor-owned utilities ("IOUs") to continue their MHP Pilot Programs through December 31, 2019 ("Pilot Program Extension").[1] SoCalGas was authorized to complete the initial 10% scope of eligible spaces and convert up to an additional 5% of eligible spaces, bringing the total scope of the three-year Pilot Program and Pilot Program Extension to 15% of eligible MHP spaces.

On March 18, 2019, the Commission issued Resolution E-4958, authorizing SoCalGas to continue its Program for eligible MHPs until the earlier of either December 31, 2021 or the issuance of a Commission Decision for the continuation, expansion or modification of the program beyond December 31, 2021 in Rulemaking (R.) 18-04-018.[2] Eligible MHPs were defined as those where SoCalGas and/or MHP owners had incurred "financial obligations" on or before November 1, 2018. Resolution E-4958 further determined the number of spaces converted in each of years 2020 and 2021 may not exceed 3.33% of the total master-metered spaces in a utility's service territory, excluding MHPs that are already under conversion or scheduled for conversion. It further clarified that if a single MHP

[1] Resolution E-4878, ordering paragraph (OP) 7.
[2] Resolution E-4958, OP 1.

upgrade would result in the utility exceeding the 3.33% maximum requirement, the utility is authorized to proceed with that upgrade.

On April 16, 2020, the Commission issued D.20-04-004, approving a ten-year Mobilehome Park Utility Conversion Program from 2021 through 2030. Following a new application period established by the Commission during the 1st quarter of 2020, SED is to provide SoCalGas, on an annual basis, with a list of MHPs comprising approximately 3.33% of eligible master-metered spaces within its service territory for a target 50% conversion by the end of 2030. This Decision also recommends a second evaluation of the MHP utility conversion program in 2025 following the first four-year application cycle (2021-2024) to decide whether to continue or modify the program.

On December 23, 2020, the Commission issued a Phase 2 Scoping Memo to further examine ways to protect residents of participating MHPs from unreasonable rent increase or eviction based on program participation, and determine whether the development of an electrification-ready service standard for participating MHPs was appropriate or feasible. On August 20, 2021, the Commission issued D.21-08-025, which adopted consumer protection requirements to keep residents of MHPs that participate in the Commission's MHP Program from experiencing unreasonable rent increases or evictions based on infrastructure improvements funded through the Program. Pursuant to D.21-08-025, SoCalGas submitted Advice Letter (AL) 5877 on October 4, 2021, to : 1) update its Sample Forms - Contracts, Mobilehome Park (MHP) Utility Conversion Program (MHP Program or Program) Agreement (Form 8210) to include consumer protection measures for residents of MHPs participating in the Program: and 2) provide a description of the specific information that participating MHP owners are to provide to residents, as well as a discussion of methods the MHP owners may use to communicate these protections to their residents. AL 5877 was approved by the Commission as of October 25, 2021.

This report is submitted in the format requested by the Commission's Safety and Enforcement Division ("SED").[3] Previous reports were submitted in accordance with D.14-03-021 Ordering Paragraph (OP) 10, which directs each electric and/or gas utility to prepare a status report for the Program on February 1 of each year. SoCalGas filed status reports on February 1 of 2016, 2017, 2018, 2019,

[3] The request was made in a December 21, 2018 e-mail from Fred Hanes of the CPUC's SED to the official service list for R. 18-04-018.

2020, and 2021. In SoCalGas' February 1, 2016 report, SoCalGas provided a timeline for implementation of the three-year Pilot Program, its status on the timeline, the number of initial applications received, information on the MHPs that would be converted, and the number of spaces to be converted. SoCalGas also provided an update on progress made against the timeline for implementation, as well as a preliminary cost assessment and/or cost accounting of to-the-meter ("TTM") and beyond-the-meter ("BTM") construction costs in its February 1, 2017, February 1, 2018, February 1, 2019, February 1, 2020, and February 1, 2021 reports. This report includes information on the following: (1) a cost accounting for both TTM and BTM construction, and (2) an optional narrative assessment of the Program.

3. Cost Accounting

Table 1 below ("Annual Report Template") reflects the space counts, costs, revenue requirements, and rate impacts of projects through December 31, 2021 for which final costs have been recorded.[4] Classification of costs within each category are defined within the table, which was provided by SED to the IOUs. These costs should be considered final, with the notation that there may be additional trailing costs.[5] Table 2 below shows the associated revenue requirements and rate impacts.

[4] Per SED's email, as well as the instructions applicable to the Supplemental Cost Data template sent on November 13, 2018, the template captures projects for which final costs have been recorded. Trailing costs may follow, but they are not expected to exceed approximately 5% of a project's total cost.

[5] "Trailing costs" may include, but are not limited to, final contractor invoices or internal cost allocations that have not been recorded; such costs are not expected to be more than approximately 5% of the total project cost.

TABLE 1: ANNUAL REPORT TEMPLATE

- Bolded words in "Descriptor" column were added by SoCalGas to clarify the reported data.
- All dollar amounts in Table 1 are rounded to the nearest dollar.
- Per the SED instructions accompanying the template, Table 1 costs have been grouped by project and included in the year in which financial closure for each project was completed, with financial closure defined as when all costs have been recorded for a project. Using this methodology has resulted in a shift in reporting year for certain projects where there have been unforeseen issues requiring remediation or trailing costs within the allowable threshold in a year different than previously reported as the year of financial closure.

Annual Report Template		Per-year costs; (not cumulative)						
	Descriptor	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Program Participation								
CARE/FERA enrollment	Number of individuals enrolled in CARE/FERA after the conversion; **the data provided is not final as a process for capturing all CARE enrollments is still in development**	-	16	689	1,384	881	4,019	1,079
Medical Baseline	Number of individuals enrolled in Medical Baseline after the conversion; **the data provided is not final as a process for capturing all MB enrollments is still in development**	-	1	5	6	15	25	16
Disadvantaged Community	Number of converted spaces **(i.e., PTO count, not directly corresponding with the costs below)** within geographic zones defined by SB 535 map.	-	-	2,116	2,528	842	2,318	1,039
Rural Community	Number of converted spaces **(i.e., PTO count, not directly corresponding with the costs below)** within rural community	-	-	-	-	-	-	-

Urban Community	Number of converted spaces **(i.e., PTO count, not directly corresponding with the costs below)** within urban community	-	47	3,092	5,390	3,852	2,719	2,227
Leak Survey (Optional)	Number of Leaks identified during preconstruction activity (if known)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Completed Spaces	Spaces converted that correspond to the project costs reported below (TTM includes common areas). If a project incurs costs over multiple years, report all project costs and spaces converted in the year the project closes.							
Number of TTM MH and Covered Common Area Locations Converted (Gas)		-	150	3,608	4,373	3,166	5,847	2,011
Number of TTM MH and Covered Common Area Locations Converted (Electric)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of BTM MH Converted Register Spaces (Gas)		-	98	3,108	3,891	2,724	5,543	1,560
Number of BTM MH Converted Register Spaces (Electric)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cost Information								
To The Meter - Capital Costs								
Construction Direct Costs								
Civil/Trenching		-	-	-	-	-	-	-

Electric	To the Meter Construction costs for civil related activities **(e.g., trench/cut excavation & backfill [joint trench], paving [temp & final], and distribution system installation - including contractor labor and materials)**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gas		-	350,249	11,210,079	14,405,555	9,217,795	14,909,743	7,796,608
Gas System								
Labor	Cost for installation of distribution Gas assets, pre-inspection testing, decommissioning of legacy system (Gas Design cost was previously incorporated here) **(Specific to SoCalGas, no gas design costs were previously incorporated in this line item)**	-	164,658	3,716,594	5,708,741	3,419,966	6,079,093	2,762,874
Material / Structures	Pipes, fittings and other necessary materials required for gas construction	-	96,068	1,584,385	1,735,566	916,404	1,317,904	584,252
Electric System								
Labor	Cost for installation of distribution Electric assets, pre-inspection testing, decommissioning of legacy system (Electric Design cost was previously incorporated here)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Material / Structures	Cables, conduits, poles, transformers and other necessary materials for electrical construction	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Design/Construction Management	Cost for engineering, design and construction inspection cost	-	218,095	4,907,245	6,722,304	4,518,304	10,360,793	2,077,567
Other								
Labor (Internal)	Meter installation, gas relights, easements, environmental desktop reviews and other support organizations, **including legacy system decommissioning internal labor**	-	24,036	332,177	370,549	214,815	300,219	95,499

Other Labor (Internal)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Non-Labor	Permits, **vehicle utilization, payment discounts, consultant support (e.g., environmental monitoring)**	-	545	139,423	54,405	112,757	-55,194	-5,439
Materials	meters, modules and regulators	-	16,243	391,443	477,366	344,025	381,616	91,332
Program - Capital Costs	Costs that are inconsistent among the other IOUs, driven by utility specific business models or cost accounting practices. These costs should be separated out so that others do not compare costs that are not comparable with others.							
Project Management Costs								
Project Management Office (PMO)	Program management office costs (Project Management, Program Management, schedulers, cost analysts and field engineers)	-	54,703	1,208,032	1,646,568	1,013,592	1,876,296	539,233
Outreach		-	-	-	-	-	-	-
Other								
Property Tax	Property tax on capital spending not yet put into service	-	367	18,931	22,548	19,229	36,749	17,896
AFUDC	AFUDC is a mechanism in which the utility is allowed to recover the financing cost of it's construction activities. AFUDC starts when the first dollar is recorded on the project and ends when HCD complete the first inspection so that the new assets are in use by the residents.	-	4,077	161,826	164,821	146,327	247,576	79,570
Labor (Internal)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Non-Labor	Utility specific overhead driven by corporate cost model	-	36,066	744,016	999,597	695,863	1,314,360	775,562

Sub-Total Capital Cost		**-**	**965,105**	**24,414,151**	**32,308,019**	**20,619,078**	**36,769,155**	**14,814,953**
To The Meter - Expense Costs								
Project Management Costs								
Project Management Office (PMO)	Program startup cost, **program management activities associated with Outreach or other non-capital activities**	-	5,837	130,971	196,991	113,982	224,209	94,252
Outreach	Outreach efforts to educate MHP Owners, residents, government and local agencies about the program	-	5,696	194,432	111,575	76,807	143,119	41,633
Other								
Labor (Internal)	Program startup cost for supporting organizations, **meter removal**	-	668.33	5,566	20,496	8,259	12,699	3,991
Other Labor (Internal)	**Construction management expenses costs (e.g., training, supplies)**	-	21,601	422,840	783,547	483,052	1,233,532	349,708
Non-Labor	Cancelled Project Costs from MHPs that have failed to complete the MHP agreement or have cancelled the project, **vehicle utilization, and overheads associated with meter removal**	-	581	16,486	21,882	-146,874	13,242	4,117
Sub-Total To The Meter		**-**	**34,383**	**770,296**	**1,134,492**	**535,226**	**1,626,802**	**493,701**
Beyond The Meter - Capital	Pass through cost where the MHP Owner is responsible for overseeing the vendor's work and IOU to reimburse per D.14-02-021							
Civil/Trenching	**All civil labor for BTM construction, such as landscaping (does not include trenching work)**	-	-	-	-	-	-	-
Electric System								
Labor		N/A	N/A	N/A	N/A	N/A	N/A	N/A

Material / Structures	Labor and material for installing BTM Electric infrastructure (e.g. Pedestal, foundation, meter protection, grounding rods, conduit)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gas System								
Labor	Labor and material for installing BTM Gas infrastructure (e.g. houselines, meter protection, foundation)	-	245,029	6,568,798	10,046,960	4,984,380	8,275,266	3,124,313
Material / Structures		-	156,236	2,508,515	2,733,968	1,630,093	3,931,158	1,281,215
Other								
Other Labor (Internal)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Non Labor	**BTM Permits, including HCD fees**	-	33,863	689,198	1,349,867	909,186	1,551,788	465,955
Sub-Total Beyond The Meter		**-**	**435,128**	**9,766,511**	**14,130,794**	**7,523,659**	**13,758,212**	**4,871,484**
Total TTM & BTM		**-**	**1,434,616**	**34,950,958**	**47,573,305**	**28,677,962**	**52,154,169**	**20,180,138**

TABLE 2: RATE IMPACT AND REVENUE REQUIREMENT

- Rate impact and revenue requirements are reported based on actual revenue requirement filings for 2015-2021 (i.e., not based on year of financial closure); 2022-2026 revenue requirements and rate impacts are forecasted based on actual filings (i.e., not forecasted program costs).
- Regulatory interest is applicable to the entire Master Meter Balancing Account (MMBA) balance which includes both TTM and BTM costs. Since the MMBA does not include subaccounts to separate the TTM and BTM balances, regulatory interest for these components of the MMBA is not available. For purposes of this response, regulatory interest is included in the "Gas Revenue Requirement – TTM" line in this table.
- The Present Value Revenue Requirement was calculated as the sum of 1) actual revenue requirements from 2015-2020 and 2) the Present Value of revenue requirements for 2021-2026 discounted to 2020 nominal dollars using SoCalGas' rate of return (7.3%). SoCalGas does not typically calculate present value of total revenue requirements for ratemaking purposes. Although amortization amounts will be collected in rates over a 12-month period, this exercise assumed simplified collection at year end.
- Revenue requirements are in thousands of dollars.
- Gas rate impact dollar amounts are rounded to the nearest hundred thousandths of a dollar to illustrate a visible rate change.

Rate Impact and Revenue Requirement													
Rate Impact	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Gas													
Average Rate w/o MMBA recovery - Core	N/A	$0.65217	$0.57379	$0.59324	$0.60503	$0.82348	$0.88074	$0.91464	$0.91464	$0.91464	$0.91464	$0.91464	$0.91464
Average Rate w/ MMBA recovery - Core	N/A	$0.65241	$0.57395	$0.59465	$0.60890	$0.82735	$0.88541	$0.91920	$0.92270	$0.92395	$0.92516	$0.92582	$0.92582
Rate Change - Core	N/A	$0.00024	$0.00016	$0.00140	$0.00386	$0.00387	$0.00467	$0.00456	$0.00806	$0.00931	$0.01052	$0.01118	$0.01119
% Rate Change - Core	N/A	0.04%	0.03%	0.24%	0.64%	0.47%	0.50%	0.50%	0.88%	1.02%	1.15%	1.22%	1.22%
Average Rate w/o MMBA recovery - Non-Core	N/A	$0.02330	$0.02549	$0.02956	$0.03113	$0.04658	$0.06259	$0.06337	$0.06337	$0.06337	$0.06337	$0.06337	$0.06337
Average Rate w/ MMBA recovery - Non-Core	N/A	$0.02331	$0.02550	$0.02961	$0.03129	$0.04674	$0.06283	$0.06362	$0.06379	$0.06386	$0.06393	$0.06397	$0.06397
Rate Change - Non-Core	N/A	$0.00001	$0.00001	$0.00005	$0.00016	$0.00016	$0.00024	$0.00024	$0.00042	$0.00049	$0.00055	$0.00059	$0.00060
% Rate Change - Non-Core	N/A	0.04%	0.03%	0.18%	0.52%	0.33%	0.40%	0.38%	0.66%	0.77%	0.88%	0.94%	0.95%
Electric													
Average Rate w/o MMBA recovery - Total System	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Average Rate w/ MMBA recovery - Total System	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rate Change - Total System	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
% Rate Change - Total System	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Revenue Requirement (In Millions)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**Present Value Revenue Requirement**
Gas Revenue Requirement-TTM	$0.000	$0.850	$0.617	$3.602	$9.505	$9.200	$10.961	$14.094	$14.315	$13.954	$13.545	$13.545	$13.545	$71.441
Electric Revenue Requirement-TTM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gas Revenue Requirement-BTM	$0.000	$0.000	$0.000	$1.740	$5.232	$5.517	$8.277	$8.576	$8.190	$7.757	$7.304	$7.304	$7.304	$41.860
Electric Revenue Requirement-BTM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

4. Program Timeline

Pursuant to Resolution E-4878, SoCalGas achieved its initial Pilot Program target of 10% in 2018 and continued conversions of up to an additional 5% of MHP spaces by December 31, 2020. As of December 31, 2021, SoCalGas has converted 287 MHPs (20,014 permitted spaces), which is approximately 15% of eligible mobilehome spaces in SoCalGas' service territory.[6]

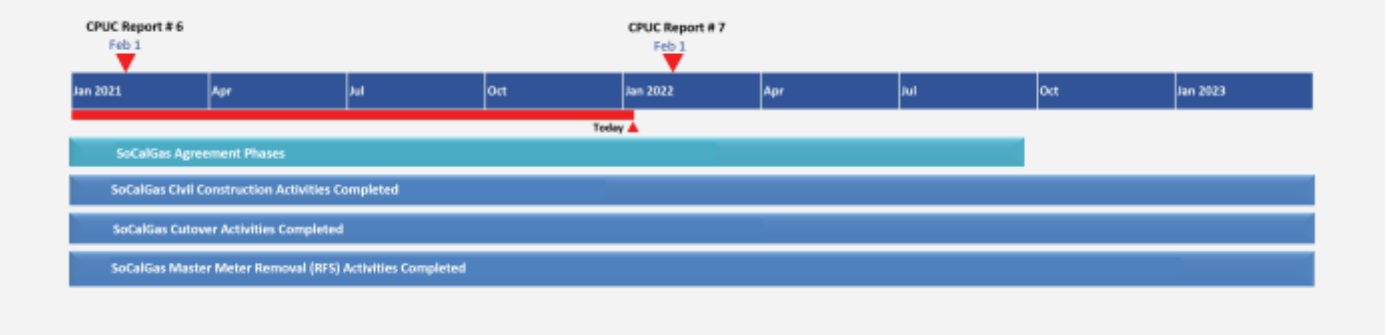
SoCalGas has measured its progress against the timeline shown in Figure 1 ("SoCalGas' Tentative Timeline for Implementation of the MHP Program and Current Status") below. In developing the timeline, SoCalGas has assumed certain conditions, including, but not limited to, the following: 1) there are no constraints that may delay MHP participation, such as TTM contractor availability or a MHP Owner/Operator's ability to move forward with a project, secure a BTM contractor, or resolve environmental issues; 2) MHP data provided by the MHP Owner/Operator in the Form of Intent ("FOI") and at the beginning of a project is accurate; 3) there are no joint construction schedule constraints for any of the IOUs involved; and 4) the California Department of Housing and Community Development ("HCD") or other Local Enforcement Agencies will have sufficient resources to perform timely inspections on projects.

Pursuant to Resolution E-4958 and the extension limitations set forth therein, SoCalGas has substantially completed all eligible MHP upgrades in the fourth quarter of 2020. With the issuance of a Commission Decision for the continuation of the program and the new Form of Intent (FOI) application period between January 1 – March 30, 2021, a new list of eligible parks was required from SED within the second quarter of 2021.

On August 20, 2021, in accordance with the Decision, SED provided a new priority list of eligible parks. The list comprised Category 1 projects, comprised of parks estimated to be contacted by the utilities before the application period in 2025, and Category 2 projects that may be contacted before the new period but may be re-prioritized for the 2025 list. SoCalGas is currently in the process of developing a comprehensive schedule with the outlined Category 1 projects to support the overall objective of converting 50 percent of its master meters by 2030. Currently, SoCalGas has secured Applications for projects through 2023. It will continue developing its schedule through 2025 to incorporate all Category 1 MHPs moving forward, re-prioritzations requested by SED, and replacements for MHPs declining to move forward.

[6] The scope excludes MHPs that declined to participate in the Program and the corresponding space total was calculated from the MHP permits-to-operate, rather than the SED-prioritized list of eligible MHPs. A confidential list of completed and in-progress projects has been provided to the CPUC's Energy Division and Safety and Enforcement Division.

FIGURE 1: SoCalGas' Tentative Timeline for Implementation of the MHP Program and Current Status



5. Program Challenges

Per the CPUC Decision D.20-04-004, SoCalGas has begun developing a schedule outlined with Category 1 projects to achieve the Commission's annual 3.33% conversion target that would result in the goal of converting 50% of the master metered mobilehome parks by the end of the 10-year program. In the process of doing so, SoCalGas has identified three obstacles in meeting the 3.33% annual conversion goal: 1) electric IOU interdependence; 2) a soft cap goal; and 3), a high owner decline rate.

1. In shared-service territories, SoCalGas depends on the support of electric utilities to obtain a goal of 4303 spaces annually. This space goal is the highest of all the IOUs, and it exceeds the other utilities' annual space cap. Electric IOUs have separate goals and drivers to generate their conversion lists, and it is possible for them to meet their goals without working with SoCalGas for the following reasons:
    - Southern California Edison has Southwest Gas as a partner in certain regions;
    - PG&E, as a gas and electric utility, has dual conversions in regions where it provides both services; and
    - SDG&E also has dual conversion in regions where it provides both services.

    Municipal electric providers frequently decline to participate, leaving SoCalGas with Gas-only conversions. However, there are insufficient gas-only parks to capture the remaining space deficit. Since SoCalGas often partners with its respective electric counterparts to maximize cost efficiencies for the ratepayer, this means that SoCalGas' ability to meet its conversion targets could be limited by the MHP's electric utility provider. If SoCalGas' electric counterparts do not agree to convert the same MHPs, SoCalGas could have a gap in its annual 3.33% target. But more importantly, the MHPs and residents that were not or

would not be upgraded that would otherwise be within SoCalGas 3.33% target would be deprived of the significant safety benefits afforded by the program.

2. A soft target for single-source utilities may not garner enough partnership from its counterpart utilities for the single-source utility to meet its goal. The 3.33% annual target serves as a soft cap that allows other utility partners to adjust annual goals downward, but IOUs are hesitant to adjust upward without stronger direction from the SED as reasonableness for upward adjustment has not been outlined or reviewed. While the soft target's intent is to allow the utility to have its work ebb and flow annually while ultimately meeting its 10 year target, the soft cap mechanism hinders SoCalGas' annual 3.33% efforts.

3. SoCalGas' current outreach efforts to Category 1 projects for 2022 and 2023 has resulted in 2017 spaces removed from the program due to MHP owners declining to participate and the CPUC SED prioritization list also included spaces that are already converted or otherwise miscategorized; that factor resulted in the removal of 328 spaces. In 2021 SoCalGas adjusted its Category 1 list to accommodate the removal of 328 spaces for already converted and miscategorized MHPs. SoCalGas has learned through its current outreach efforts to Category 1 projects for 2023 that certain MHP owner operators have declined to participate, resulting in another 2017 spaces being removed . When viewed in terms of these reasons for removing spaces significantly impact SoCalGas' ability to reach its 3.3% annual target -- 2017 spaces amount to half of the annual target. The MHP Utility Conversion Program is voluntary, and as the rate of MHPs declining to participate increases, in turn, SoCalGas' annual deficit towards its 3.33% goal also increases.

Utility Space Comparison Among Utilities (2015 Baseline)

Utility Space Comparison				
Utility	Total MHP Spaces	Annual Conversion Rate	Annual Space Target	Total MHP Spaces in Territory, 2015 Baseline
SDG&E	694	3.33%	1,152	34,597
SoCalGas	1425	3.33%	4,303	129,231
SCE	1308	3.33%	3,555	106,768
PG&E	1383	2.50%	2,633	105,318
Southwest Gas	57	450 Spaces	450 Spaces	2350
PacifiCorp	14	100 Spaces	100 Spaces	507
Liberty	17	100 Spaces	100 Spaces	633
Bear Valley	7	100 Spaces	100 Spaces	608

Based on D.14-03-021 and MHP Annual Reports.

Recommendations

SoCalGas seeks to fulfill our responsibilities as a natural gas provider in California to enhance our customers' safety and reliability of mobilehome park infrastructure by meeting its conversion goals while maintaining affordability for its customers. However, given the three factors identified above, there are challenges.

Two of the three factors can be addressed to minimize SoCalGas' conversion deficit: electric utility interdependence and a soft cap goal. To support SoCalGas meeting its targets, SoCalGas recommends incorporating additional electric municipality and gas-only projects to support meeting annual conversion rates and address the electric utility interdepedence by pulling category 2 projects forward. This would help avoid a situation where SoCalGas exhausts all available projects before meeting its annual target.

SoCalGas also recommends adjustments to expand annual conversion rates and cost targets for other utility partners to address the soft cap goal shortfall and support SoCalGas' achievement of its annual 3.33% target. SoCalGas continues to work together with electric utilities to perform concurrent upgrades at MHPs where target mutual goals allow. However, electric utilities frequently can

achieve their annual targets through their own projects, i.e., without collaborating on projects with SoCalGas. Increasing the annual targets for some of the electric utilities would allow them to collaborate with SoCalGas, such that SoCalGas can also achieve its annual target. SoCalGas further recommends that SED allow certain upgrades to proceed separately when differences in the utilities' deployment goals do not allow the utilities to convert the MHPs at the same time. Addressing these barriers to SoCalGas' ability to meet its 3.33% annual target enhances the opportunity to provide safety and reliability enhancements through the Program to mobilehome customers.

6. Program Assessment

In March of 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. In response, SoCalGas instituted various hygiene measures, social distancing protocols, and alternate outreach and education methods in support of the Program goals and objectives. With the COVID-19 restrictions and regulations, the Program has experienced a variety of impacts including but not limited to:

- a decrease in inspection resources with longer-than-average permit and inspection turn-around times;
- additional need for outreach collateral and mailers as we shifted away from in-person townhalls, meetings, and events;
- lengthened construction durations due to the quarantining of various crew members; and
- mobile home access challenges faced by beyond-the-meter contractors.

Despite the issues faced in 2020 and 2021, the SoCalGas MHP Conversion Program continues to be successful, as noted in D.20-04-004, and as demonstrated by the following performance indicators:

Program Penetration

SoCalGas has successfully partnered with MHP Owners/Operators and, as of December 31, 2021, completed approximately 15% of the eligible mobilehome spaces in SoCalGas' service territory.

Safety Performance

From 2014 through 2020, SoCalGas maintained a high safety standard with four reportable incidents over approximately 1,710,460 hours of labor logged between contractors and MHP program employees combined. In 2021, SoCalGas continued

to maintain a high safety standard with zero reportable incidents over approximately 180,083 hours. Additionally, 287 MHPs with systems older than 40 years have received – or are in the process of receiving – new utility-owned and maintained distribution systems that meet current SoCalGas standards.

Customer Satisfaction

In response to customer satisfaction surveys in 2021, SoCalGas achieved a satisfaction rate of 86% with MHP residents and 100% with MHP owners/operators.

7. Conclusion

This concludes the seventh annual filing in accordance with SED's instructions.

Additional Program information can be found online on SoCalGas' website at:https://www.socalgas.com/stay-safe/pipeline-and-storage-safety/pipeline-safety/mobilehome-park-utility-conversion-program.

This annual report may be accessed at: https://www.socalgas.com/regulatory/A17-05-007.[7]

[7] D.20-04-004, OP 10 requires the utilities to post copies of their Annual Report on their respective websites.

California Public Utilities Commission (CPUC) Decision (D.) 14-03-021 Ordering Paragraph 11 requires that all reports be verified by an officer of the utility.

As an officer of Southern California Gas Company (SoCalGas), I hereby certify that the Mobilehome Park Utility Upgrade Program Annual Report generated in compliance with D.14-03-021 is accurate.

Reporting Period: 1/1/2021 to 12/31/2021

Start Date End Date

Signature of Officer

Executed on: 1/31/2022

Month, Day, Year

David Buczkowski

Print Name

Vice President of Gas Distribution

Title

SoCalGas 2022 Annual Report List of Active Parks

*Financial Completion: project costs have been recorded and any remaining costs not recorded are estimated to fall within 5% of total project costs
**Construction Completion: cutover completed and master meter removed; final costs have not been recorded
***PTO (Permit to Operate) counts may not represent actual spaces in scope for conversion

HCD ID	NAME	STATUS	CITY	COUNTY	PTO COUNT***	GAS IOU	ELECTRIC IOU
[redacted]	[redacted]	Financially complete*	[redacted]	ORANGE	[redacted]	SoCalGas	N/A
[redacted]	[redacted]	Financially complete*	[redacted]	SAN LUIS OBISPO	[redacted]	SoCalGas	PG&E
[redacted]	[redacted]	Financially complete*	[redacted]	LOS ANGELES	[redacted]	SoCalGas	N/A
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Financially complete*	SAN BERNARDINO	SoCalGas	SCE
Financially complete*	RIVERSIDE	SoCalGas	SCE
Financially complete*	SAN BERNARDINO	SoCalGas	SCE
Financially complete*	SAN BERNARDINO	SoCalGas	SCE
Financially complete*	LOS ANGELES	SoCalGas	SCE
Financially complete*	VENTURA	SoCalGas	SCE
Declined	KERN	SoCalGas	PG&E
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Financially complete*	RIVERSIDE	SoCalGas	SCE
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Financially complete*	LOS ANGELES	SoCalGas	SCE
Financially complete*	KINGS	SoCalGas	SCE
Financially complete*	LOS ANGELES	SoCalGas	SCE
Financially complete*	RIVERSIDE	SoCalGas	SCE
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Financially complete*	LOS ANGELES	SoCalGas	SCE
Financially complete*	LOS ANGELES	SoCalGas	SCE
Financially complete*	SANTA BARBARA	SoCalGas	PG&E
Financially complete*	SAN BERNARDINO	SoCalGas	SCE


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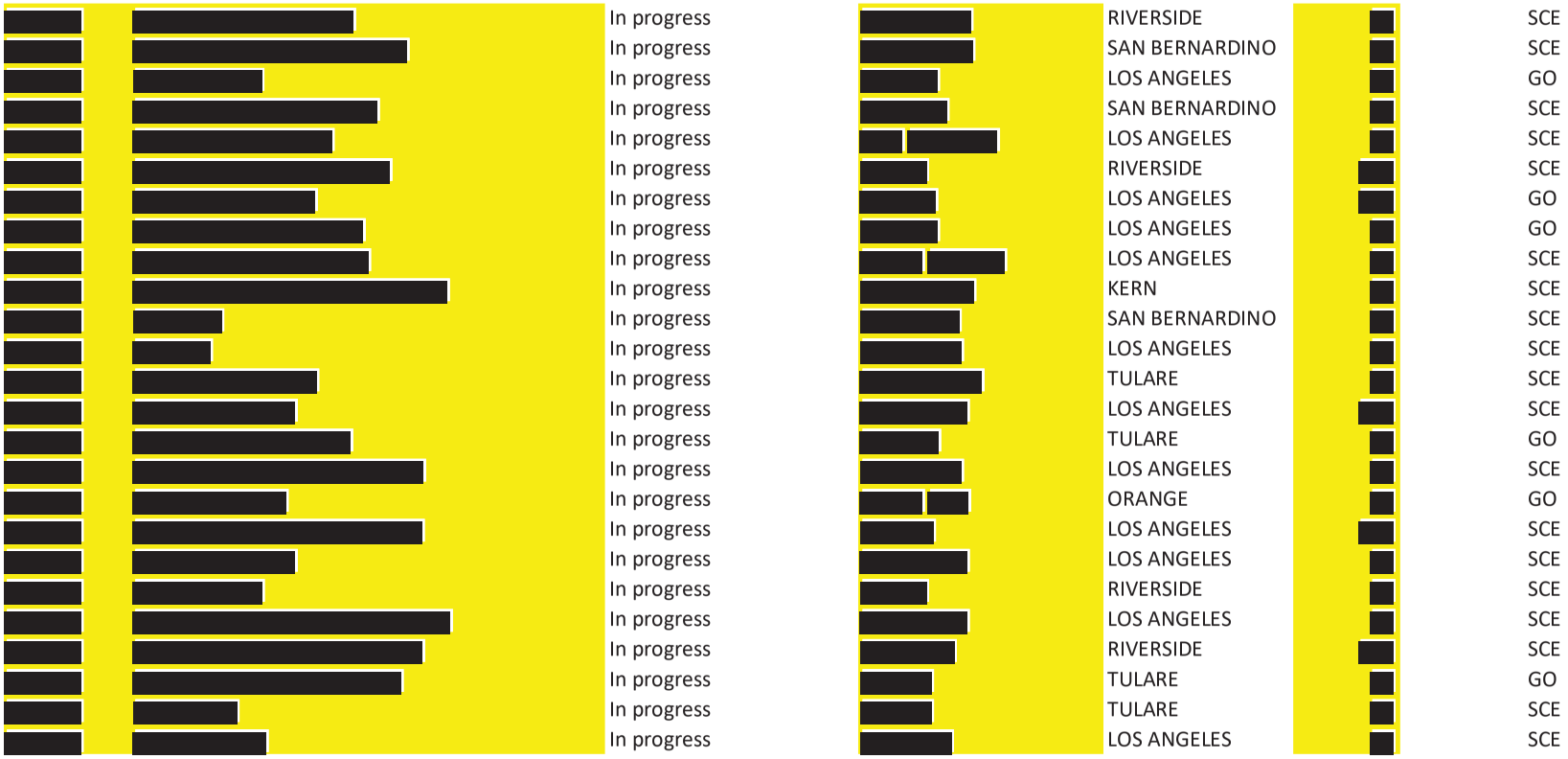
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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

DECLARATION OF MIGUEL CALDERON REGARDING CONFIDENTIALITY OF CERTAIN DATA PURSUANT TO D.17-09-023

I, Miguel Calderon, do declare as follows:

1. I am the Distribution Special Projects Project & Execution Manager for Southern California Gas Company ("SoCalGas"). I have been delegated authority to sign this declaration by David Buczkowski, Vice President of Gas Distribution. I have reviewed the document titled "SCG 2021 Annual Rpt – List of Active Parks.xlsx" (the "SCG Active Park List"). I am personally familiar with the facts and representations in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or information and belief.

2. I hereby provide this Declaration in accordance with Decision ("D.") 17-09-023 to demonstrate that the yellow-highlighted confidential information ("Protected Information") provided in the SCG Active Park List is within the scope of data protected as confidential under applicable law, and pursuant to Public Utilities ("PUC") Code § 583 and General Order ("GO") 66-D, as described in the Attachment A below.

3. In accordance with the legal authority described herein, the Protected Information should be protected from public disclosure.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge.

Executed this 31st day of January 2022 at Los Angeles, California.

Miguel Calderon
Manager
Special Portfolio Projects

ATTACHMENT A

SoCalGas Request for Confidentiality on the following information contained in SCG Active Park List

Type and Location of Protected Information	Legal Authority	Narrative Justification
Yellow-highlighted cells in the SCG Active Park List	California Public Records Act (CPRA) Exemption, Gov't Code § 6254(k) ("Records, the disclosure of which is exempted or prohibited pursuant to federal or state law") • Cal. Civil Code § 1798.21 (requiring agencies to "ensure the security and confidentiality of" personal data) • Cal. Civil Code § 1798.24 (limiting disclosure of personal information) • Cal. Civil Code §§ 1798.80 *et seq.* (process for protecting customer records) CPRA Exemption, Gov't Code § 6254(c) ("disclosure of which would constitute an unwarranted invasion of personal privacy")	The yellow-highlighted cells contain MHP names. This is market-sensitive information that, if revealed, could put the MHP at an unfair business disadvantage because it provides nonpublic information regarding MHP program participation. Disclosure may also constitute an "unwarranted invasion of personal privacy."